RESERVE BANK OF INDIA

BULLETIN

OCTOBER 2023

VOLUME LXXVII NUMBER 10

Chair
Michael Debabrata Patra

Editorial Committee
Ajit R. Joshi
Deba Prasad Rath
Muneesh Kapur
Rekha Misra
Indranil Bhattacharya
Snehal Herwadkar
Pankaj Kumar
Tushar Baran Das
V. Dhanya
Shweta Kumari
Sujata Kundu

Editor
G. V. Nadhanael

The Reserve Bank of India Bulletin is issued monthly by the Department of Economic and Policy Research, Reserve Bank of India, under the direction of the Editorial Committee.
The Central Board of the Bank is not responsible for interpretation and opinions expressed. In the case of signed articles, the responsibility is that of the author.

© Reserve Bank of India 2023

All rights reserved.
Reproduction is permitted provided an acknowledgment of the source is made.

For subscription to Bulletin, please refer to Section 'Recent Publications'

The Reserve Bank of India Bulletin can be accessed at **https://bulletin.rbi.org.in**

CONTENTS

Governor's Statement

Governor's Statement 1

Monetary Policy Statement for 2023-24

Resolution of the Monetary Policy Committee (MPC)
October 4-6, 2023 9

Statement on Developmental and Regulatory Policies

Statement on Developmental and Regulatory Policies 13

Monetary Policy Report

Monetary Policy Report - October 2023 15

Speeches

India's Financial Sector - From Exuberance to Resilience
Michael Debabrata Patra 107

A Customer Centric Approach - Navigating the Path to
Excellence in Customer Service
Swaminathan J 123

Articles

State of the Economy 127

Measuring Uncertainty: An Indian Perspective 169

Impact of G-Sec Yield Movements on Bank Profitability in India 179

Production Weighted Rainfall Index and Agriculture
Production: Relationship Re-visited 193

Housing Finance Companies and the COVID-19 Pandemic:
Does Size Matter? 203

COVID-19 Pandemic and the Resilience of India's R&D Expenditure 215

Current Statistics **227**

Recent Publications **280**

GOVERNOR'S STATEMENT

Governor's Statement

*Governor's Statement**

Shaktikanta Das

Kautilya in his *Arthashastra* more than two thousand years ago, had said: *"stability enables a state not only to share its wealth equitably but also augment it"*.[1] These words are relevant even today. In fact, they have eternal validity. Macroeconomic stability and inclusive growth are the fundamental principles underlying a country's progress. The policy mix that we have pursued during the recent years of multiple and unparalleled shocks has fostered macroeconomic and financial stability. The external sector also remains eminently manageable. The twin balance sheet stress that was encountered a decade ago has now been replaced by a twin balance sheet advantage with healthier balance sheets of both banks and corporates. India is poised to become the new growth engine of the world.

The need of the hour is to remain vigilant and not give room to complacency. Lessons from the past one and a half decades and from living through the global financial crisis and the *taper tantrum* tell us that risks and vulnerabilities can grow even in good times. All stakeholders in the economy, be it lenders, corporates, businesses – small and big – and even policymakers should continue to reinforce their buffers and fundamentals in the fast changing world that we live in. So far as the Reserve Bank is concerned, we have identified high inflation as a major risk to macroeconomic stability and sustainable growth. Accordingly, our monetary policy remains resolutely focused on aligning inflation to the 4 per cent target on a durable basis.

Decisions and Deliberation of the Monetary Policy Committee (MPC)

The Monetary Policy Committee (MPC) met on 4th, 5th and 6th October 2023. After a detailed assessment of the evolving macroeconomic and financial developments and the outlook, it decided unanimously 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 MPC's rationale for these decisions on the policy rate and the stance. Headline inflation had surged in July driven by tomato and other vegetable prices. It corrected partly in August and is expected to see further easing in September on the back of moderation in these prices. A silver lining amidst all these is declining core inflation (*i.e.*, CPI excluding food and fuel). The overall inflation outlook, however, is clouded by uncertainties from the fall in *kharif* sowing for key crops like pulses and oilseeds, low reservoir levels, and volatile global food and energy prices. The MPC observed that the recurring incidence of large and overlapping food price shocks can impart generalisation and persistence to headline inflation. Economic activity, on the other hand, has remained resilient. Taking into account the evolving inflation-growth dynamics and the cumulative policy repo rate hike of 250 basis points which is still working through the economy, the MPC decided to keep the policy repo rate unchanged at 6.50 per cent in this meeting. The transmission of the 250 basis points (bps) increase in the policy repo rate to bank lending and deposit rates is still incomplete and hence the MPC decided to remain focused on withdrawal of

* Governor's Statement - October 6, 2023.

[1] Source: Kautilya – The Arthashastra by L. N. Rangarajan, Penguin, 1992. Although Kautilya had said this in a different context, an analogy has been drawn here to state this in the macroeconomic context.

accommodation.[2] The MPC remains highly alert and prepared to undertake timely policy measures, as may be necessary, in order to align inflation to the target and anchor inflation expectations.

Assessment of Growth and Inflation

Global Growth

Let me turn to a detailed assessment of the growth and inflation dynamics, starting with the external environment. The global economy is slowing under the impact of tight financial conditions, protracted geopolitical tensions and increasing geoeconomic fragmentation. Global trade is contracting.[3] Headline inflation is easing but rules above the target in major economies. While major central banks are signalling a peaking of their rate hike cycle, there are indications that the tight monetary policy stance could persist for longer than anticipated earlier. Sovereign bond yields have firmed up, the US dollar has appreciated, and global equity markets have corrected.

Domestic Growth

In contrast to global trends, domestic economic activity exhibits resilience on the back of strong domestic demand.[4]

The momentum in agricultural activity in Q2:2023-24 has been sustained, although the monsoon has been uneven.[5] The acreage under *kharif* crops as on September 29, 2023 was 0.2 per cent above last year's level.

The industrial sector extended recovery in Q2.[6] Manufacturing sector gained ground in July-August 2023, supported by key sectors such as pharmaceuticals, basic metals, cement, motor vehicles, and food products and beverages. The purchasing managers' index (PMI) for manufacturing remained robust in September.

Services sector activity is maintaining buoyancy as indicated by healthy expansion in high frequency indicators in August-September.[7] PMI Services exhibited strong expansion in September. Construction activity continues to be strong.[8]

Investment activity maintained its momentum with good support from government capex. Private sector capex is gaining ground as suggested by expansion in production and imports of capital goods and new projects sanctioned by banks.[9] Capacity utilisation (CU) in the manufacturing sector, on a seasonally adjusted basis, continued to trend up, which augurs well for investment activity.[10] The total flow of resources to the commercial sector from banks and other sources taken together at ₹10.6 lakh crore during the current financial year so far is higher

[2] The weighted average domestic term deposit rate (WADTDR) on fresh deposits of scheduled commercial banks and the weighted average lending rate (WALR) on fresh loans have increased by 233 bps and 196 bps, respectively in the current tightening cycle. The corresponding increase in outstanding term deposit rates and outstanding lending rates is even lower at 157 bps and 112 bps, respectively.

[3] Global merchandise trade volume fell by 3.2 per cent (y-o-y) in July 2023 according to CPB Netherlands Bureau for Economic Policy Analysis.

[4] Real gross domestic product (GDP) posted a growth of 7.8 per cent year-on-year (y-o-y) in Q1:2023-24.Gross fixed capital formation rose by 8.0 per cent and private consumption by 6.0 per cent in Q1. On the supply side, real gross value added (GVA) also rose by 7.8 per cent in Q1:2023-24, powered by a 10.0 per cent increase in services sector.

[5] According to India Meteorological Department, the cumulative south-west monsoon rainfall was 94 per cent of the long period average (LPA). Rainfall over the monsoon core zone, consisting of most of the rainfed agriculture regions in the country was normal at 101 per cent of LPA.

[6] The index of industrial production rose by 5.7 per cent in July and core industries output expanded by 12.1 per cent in August.

[7] In September 2023, e-way bills, toll collections and railway freight traffic expanded (y-o-y) by 9.5 per cent, 15.4 per cent and 6.7 per cent, respectively. In August, port traffic and diesel consumption increased by 4.4 per cent and 5.2 per cent, respectively.

[8] Indicators like cement production and steel consumption increased by 18.9 per cent (y-o-y) and 21.5 per cent (y-o-y), respectively, in August 2023.

[9] Production of capital goods increased by 4.6 per cent (y-o-y) in July, while imports of capital good expanded by 13.3 per cent (y-o-y) in August 2023. As per latest available information, banks have sanctioned new projects in roads, bridges, inland waterways, railways, electricity, ports, airports, chemical and fertilisers.

[10] On a seasonally adjusted basis, CU improved from 74.1 per cent in Q4:2022-23 to 75.4 per cent in Q1:2023-24. Unadjusted CU recorded a seasonal decline from 76.3 per cent in Q4:2022-23 to 73.6 per cent in Q1: 2023-24. The long-term average is 73.7 per cent which pertains to the period Q1:2008-09 to Q1:2023-24 excluding Q1:2020-21.

than that of last year (₹10.4 lakh crore). Merchandise exports and non-oil non-gold imports, however, contracted though at a moderated pace in August. Services exports expanded at a healthy pace.

On the demand front, steady expansion is seen in urban consumption while rural demand is showing signs of revival.[11] Looking ahead, domestic demand conditions are likely to benefit from sustained buoyancy in services, consumer and business optimism, government's continued thrust on capex, healthy balance sheets of banks and corporates, and supply chain normalisation. Headwinds from geopolitical tensions and geoeconomic fragmentation, volatility in global financial markets, global economic slowdown, and uneven monsoon, however, pose risks to the outlook. Taking all these factors into consideration, real GDP growth for 2023-24 is projected at 6.5 per cent with Q2 at 6.5 per cent; Q3 at 6.0 per cent; and Q4 at 5.7 per cent. The risks are evenly balanced. Real GDP growth for Q1:2024-25 is projected at 6.6 per cent.

Inflation

The heightened inflation levels in July and August at 7.4 per cent and 6.8 per cent respectively, were largely driven by food price pressures.[12] Vegetables, with a weight of around 6 per cent in the CPI basket, contributed to about one third of CPI headline inflation in July and to around one fourth of overall inflation in August. Sustained inflationary pressures in cereals, pulses, and spices added to the overall food inflation.

On the positive side, core inflation softened to 4.9 per cent during July-August 2023.[13] It has eased by around 140 basis points from its recent peak in January 2023. Further disinflation of the core component is critical for price stability. As evident from our survey, there is further progress on anchoring of inflation expectations which entered single digit zone for the first time since the COVID-19 pandemic.[14]

While near-term inflation is expected to soften on the back of vegetable price correction, especially in tomatoes, and the reduction in LPG prices, the future trajectory will be conditioned by a number of factors. For *kharif* crops, the area sown under pulses is below the level a year ago. *Kharif* onion production needs to be watched closely. Demand supply mismatches in spices are likely to keep these prices at elevated levels. The inflation trajectory will also be shaped by *El Niño* conditions and global food and energy prices. Together with global financial market volatility, these factors pose risks to the outlook. Taking into account these factors, CPI inflation is projected at 5.4 per cent for 2023-24, with Q2 at 6.4 per cent, Q3 at 5.6 per cent and Q4 at 5.2 per cent. The risks are evenly balanced. CPI inflation for Q1:2024-25 is projected at 5.2 per cent.

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

Over the last one and half years, monetary policy actions broadly included compression of excess liquidity in the system, increase in policy repo rate by 250 basis points and change in policy stance to withdrawal of accommodation to keep inflation expectations anchored and break the stickiness of

[11] Expansion in urban demand is reflected in solid domestic air passenger traffic, passenger vehicle sales and household credit in August-September 2023. In indicators of rural demand, two-wheeler sales turned positive in August, tractor sales continued to expand while consumer non-durable goods posted a healthy growth in July.

[12] Food inflation rose from 4.7 per cent in June to 10.6 per cent in July and 9.2 per cent in August as vegetable prices moved out of deflation (-0.7 per cent, y-o-y) in June and jumped by 37.4 per cent (y-o-y) in July and 26.1 per cent (y-o-y) in August.

[13] Core inflation decreased with easing of inflationary pressures in sub-groups of clothing and footwear, housing, household goods and services, education and personal care and effects.

[14] Mooring of household inflation expectations has been underway since September 2022. Inflation expectations for three months ahead fell by 90 bps from 10.0 per cent (July 2023 round) to 9.1 per cent (September 2023 round) and by 40 bps for one year ahead from 10.3 per cent (July 2023 round) to 9.9 per cent (September 2023 round).

core inflation. Complementing these measures were proactive supply side interventions by the Government to improve domestic availability of key food items and reduce input costs.[15] Consequently, headline inflation moderated to 4.6 per cent in Q1:2023-24 as compared to 7.3 per cent in Q1:2022-23. A significant easing of inflation pressures from its exceptionally high level in July and August is expected to materialise in September as the impact of fleeting food price shocks wane. Further, underlying inflation pressures[16] are moderating while the impact of past monetary policy actions is still unfolding. Even so, indications are that throughout much of Q3:2023-24, food inflation pressures may not see a sustained easing. External factors like energy prices and financial market conditions continue to be volatile. All these call for careful monitoring of incoming data and the outlook to clearly delineate the durable components of price shocks from its transitory elements. Monetary policy has to be in absolute readiness to take appropriate and timely action to prevent any spillovers from food and fuel price shocks to underlying inflation trends and risks to anchoring of inflation expectations. These are non-negotiable necessities.

Liquidity and Financial Market Conditions

As I have reiterated several times in my previous policy statements, excessive liquidity[17] can pose risks to both price and financial stability. To ensure that liquidity conditions evolve in sync with the monetary policy stance, the Reserve Bank – as a temporary measure – had imposed an incremental cash reserve ratio (I-CRR) of 10 per cent which impounded about ₹1.1 lakh crore from the banking system. The I-CRR was reviewed on September 8 and is being discontinued in a phased manner, ending October 7, 2023.

Moderation in excess liquidity conditions as a result of the combined impact of I-CRR and advance tax outflows in September has resulted in greater recourse to the marginal standing facility (MSF) by banks.[18] Elevated levels of MSF borrowings amidst substantial funds parked under the standing deposit facility (SDF)[19] is symptomatic of skewed liquidity distribution in the banking system. This got reflected in the firming up of the weighted average call rate (WACR) – the operating target of monetary policy.[20] Despite such hardening at the short-end of the term structure, the average term spread in the G-sec market (10-year *minus* 91-day Treasury Bills) remained at around 40 basis points in August-September suggesting stable financial conditions.

In recent months, banks have preferred to place funds under the overnight SDF instead of offering them in the main 14-day variable rate reverse repo (VRRR) operations. It is imperative that banks assess their actual liquidity requirements over the reserve maintenance cycle and bid accordingly in the auctions under main 14-day VRRR operations. It is desirable that banks having surplus funds explore lending opportunities in the inter-bank call market rather than passively parking funds in the SDF at relatively less attractive rates. Greater volume of call money transactions would not only help in deepening the inter-bank money market but also lower the recourse of deficit banks to the MSF.

[15] These included restrictions on wheat and rice exports; exempting imports of pulses (*tur* and *urad*) from import duties; release of pulses *(chana dal)* at a discount to states and union territories; stock limits for wheat and pulses; reduction in import duties on various edible oils; additional procurement and discounted sale of tomatoes and onions; restricting sugar exports; and cut in excise duties for petrol and diesel.

[16] In terms of core inflation; other exclusion based and trimmed mean measures.

[17] Liquidity overhang was engendered by (i) the return of ₹2000 banknotes to the banking system; (ii) RBI's surplus transfer to the government; (iii) pick up in government spending; and (iv) capital inflows.

[18] Average borrowings under the MSF, which was ₹6,702 crore in July increased to ₹34,735 crore in August and further to ₹94,605 crore in September. Daily MSF borrowings peaked at ₹1.99 lakh crore on September 21, 2023.

[19] Average fund parked under SDF was at ₹1.06 lakh crore, ₹1.10 lakh crore and ₹0.76 lakh crore in July, August and September, respectively.

[20] On an average, the WACR hardened from 6.48 per cent in July to 6.58 per cent in August and further to 6.65 per cent in September.

The release of the remaining impounded I-CRR funds tomorrow along with pick-up in government spending are expected to ease liquidity conditions. Festival time increase in currency demand may, of course, act as a counterbalancing factor. It is a turning pitch and we will play our shots carefully. Going forward, while remaining nimble, we may have to consider OMO-sales (Open Market Operation sales) to manage liquidity, consistent with the stance of monetary policy. The timing and quantum of such operations will depend on the evolving liquidity conditions.

Financial Stability

The Indian banking system continues to be resilient, backed by improved asset quality, stable credit growth and robust earnings growth.[21] The credit growth is broad-based and backed by the strong fundamentals of financial institutions. The financial indicators of non-banking financial companies are also in line with that of the banking system as per the latest available data for June 2023. Certain components of personal loans are, however, recording very high growth. These are being closely monitored by the Reserve Bank for any signs of incipient stress. Banks and NBFCs would be well advised to strengthen their internal surveillance mechanisms, address the build-up of risks, if any, and institute suitable safeguards in their own interest. The need of the hour is robust risk management and stronger underwriting standards.

The global financial landscape is rapidly changing and potential stress may emerge from unanticipated corners. The Reserve Bank is closely monitoring the evolving situation and will act proactively to maintain financial stability.

External Sector

India's merchandise exports and imports have remained in the contractionary zone so far during 2023-24, although at a decelerated pace during July and August. Services exports grew at a healthy pace in Q1:2023-24 and remained strong during July and August 2023 driven by software and business services.[22] Inward remittances have risen by 5.8 per cent (y-o-y). The current account deficit (CAD) for Q1:2023-24 declined to 1.1 per cent of GDP from a year ago.[23] There was an accretion of US$ 24.4 billion to foreign exchange reserves on balance of payments (BOP) basis during Q1:2023-24.

On external financing, foreign portfolio investment (FPI) flows have seen a significant turnaround in 2023-24 with net FPI inflows at US$ 20.3 billion up to September 2023 as against net outflows in the preceding two years.[24] Net foreign direct investment (FDI), on the other hand, moderated to US$ 5.8 billion in April-July 2023 from US$ 17.3 billion a year ago. The inflows under external commercial borrowings (ECBs) witnessed a turnaround, with net inflows of US$ 4.5 billion during April-August 2023 as against net outflows of US$ 3.2 billion a year ago. The number and total amount of ECB agreements grew markedly during April-August 2023 with about 60 per cent of the total amount being raised for capital

[21] All key indicators of asset quality of scheduled commercial banks (SCBs) continue to improve on a sustained basis. Provisional data as of June 2023 indicate that gross non-performing assets (GNPA) and net non-performing assets (NNPA) ratios declined to a decadal low of 3.6 per cent and 0.9 per cent, respectively. Capital adequacy ratio (CRAR) of SCBs increased to 16.9 per cent in June 2023 from 16.2 per cent in June 2022. The slippage ratio, a primary indicator for standard assets turning NPAs during the quarter dipped to 1.6 per cent, the lowest after the COVID-19 outbreak. The return on asset (RoA) of SCBs increased to 1.3 per cent as of June 2023 from 0.9 per cent in June 2022, while the net interest margin (NIM) of SCBs improved to 3.8 per cent from 3.3 per cent over the same period. SCBs have enough high-quality liquid assets as the liquidity coverage ratio (LCR) of SCBs stood at 141.9 per cent as at the end of June 2023.

[22] Services exports grew by 5.9 per cent (Y-o-Y) in Q1. As per provisional data, services exports rose by 8.1 per cent and 8.4 per cent in July and August 2023, respectively.

[23] The CAD was 2.1 per cent of GDP in Q1:2022-23. On a sequential basis, however, CAD rose from 0.2 per cent of GDP in Q4:2022-23 as the trade deficit widened.

[24] Net outflows of US$ 14.1 billion in 2021-22 and US$ 4.8 billion in 2022-23.

expenditure. External vulnerability indicators[25] also indicate lower vulnerability in comparison with EME peers. India's foreign exchange reserves stood at US$ 586.9 billion as on September 29, 2023. We remain confident of meeting our external financing requirements comfortably.

Additional Measures

I shall now announce certain additional measures.

Prudential Framework for Income Recognition, Asset Classification and Provisioning pertaining to Advances - Projects Under Implementation

With a view to strengthen the extant regulatory framework governing project finance and to harmonise the instructions across all regulated entities, the extant prudential norms for projects under implementation have been reviewed. A comprehensive regulatory framework applicable for all regulated entities is now proposed to be issued. Detailed draft guidelines will be released for public comments.

Credit Concentration Norms – Credit Risk Transfer

At present, under the Large Exposures Framework, NBFCs in the Upper Layer are permitted to use Credit Risk Mitigation (CRM) instruments for reducing their exposures to a counterparty. With a view to harmonise the credit concentration norms among NBFCs, it has been decided to also permit NBFCs in the Middle and Base Layers to use CRM instruments for reducing their counterparty exposure under the credit concentration norms.

Gold Loan – Bullet Repayment Scheme – UCBs

It has been decided to increase the existing limit for Gold Loans under the Bullet Repayment scheme from ₹2 lakh to ₹4 lakh in respect of Urban Co-operative Banks (UCBs) who have met the overall target and sub-targets under the Priority Sector Lending (PSL) as on March 31, 2023. This measure is in pursuance of our earlier announcement that suitable incentives shall be provided to UCBs that have met the prescribed PSL targets as on March 31, 2023.

Framework for Recognition of SROs for Regulated Entities (REs) of Reserve Bank

Self-Regulatory Organisations (SROs) can play an important role in strengthening compliance culture among their members and also provide a consultative platform with the Reserve Bank for policy making. Therefore, it has been decided to issue a draft omnibus framework for recognising SROs for various categories of Regulated Entities (REs) of the Reserve Bank for stakeholder comments. Additional sector specific conditions may also be prescribed at the time of calling for applications.

Payments Infrastructure Development Fund – Extension of Scheme and Inclusion of PM *Vishwakarma* Scheme Beneficiaries

Since its launch in January 2021, the Payments Infrastructure Development Fund (PIDF) Scheme has enabled over 2.66 crore new payment touch points across the country. It has been decided to extend the scheme by two years, *i.e.*, up to December 31, 2025. The coverage of PIDF scheme is also being expanded (i) to include the beneficiaries of PM *Vishwakarma* Scheme; and (ii) to deploy emerging modes of payment acceptance, such as soundbox and *Aadhaar*-enabled biometric payment acceptance devices. These measures will further accelerate the Reserve Bank's efforts to promote digital payments at the grass root level.

Introduction of New Channels for Card-on-File Tokenisation (CoFT)

Given the growing acceptance and benefits of tokenisation of card data, it is now proposed to introduce Card-on-File Tokenisation (CoFT) creation

[25] External debt to GDP ratio was placed at 18.6 per cent at end-June 2023 and reserves to external debt ratio was 94.6 per cent. The reserve cover of imports are over 10 months.

facilities directly at the issuer bank level. This measure will enhance convenience for cardholders to get tokens created and linked to their existing accounts with various e-commerce applications.

Master Direction on Internal Ombudsman Mechanism in Regulated Entities

At present, the Internal Ombudsman (IO) framework in regulated entities comprises of separate guidelines for select Scheduled Commercial Banks (SCBs), Non-Bank issuers of Prepaid Payment Instruments (PPIs), NBFCs; and all Credit Information Companies (CICs). These guidelines have similar design features but vary in certain operational aspects. It has been decided to effect certain changes and also consolidate and harmonise the IO guidelines into a single master direction. This will further strengthen the customer grievance redress system of the regulated entities.

Conclusion

The Indian economy is forging ahead in a challenging global environment, drawing strength from its underlying macroeconomic fundamentals and buffers. While growth remains on track, the declining trend in inflation was interrupted in July-August 2023 due to price shocks in certain food items. Volatile energy and food prices in the wake of lingering geopolitical tensions and adverse weather conditions render uncertainty to the inflation outlook. We remain vigilant of the evolving inflation dynamics. I would like to emphatically reiterate that our inflation target is 4 per cent and not 2 to 6 per cent. Our aim is to align inflation to the target on a durable basis, while supporting growth. Our commitment to ensure financial stability reinforces our emphasis on price stability and anchoring of inflation expectations. This would keep inflation risk premium low and improve our competitiveness, productivity and growth potential. As we continue our journey ahead, we take inspiration from Mahatma Gandhi's profound words, *"If we keep that as our goal, we shall never despond, we shall never weaken; we shall ever go forward…"*[26]

Thank you. Namaskar.

[26] Mahatma Gandhi, Collected Works, Volume 12.

MONETARY POLICY STATEMENT FOR 2023-24

Resolution of the Monetary Policy Committee (MPC)
October 4-6, 2023

Monetary Policy Statement, 2023-24 Resolution of the Monetary Policy Committee (MPC) *

On the basis of an assessment of the current and evolving macroeconomic situation, the Monetary Policy Committee (MPC) at its meeting today (October 6, 2023) decided to:

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

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.

The main considerations underlying the decision are set out in the statement below.

Assessment

Global Economy

2. Global growth is losing momentum. Inflation is easing gradually but remains well above target in major economies. Concerns about higher for longer rates are imparting volatility to global financial markets. Sovereign bond yields have hardened, the US dollar has appreciated, and equity markets have corrected. Emerging market economies (EMEs) are experiencing currency depreciation and volatile capital flows.

Domestic Economy

3. Real gross domestic product (GDP) posted a growth of 7.8 per cent year-on-year (y-o-y) in Q1:2023-24 (April-June), underpinned by private consumption and investment demand.

4. South-west monsoon rainfall recovered during September and ended 6 per cent below the long period average. The acreage under *kharif* crops was 0.2 per cent higher than a year ago. The index of industrial production rose by 5.7 per cent in July; core industries output expanded by 12.1 per cent in August. Purchasing managers' indices (PMIs) and other high frequency indicators of the services sector exhibited healthy expansion in August-September.

5. On the demand front, urban consumption is buoyant while rural demand is showing signs of revival. Investment activity is benefitting from public sector capex. Strong growth is seen in steel consumption, cement production as well as in imports and production of capital goods. Merchandise exports and non-oil non-gold imports remained in contraction in August, although the pace of decline eased. Services exports improved in August.

6. CPI headline inflation surged by 2.6 percentage points to 7.4 per cent in July due to spike in vegetable prices, before moderating somewhat in August to 6.8 per cent. Fuel inflation edged up to 4.3 per cent in August. Core inflation (*i.e.*, CPI excluding food and fuel) softened to 4.9 per cent during July-August 2023.

7. As on September 22, 2023, money supply (M3) expanded by 10.8 per cent (y-o-y) and bank credit grew by 15.3 per cent. India's foreign exchange reserves stood at US$ 586.9 billion as on September 29, 2023.

Outlook

8. The near-term inflation outlook is expected to improve on the back of vegetable price correction

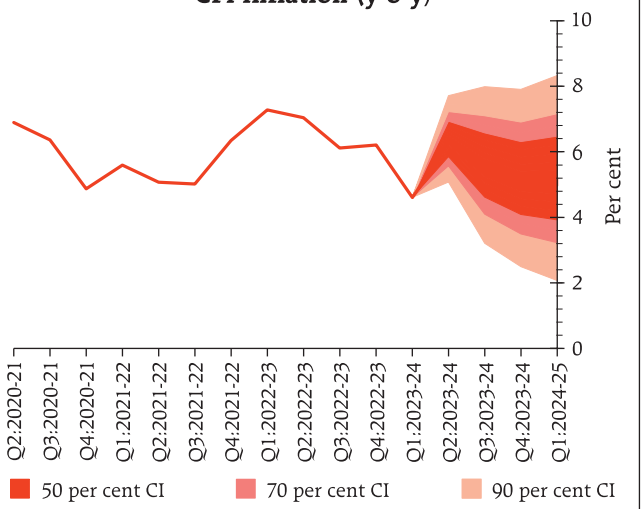
* Released on October 6, 2023.

and the recent reduction in LPG prices. The future trajectory will be conditioned by a number of factors like lower area sown under pulses, dip in reservoir levels, *El Niño* conditions and volatile global energy and food prices. According to the Reserve Bank's enterprise surveys, manufacturing firms expect higher input cost pressures but marginally lower growth in selling prices in Q3 compared to the previous quarter. Services and infrastructure firms expect a moderation in growth of input costs and selling prices. Taking into account these factors, CPI inflation is projected at 5.4 per cent for 2023-24, with Q2 at 6.4 per cent, Q3 at 5.6 per cent and Q4 at 5.2 per cent, with risks evenly balanced. CPI inflation for Q1:2024-25 is projected at 5.2 per cent (Chart 1).

9. Domestic demand conditions are expected to benefit from the sustained buoyancy in services, revival in rural demand, consumer and business optimism, the government's thrust on capex, and healthy balance sheets of banks and corporates. Headwinds from global factors like geopolitical tensions, volatile financial markets and energy prices, and climate shocks pose risks to the growth outlook. Taking all these factors into consideration, real GDP growth for 2023-24 is projected at 6.5 per cent, with Q2 at 6.5 per cent, Q3 at 6.0 per cent, and Q4 at 5.7 per cent, with risks evenly balanced. Real GDP growth for Q1:2024-25 is projected at 6.6 per cent (Chart 2).

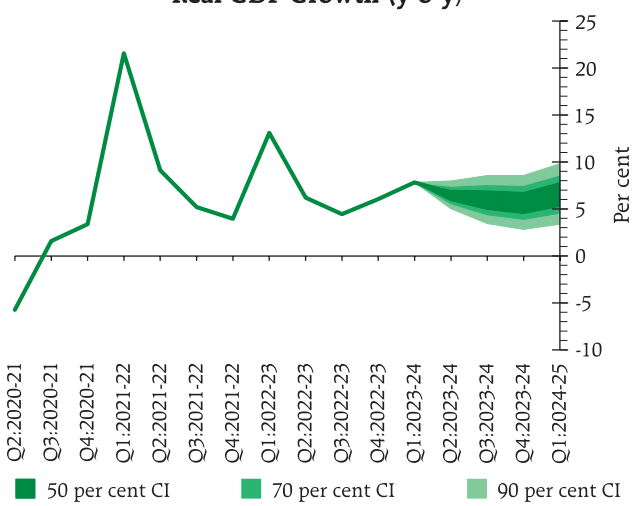
10. The MPC observed that the unprecedented food price shocks are impinging on the evolving trajectory of inflation and that recurring incidence of such overlapping shocks can impart generalisation and persistence. Accordingly, the MPC resolved to remain on high alert, given the prevailing environment of elevated global food and energy prices and global financial market volatility. While vegetable prices may undergo further correction and core inflation is easing, the MPC noted that headline inflation is ruling above the tolerance band and its alignment with the target is getting interrupted. Hence, monetary policy needs to remain actively disinflationary. Domestic economic activity is holding up well and is expected to be boosted by festive consumption demand, pick up in investment intentions and improving consumer and business outlook. As the cumulative policy repo rate

Chart 1: Quarterly Projection of CPI Inflation (y-o-y)



CI - Confidence Interval

Chart 2: Quarterly Projection of Real GDP Growth (y-o-y)



CI - Confidence Interval

hike of 250 basis points is still working its way through the economy, the MPC decided to keep the policy repo rate unchanged at 6.50 per cent in this meeting, but with preparedness to undertake appropriate and timely policy actions, should the situation so warrant. The MPC will remain resolute in its commitment to aligning inflation to the target and anchoring inflation expectations. The MPC also decided to remain focused on withdrawal of accommodation to ensure that inflation progressively aligns to the target, while supporting growth.

11. All members of the MPC – Dr. Shashanka Bhide, Dr. Ashima Goyal, Prof. Jayanth R. Varma, Dr. Rajiv Ranjan, Dr. Michael Debabrata Patra and Shri Shaktikanta Das – unanimously voted to keep the policy repo rate unchanged at 6.50 per cent.

12. 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 expressed reservations on this part of the resolution.

13. The minutes of the MPC's meeting will be published on October 20, 2023.

14. The next meeting of the MPC is scheduled during December 6-8, 2023.

STATEMENT ON DEVELOPMENTAL AND REGULATORY POLICIES

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) Regulation (ii) Payments Systems and (iii) Consumer Protection.

I. Regulation

1. Prudential Framework for Income Recognition, Asset Classification and Provisioning pertaining to Advances - Projects Under Implementation

Project finance is generally characterised by various complexities *inter alia* including long gestation periods. With a view to strengthen the extant regulatory framework governing the project finance and to harmonise the instructions across all regulated entities, the extant prudential norms for projects under implementation have been reviewed and a comprehensive regulatory framework applicable for all regulated entities is proposed to be issued. Detailed draft guidelines on the above will be issued separately.

2. Credit Concentration Norms – Credit Risk Transfer

The extant guidelines on Large Exposure Framework for Non-Banking Financial Company - Upper Layer (NBFC-UL) permits exposures to the original counterparty to be offset with certain credit risk transfer instruments. However, the extant credit concentration norms for NBFC in the Middle Layer (ML) and Base Layer (BL) do not explicitly envisage any such mechanism. With a view to harmonise the aforesaid norms among NBFCs, it has been decided to permit NBFCs in the ML and BL as well, to offset their exposures with eligible credit risk transfer instruments. The instructions in this regard shall be issued shortly.

3. Gold Loan – Bullet Repayment Scheme – UCBs

UCBs have been permitted an extended glide path for achievement of PSL targets, beyond March 2023. With a view to incentivising UCBs that have met the prescribed PSL targets as on March 31, 2023, it has been decided to increase the monetary ceiling of gold loans that can be granted under the bullet repayment scheme from ₹2.00 lakh to ₹4.00 lakh for such UCBs who have met the overall PSL target and sub targets as on March 31, 2023. These banks will be required to continue to meet the targets and sub-targets thereafter. Detailed guidelines on the matter will be issued separately. Incidentally, in terms of our circular, DOR.CRE.REC.18/07.10.002/2023-24 dated June 8, 2023, granting extension of time for achieving the Priority sector lending targets it was clarified that incentives to UCBs meeting the PSL targets shall be announced separately.

4. Framework for recognition of SROs for Regulated Entities (REs) of Reserve Bank

In view of the potential role of Self-Regulatory Organisations (SROs) in strengthening compliance culture among their members and also providing a consultative platform for policy making, it has been decided to issue an omnibus framework for recognising SROs for various Regulated Entities (REs) of the Reserve Bank. The omnibus SRO framework shall prescribe the broad objectives, functions, eligibility criteria, governance standards, *etc.*, which will be common for all SROs, irrespective of the sector. The Reserve Bank may prescribe sector-specific additional conditions at the time of calling for applications for recognising such SROs. To begin with, a draft of the omnibus framework will be released for stakeholder comments.

II. Payments Systems

5. Payments Infrastructure Development Fund – Extension of Scheme and Inclusion of PM *Vishwakarma* Scheme beneficiaries

The Payments Infrastructure Development Fund (PIDF) Scheme was operationalised by the Reserve Bank in January 2021 for a period of three years. The objective was to incentivise the deployment of payment acceptance infrastructure such as physical Point of Sale (PoS), Quick Response (QR) codes in tier-3 to tier-6 centres, north eastern states and Union Territories of Jammu & Kashmir and Ladakh. Beneficiaries of PM *SVANidhi* Scheme in Tier-1 and 2 centres were later included in August 2021. As at end-August 2023, over 2.66 crore new touch points have been deployed under the Scheme. It is now proposed to extend the PIDF Scheme by a further period of two years, *i.e.*, upto December 31, 2025. Also, it is proposed to include beneficiaries of PM *Vishwakarma* Scheme in all centres under the PIDF Scheme. This decision to expand the targeted beneficiaries under the PIDF scheme will provide fillip to the Reserve Bank's efforts towards promoting digital transactions at the grassroots level.

Further, based on the feedback received from industry, deployment of emerging modes of payment acceptance, such as soundbox devices and *Aadhaar*-enabled biometric devices, are proposed to be encouraged under the PIDF Scheme. This is expected to further accelerate and augment the deployment of payment acceptance infrastructure in the targeted geographies. The amendments will be notified shortly.

6. Introducing new channels for Card-on-File Tokenisation

RBI introduced Card-on-File Tokenisation (CoFT) in September 2021 and began implementation from October 1, 2022. So far, over 56 crore tokens have been created on which transactions with value of over ₹5 lakh crore have been undertaken. Tokenisation has improved transaction security and transaction approval rate. At present, Card-on-File(CoF) token can only be created through merchant's application or webpage. It is now proposed to introduce CoF token creation facilities directly at the issuer bank level. This measure will enhance convenience for cardholders to get tokens created and linked to their existing accounts with various e-commerce applications. Instructions in this regard will be issued separately.

III. Consumer Protection

7. Master Direction on Internal Ombudsman mechanism in Regulated Entities

The Reserve Bank of India, in 2015, introduced an Internal Ombudsman (IO) mechanism in select scheduled commercial banks with the objective to strengthen their Internal Grievance Redress (IGR) system and to ensure efficient and fair resolution of customer complaints by enabling an apex level review within the banks before their rejection. Gradually, the framework has been extended to other regulated entities (REs), *viz.* select Non-Bank System Participants (non-bank issuers of PPIs), select Non-Banking Financial Companies and all Credit Information Companies.

The guidelines on Internal Ombudsman framework currently in operation for various categories of REs have similar design features but carry certain variations on operational matters. Based on the learnings from the implementation of the extant IO guidelines, it has been decided to harmonise the same and issue a consolidated Master Direction. The Master Direction shall bring uniformity in matters like timeline for escalation of complaints to IOs, exclusions, temporary absence of the Internal Ombudsman, minimum qualifications for appointing an Internal Ombudsman and updation of reporting formats, in addition to introduction of the post of Deputy Internal Ombudsman. These instructions are expected to further strengthen the IO mechanism and in turn, the grievance redress system in REs.

MONETARY POLICY REPORT FOR 2023-24

Monetary Policy Report - October 2023

I. Macroeconomic Outlook

The outlook for domestic economic activity remains resilient in spite of large supply shocks that have pushed up the trajectory of headline inflation. Energy and food price volatility, geopolitical hostilities, tightening external financial conditions 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 April 2023 MPR

Global economic activity and trade are slowing, although unevenly across geographies and sectors. Tightening financial conditions in response to monetary actions to address still elevated inflation, persisting geopolitical tensions and growing geoeconomic fragmentation render the outlook fragile. Manufacturing activity is contracting across many countries, while services are relatively resilient. Headline inflation has been gradually easing across the world, however, in most countries, it remains elevated in relation to targets. Core inflation is moderating but at a tardy pace and services inflation is sticky. These concerns are reflected in 'higher for longer' monetary policy settings. In some countries, however, the monetary policy tightening cycle is complete or nearing it or even in accommodation in response to weakening economic activity.

Market expectations relating to the global economic outlook are fluctuating widely and sensitive to every incoming information, imparting high volatility. In September, US sovereign bond yields touched their highest levels since the global financial crisis, and the yield curve has seen its longest period of inversion since 1980. Credit growth in major economies is decelerating in response to monetary tightening. After strong gains in the first half of 2023, global equity markets retreated in Q3 (July-September). The US dollar depreciated to a 15-month low in mid-July but has recovered subsequently on better-than-expected US economic data. Crude oil prices firmed up sharply to around US$ 95 per barrel in September in response to extended output cuts by key producing countries. Food prices are volatile on supply concerns arising from the breakdown of the Black Sea deal on Ukrainian grain movements and the *El Niño* weather phenomenon.

Turning to the domestic economy, activity was supported in H1:2023-24 by private consumption and fixed investment, although adverse external conditions are being reflected in a prolonged contraction in net exports. Real gross domestic product (GDP) rose by 7.8 per cent (year-on-year, y-o-y) in Q1:2023-24 (April-June) and high frequency indicators for Q2 suggest that the momentum in activity is being maintained. On the supply side, real gross value added (GVA) is being buoyed by services sector growth.

Headline CPI inflation had moderated from an average of 6.7 per cent in 2022-23 to 4.3 per cent in May 2023 in response to monetary policy actions and supply side measures. Reversing these gains under the impact of sporadic food supply shocks, inflation jumped to 7.4 per cent in July and 6.8 per cent in August. On the other hand, core inflation (*i.e.*, CPI excluding food and fuel) has been gradually ebbing down to sub-5 per cent levels. With the cumulative rate hike of 250 basis points (bps) undertaken during May 2022-February 2023 working its way into the economy, the monetary policy committee (MPC) kept the policy repo rate unchanged at 6.50 per cent through H1, and it remains firmly committed to aligning inflation with the target going forward.

Monetary Policy Committee: April 2023 - September 2023

When the MPC met in April 2023, the global economy was going through a period of heightened volatility in the wake of banking sector turmoil in some advanced economies (AEs). Domestic CPI headline inflation was ruling above the upper threshold of the tolerance band in January and February, but was expected to soften with a record *rabi* foodgrains production, easing input cost conditions and normalisation of supply chain pressures. CPI inflation was projected at 5.2 per cent for 2023-24, 10 bps lower than the February projection. Domestic economic activity was seen to be holding up well, and the real GDP growth projection for 2023-24 was raised to 6.5 per cent from 6.4 per cent in the February meeting. Considering these factors and that previous rate hikes were still working through the system, the MPC unanimously decided to keep the policy repo rate unchanged at 6.50 per cent, but with a readiness to act, should the situation so warrant. The MPC decided by a majority of 5-1 to remain focused on withdrawal of accommodation to ensure that inflation progressively aligns with the target, while supporting growth.

At the time of the June 2023 meeting, CPI headline inflation had fallen to 4.7 per cent (April 2023 print) from an average of 6.2 per cent during the previous quarter. The MPC noted that the moderation in CPI headline inflation reflected the combined and continuing impact of monetary policy tightening, supply augmenting measures and the fuller impact of the previous rate hikes which should keep inflationary pressures contained in the coming months. Against this backdrop, the MPC unanimously voted again to keep the policy repo rate unchanged at 6.50 per cent and with a 5-1 vote to continue with its stance of withdrawal of accommodation.

In the run up to the August 2023 meeting, headline CPI inflation picked up to 4.8 per cent in June, with sizeable upside pressures on the near-term headline inflation trajectory from a spike in vegetable prices. Factoring in the skewed south-west monsoon outturn, the growing likelihood of an *El Niño* event and the worsening global food prices outlook, the inflation projection for 2023-24 was revised upwards by 30 bps to 5.4 per cent while the April 2023 projection for real GDP was kept unchanged. Taking into account the cumulative policy repo rate increase undertaken thus far, the MPC unanimously decided to keep the policy repo rate unchanged at 6.50 per cent with preparedness to undertake policy responses. With a 5 to 1 vote, the MPC reiterated its stance of withdrawal of accommodation.

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).

Macroeconomic Outlook

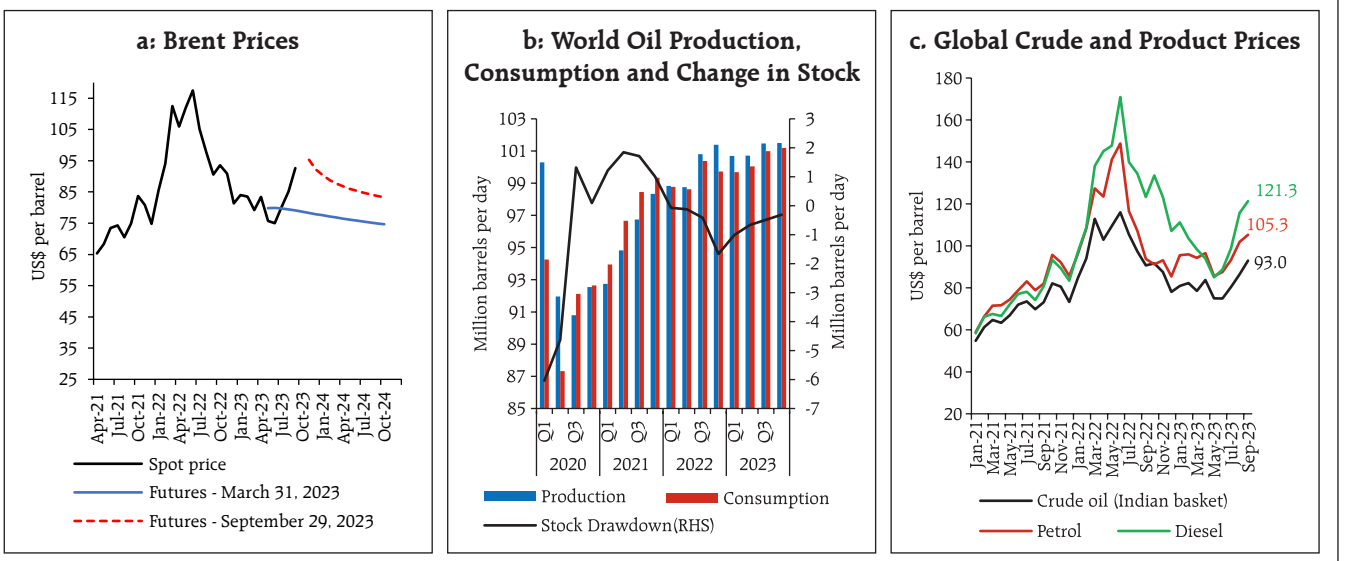
Chapters II and III analyse macroeconomic developments relating to inflation and economic activity during H1:2023-24 (April–September

Table I.1: Monetary Policy Committees and Policy Rate Voting Patterns

Country	Policy Meetings: April 2023 – September 2023			
	Total meetings	Meetings with full consensus	Meetings without full consensus	Variation in policy rate (basis points)
Brazil	4	3	1	-100
Chile	5	4	1	-175
Colombia	4	2	2	25
Czech Republic	4	2	2	0
Hungary	6	6	0	0
India	3	3	0	0
Japan	4	4	0	0
South Africa	3	1	2	50
Sweden	3	2	1	100
Thailand	3	3	0	75
UK	4	0	4	100
US	4	4	0	50

Sources: Central bank websites.

Chart I.1: Crude Oil Prices



Sources: Bloomberg; US Energy Information Administration (EIA); and Petroleum Planning & Analysis Cell.

2023). Turning to the baseline assumptions, first, international crude prices have exhibited sizeable two-way movements in H1, easing in April amidst a banking crisis in the US and underwhelming Chinese recovery, but they moved higher beginning July, with Brent crude crossing US dollar (US$) 90 per barrel in September due to production cuts referred to earlier, with some correction in early October. Geopolitical tensions impart significant uncertainty to the outlook (Chart I.1.a and Chart I.1.b). The 'crack' spread – the wedge between global petroleum product prices and crude prices – is elevated in view of demand-supply refinery mismatches (Chart I.1.c). Taking into account these developments, the baseline assumption for crude price (Indian basket) is retained at US$ 85 per barrel (Table I.2).

Second, the nominal exchange rate of the Indian rupee or INR has moved in both directions around the April baseline, varying in a range of INR 81.7-83.3 per US$ in H1. Taking into consideration the uncertainty around US dollar movements, the ebbs and flows of global capital, and international crude oil prices, the baseline assumption for the exchange rate is revised to INR 82.5 per US dollar.

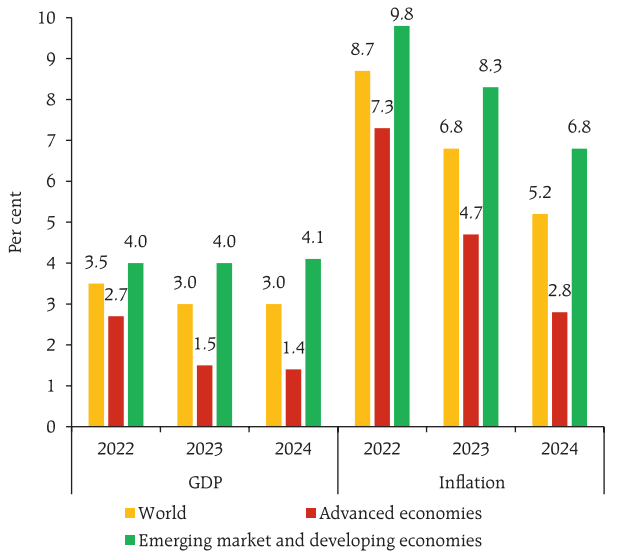
Table I.2: Baseline Assumptions for Projections

Indicator	MPR April 2023	MPR October 2023
Crude Oil (Indian basket)	US$ 85 per barrel during 2023-24	US$ 85 per barrel during H2:2023-24
Exchange rate	₹ 82/US$ during 2023-24	₹ 82.5/US$ during H2:2023-24
Monsoon	Normal for 2023-24	6 per cent below long period average for 2023-24
Global growth	2.9 per cent in 2023 3.1 per cent in 2024	3.0 per cent in 2023 3.0 per cent in 2024
Fiscal deficit (per cent of GDP)	To remain within BE 2023-24 Centre: 5.9 Combined: 8.5	To remain within BE 2023-24 Centre: 5.9 Combined: 8.5
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.

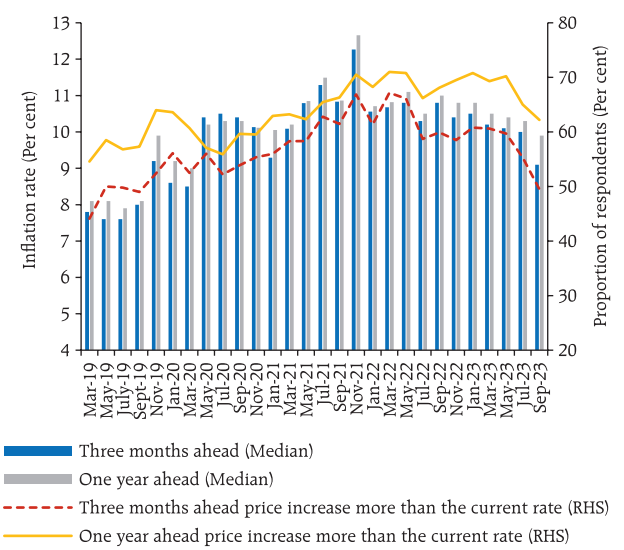
Sources: RBI estimates; Budget documents; and IMF.

Chart I.2: Global GDP Growth and Inflation



Source: IMF.

Chart I.3: Inflation Expectations of Households



Source: Inflation Expectations Survey of Households, RBI.

Third, multiple headwinds – tighter monetary and fiscal policies, reduced pent-up demand, financial stability risks, continued geopolitical challenges and geoeconomic fragmentation – weigh heavily on global growth prospects. The global purchasing managers' index (PMI) for manufacturing has remained in contraction mode since September 2022, while the services PMI is moderating since May 2023, *albeit* still in expansion mode. In its July 2023 update of the *World Economic Outlook* (WEO), the International Monetary Fund (IMF) revised its global growth forecast for 2023 marginally upwards to 3.0 per cent from its April projection of 2.8 per cent (Chart I.2). Yet, global GDP growth for 2023 and 2024 (3.0 per cent each) will trail its 2022 level (3.5 per cent) as well as its historical (2000-19) average of 3.8 per cent. Global trade growth (goods and services combined) is projected by the IMF to decelerate from 5.2 per cent in 2022 to 2.0 per cent in 2023.

I.2 The Outlook for Inflation

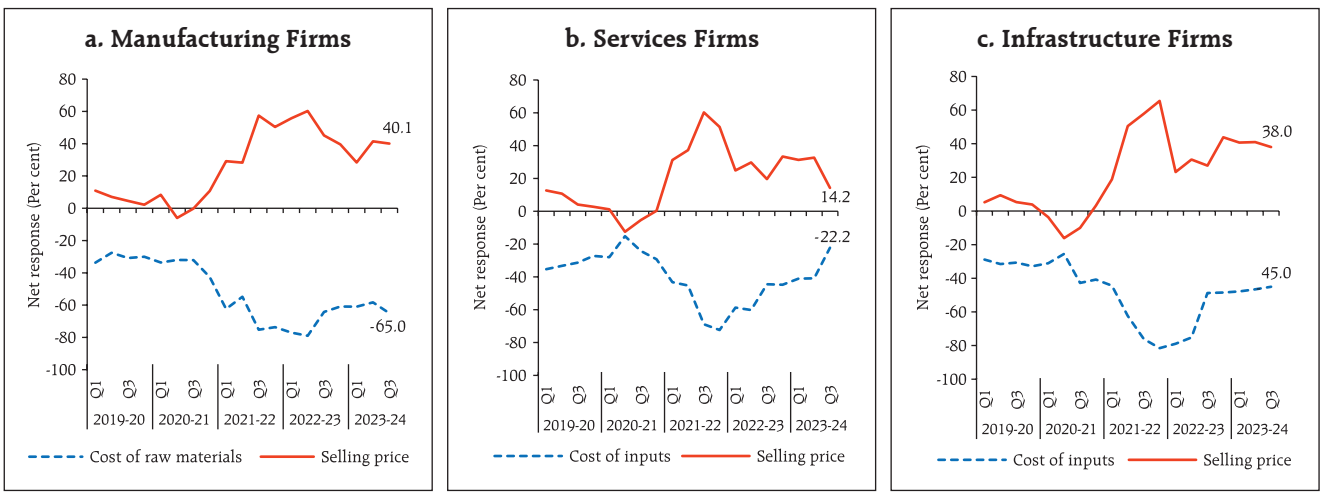
Looking ahead, the sharp spike in food prices, especially of vegetables, has started correcting (Chapter II). The three months and one year ahead median inflation expectations of urban households fell by 90 and 40 bps, respectively, to 9.1 per cent and 9.9 per cent in the September 2023 round of the Reserve Bank's survey[1] *vis-à-vis* the previous round. Notably, inflation expectations fell to a single digit for the first time since the COVID-19 pandemic. The proportion of respondents expecting the general price level to increase by more than the current rate declined considerably for both the horizons *vis-à-vis* the previous round (Chart I.3).

Manufacturing firms polled in the July-September 2023 round of the Reserve Bank's industrial outlook survey expect increased pressures from the cost of raw materials but marginal decline in selling price growth in Q3:2023-24 (Chart I.4a).[2] Services and

[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 September 2023 round are based on responses from 6066 households.

[2] The results of the July-September 2023 round of the industrial outlook survey are based on responses from 1223 companies.

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



Note: Net response is the difference between the share of respondents reporting optimism and those reporting pessimism. The range is -100 to 100. A positive/ negative value of net response is considered as optimistic/pessimistic from the view point of respondent firms. Therefore, higher positive values of selling prices indicate increase in output prices while lower values for the cost of raw materials/cost of inputs indicate higher input price pressures and *vice versa*.
Sources: Industrial Outlook Survey; and Services and Infrastructure Outlook Survey, RBI.

infrastructure firms expect lower growth in input cost and selling prices in Q3:2023-24 (Charts I.4b and I.4c).[3] In the PMI surveys for September 2023, manufacturing firms reported a decline in input cost inflation but an increase in output price inflation; services firms reported moderation in both input and output price pressures.

Professional forecasters surveyed by the Reserve Bank in September 2023 expect headline CPI inflation to moderate from 6.6 per cent in Q2:2023-24 to 5.5 per cent in Q3, 5.1 per cent in Q4 and 5.2-4.0 per cent in H1:2024-25 (Chart I.5a and Table I.3).[4] Core inflation (*i.e.*, CPI excluding food and beverages, pan, tobacco and intoxicants, and fuel and light) expectation was seen at 4.9 per cent in Q2:2023-24, 4.7 per cent in Q3, 4.6 per cent in Q4 and 4.6-4.7 per cent in H1:2024-25. Long-run inflation expectations of professional forecasters measured by their 5-year ahead expectations softened to 4.9 per cent while 10-year ahead expectations remained unchanged at 4.5 per cent (Chart I.5b).

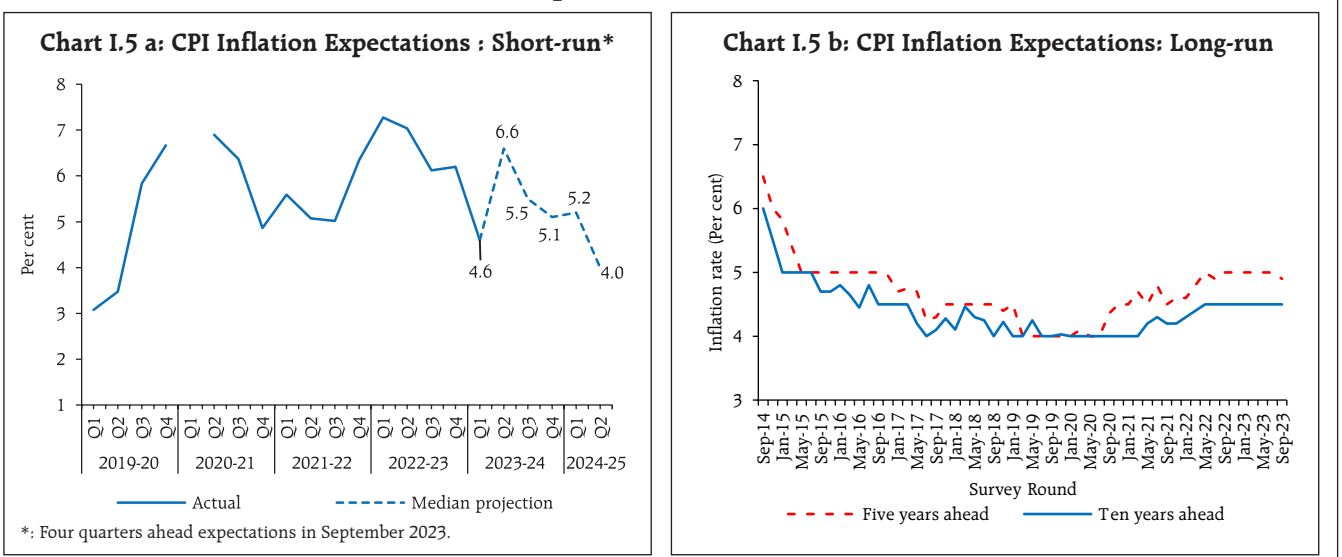
Looking ahead, the outlook for inflation will be conditioned heavily by food inflation dynamics. The south-west monsoon rainfall has been uneven, with August recording a 36 per cent deficiency in rainfall. Water reservoir levels have dipped and *El Niño* conditions are taking hold although the Indian Ocean Dipole (IOD) has turned positive which could limit *El Niño* effects. *Kharif* sowing has exceeded last year's levels but with shortfalls in area under pulses and oilseeds. Global supply chains are improving from their pandemic disruptions. Geopolitical hostilities pose upside risks to global commodity prices across the board – food, crude oil and metals. Taking into account the initial conditions, signals from forward-looking surveys and estimates from time-series and structural models[5], CPI inflation is projected to average 5.4 per cent in 2023-24 – 6.4 per cent in Q2, 5.6 per

[3] Based on 581 services companies and 104 infrastructure firms polled in the July-September 2023 round of the services and infrastructure outlook survey.

[4] 41 panellists participated in the September 2023 round of the Reserve Bank's survey of professional forecasters.

[5] Joice John, 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, Volume LXXVII(2), pp.59-77.

Chart I.5: Inflation Expectations of Professional Forecasters



Sources: Survey of Professional Forecasters, RBI; and NSO.

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

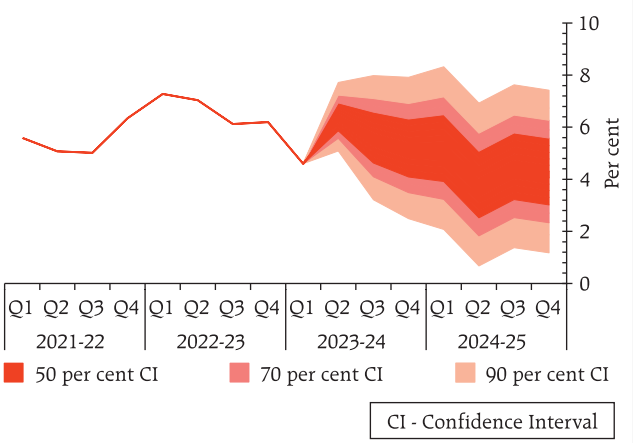
(Per cent)

	2023-24	2024-25
Reserve Bank's Baseline Projections		
Inflation, Q4 (y-o-y)	5.2	4.3
Real GDP growth	6.5	6.5
Median Projections of Professional Forecasters		
Inflation, Q4 (y-o-y)	5.1	-
Real GDP growth	6.2	6.3
Gross domestic saving (per cent of GNDI)	29.7	29.6
Gross capital formation (per cent of GDP)	31.1	31.6
Credit growth of scheduled commercial banks	13.5	12.9
Combined gross fiscal deficit (per cent of GDP)	8.7	8.3
Central government gross fiscal deficit (per cent of GDP)	5.9	5.4
Repo rate (end-period)	6.50	-
Yield on 91-days treasury bills (end-period)	6.8	6.2
Yield on 10-year central government securities (end-period)	7.0	6.8
Overall balance of payments (US$ billion)	22.6	11.3
Merchandise exports growth	-5.9	6.0
Merchandise imports growth	-4.5	6.0
Current account balance (per cent of GDP)	-1.5	-1.6

Note: GNDI: Gross National Disposable Income.
Source: RBI staff estimates; and Survey of Professional Forecasters (September 2023).

cent in Q3 and 5.2 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 Q4:2023-24 are 4.1–6.3 per cent and 3.5–6.9 per cent, respectively. For 2024-25, assuming a normal monsoon, and no further exogenous or policy shocks, structural

Chart I.6: Projection of CPI Inflation (y-o-y)



Note: The fan chart depicts uncertainty around the baseline projection path. The baseline projections are conditioned upon the assumptions set out in Table I.2. The thick red shaded area represents 50 per cent confidence interval, implying that there is 50 per cent probability that the actual outcome will be within the range given by the thick red shaded area. Likewise, for 70 per cent and 90 per cent confidence intervals, there is 70 per cent and 90 per cent probability, respectively, that the actual outcomes will be in the range represented by the respective shaded areas.
Source: RBI staff estimates.

model estimates indicate that inflation will average 4.5 per cent, in a range of 3.8-5.2 per cent. In Q4:2024-25, CPI inflation is projected at 4.3 per cent, with the 50 per cent and the 70 per cent confidence intervals at 3.0–5.6 per cent and 2.3–6.3 per cent, respectively.

The baseline forecasts are subject to several upside and downside risks. The upside risks emanate from more persistent food price increases due to weather-related disturbances, which could then feed into inflation expectations; further hardening of global commodity prices amidst an escalation of geopolitical tensions; and a larger pass-through of input cost pressures to output prices. The downside risks could emanate from an early resolution of geopolitical tensions, a steep correction in global crude and commodity prices in the event of a sharp slowdown in the global growth, and further improvement in supply conditions.

Monetary policy communication has emerged as an important tool for managing and anchoring expectations and strengthening monetary transmission in an environment of heightened uncertainty. A textual analysis of the Reserve Bank's MPRs shows that their tone has been in consonance with the evolving price and output developments, which strengthens the monetary policy communication channel (Box I.1).

Box I.1: Monetary Policy Reports as a Communication Tool: Textual Analysis

Central banks communicate through a variety of channels – monetary policy statements; speeches; press conferences; minutes; testimonies; and monetary policy (or inflation) reports. A growing literature is undertaking a quantitative textual analysis of these documents, especially monetary policy reports (MPRs), to assess the communication tone (Cherry and Tong, 2023). A textual analysis of the Reserve Bank's 15 MPRs (Chapters 1-3) since April 2016 is undertaken by using a pre-determined list of positive and negative words (Loughran and McDonald, 2011). The quantitative estimate of MPR's tone and subjectivity is obtained by estimating two parameters - Polarity Ratio[6] and Subjectivity Ratio[7].

$$Polarity\ Ratio_t = \frac{Positive_t - Negative_t}{Positive_t + Negative_t}$$

$$Subjectivity\ Ratio_t = 100 * \frac{Positive_t + Negative_t}{N_t}$$

where $Positive_t$ and $Negative_t$ are the number of words matched with the pre-determined list in each report and N_t is the total number of words used.

Communication can be more effective if it is easily understood by the general public. For this, the readability of the MPRs is checked using Flesch–Kincaid (FK) Grade Level and Gunning-Fog (FOG) indices (Ferrara and Angino, 2022). The scores provided by these indices can be interpreted as the number of years of education required to understand a text. The higher the score, the greater the complexity of the language used.

$$FK = 0.39\frac{Total\ words}{Total\ sentences} + 11.8\ \frac{Total\ syllables}{Total\ words} - 15.6$$

$$FOG = 0.4\left[\left(\frac{Total\ words}{Total\ sentences}\right) + 100\left(\frac{Complex\ words^{8}}{Total\ words}\right)\right]$$

The tone of the MPRs, as seen from the polarity score, is within the neutral range (-0.5 to +0.5) and has moved in line with the evolving price and output developments (Chart I.1.1). The MPR has turned more objective over time, as indicated by the downward sloping subjectivity index. According to the readability indices, the MPRs require at least a high school education for understanding[9] them, notwithstanding some recent improvement.

(Contd.)

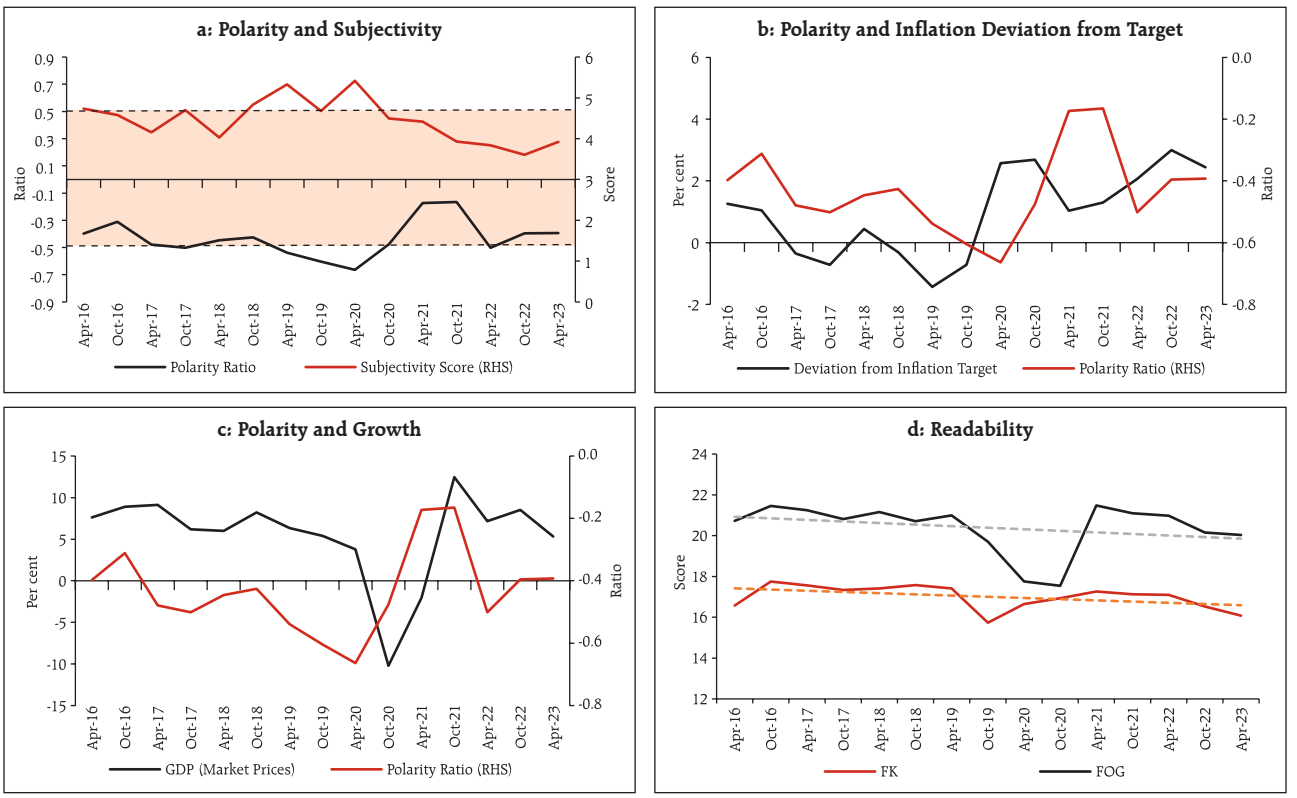
[6] The polarity score is a ratio between -1 and 1. A score in the range of -1 to -0.5 typically indicates negative sentiment, between -0.5 and 0.5 neutral sentiment, and 0.5 to 1 positive sentiment.

[7] The subjectivity score captures the number of words that carry sentiment as a proportion of total number of words.

[8] Complex words are words with three or more syllables, and that are not proper nouns.

[9] This is in line with literature whereby central bank monetary policy press documents are generally observed to have FK and FOG scores in the range of 12-18 years and 17-23 years, respectively.

Chart I.1.1: Sentiment and Readability Tests



Note: Shaded area in Chart a indicates neutral sentiment for polarity ratio.
Source: RBI staff estimates.

References:

Cherry R., and Tong E. (2023), "Words of RBNZ: Textual Analysis of Monetary Policy Statement", *Analytical Notes* AN2023/4, Reserve Bank of New Zealand.

Ferrara M. F., and Angino S. (2022), "Does Clarity Make Central Banks More Engaging? Lessons from ECB Communications", *European Journal of Political Economy*, Vol. 74,102146.

Loughran T., and McDonald B. (2011), "When Is a Liability Not a Liability? Textual Analysis Dictionaries and 10-Ks", *The Journal of Finance*, Vol. LXVI (1), pp. 35-65.

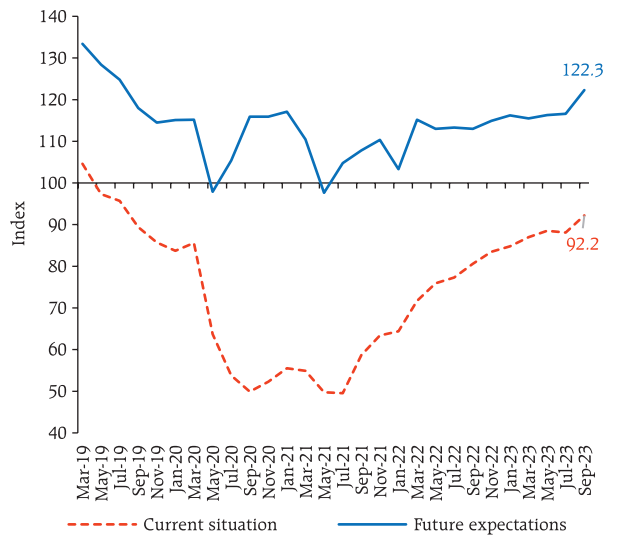
Misra S., and Aastha (2023), "How does the Monetary Policy Report (MPR) Fare as a Communication Tool? Evidence from Textual Analysis", *mimeo.*

I.3 The Outlook for Growth

Domestic economic activity is being supported by robust agricultural performance, sustained buoyancy in contact-intensive services, the boost to investment from the government's thrust on capital expenditure, above trend capacity utilisation in manufacturing, double digit credit growth, and healthier corporate and bank balance sheets. Slowing global growth, the drag from exports, geopolitical risks and volatile global financial conditions, however, weigh heavily on the outlook.

Turning to the key messages from forward-looking surveys, consumer confidence (the current situation index) has improved in the September 2023 survey round *vis-à-vis* the previous round on account of better perceptions on the general economic and employment situation. Consumers' optimism for the year ahead, measured by the future expectations

Chart I.7: Consumer Confidence



Source: Consumer Confidence Survey, RBI.

index, remains upbeat on improved expectations about the general economic situation, employment, and income conditions (Chart I.7).[10]

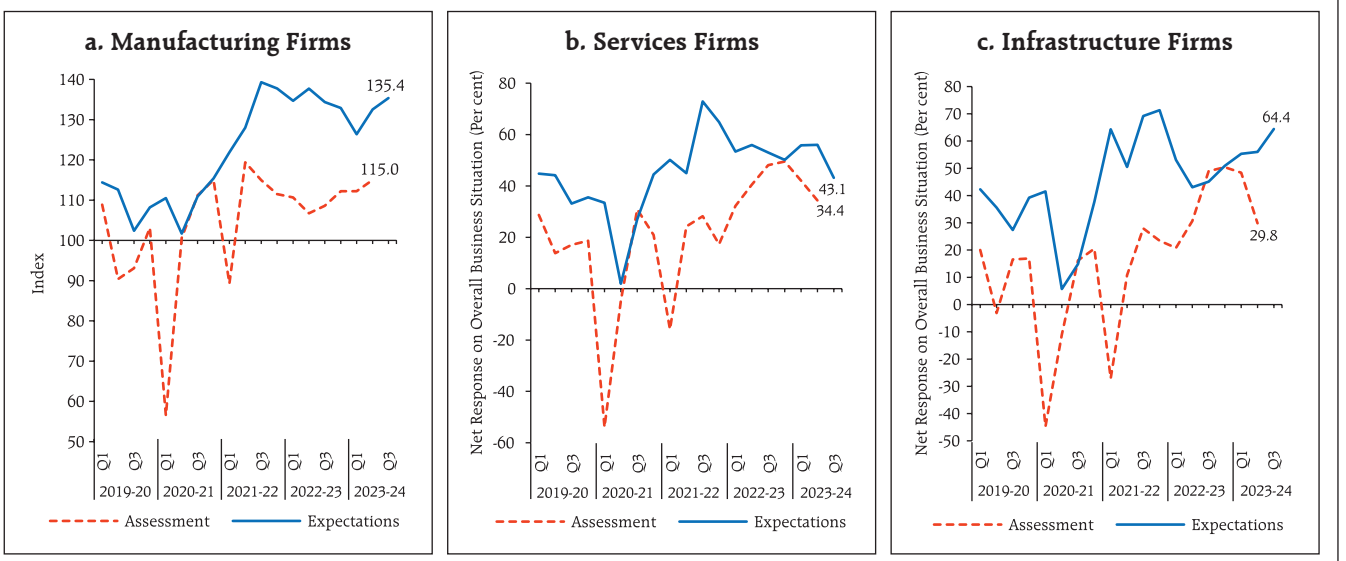
In the Reserve Bank's industrial outlook survey of July-September 2023, manufacturing firms are optimistic about demand conditions in Q3:2023-24 (Chart I.8a). While the optimism of services sector companies waned in Q3 *vis-à-vis* the previous round, infrastructure sector companies remain upbeat in terms of the overall business situation (Charts I.8b and I.8c).

Recent surveys by other agencies signal a mixed picture on business expectations relative to the previous round (Table I.4). Manufacturing and services firms in the PMI surveys for September 2023 exhibited optimism for the year ahead.

The professional forecasters polled in the September 2023 round of the Reserve Bank's survey expect real GDP growth at 6.3 per cent in Q2:2023-24, 5.8 per cent in Q3, 5.4 per cent in Q4 and 6.0-6.4 per cent in H1:2024-25 (Chart I.9).

Taking into account the baseline assumptions, survey indicators and model forecasts, real GDP growth is expected at 6.5 per cent in 2023-24 – 6.5 per cent in Q2; 6.0 per cent in Q3; and 5.7 per cent in Q4 – with risks evenly balanced around this baseline path

Chart I.8: Business Assessment and Expectations



Sources: Industrial Outlook Survey; and Services and Infrastructure Outlook Survey, RBI.

[10] 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 September 2023 round are based on responses from 6,077 respondents.

Table I.4: Business Expectations Surveys

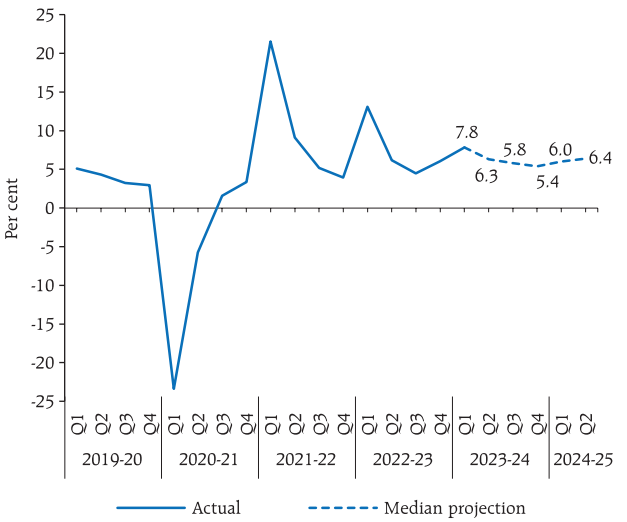
Item	NCAER Business Confidence Index (July 2023)	FICCI Overall Business Confidence Index (August 2023)	Dun and Bradstreet Composite Business Optimism Index (September 2023)	CII Business Confidence Index (September 2023)
Current level of the index	128.0	64.8	70.0	67.1
Index as per previous survey	149.7	62.5	73.1	66.1
% change (q-o-q) sequential	-14.5	3.7	-4.2	1.6
% change (y-o-y)	-7.6	-0.3	0.2	7.8

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 and CII Business Confidence Index are for Q2:2023-24 and data for the rest pertain to Q1:2023-24.

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

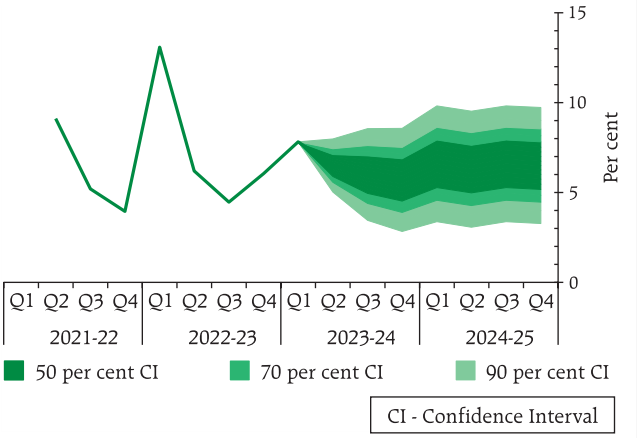
(Chart I.10 and Table I.3). For 2024-25, assuming a normal monsoon and no major exogenous or policy shocks, structural model estimates indicate real GDP growth at 6.5 per cent, with quarterly growth rates in the range of 6.3-6.6 per cent.

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



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

Chart I.10: Projection of Growth in Real GDP (y-o-y)



Note: The fan chart depicts uncertainty around the baseline projection path. The baseline projections are conditioned upon the assumptions set out in Table I.2. The thick green shaded area represents 50 per cent confidence interval, implying that there is 50 per cent probability that the actual outcome will be within the range given by the thick green shaded area. Likewise, for 70 per cent and 90 per cent confidence intervals, there is 70 per cent and 90 per cent probability, respectively, that the actual outcomes will be in the range represented by the respective shaded areas.

Source: RBI staff estimates.

There are upside and downside risks to this baseline growth path. The upside risks emanate from a stronger-than-expected rebound in contact-intensive services, some of which have still to catch up to their pre-pandemic levels; a more vigorous boost to private investment from government's capex push and healthier corporate balance sheets; more resilient global growth; and an early resolution of the geopolitical conflict. On the contrary, an escalation in geopolitical tensions, a further hardening of international crude oil, food and commodity prices, a sharper loss of momentum 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 contingent upon the baseline assumptions set out in Table I.2. These assumptions remain subject to a range of uncertainties as elucidated earlier. Against this backdrop, this section explores plausible alternative scenarios to assess the balance of risks to the baseline projections.

(i) Global Growth Uncertainties

Global growth is slowing after a relatively strong outturn in H1:2023. There are downside risks to the baseline assumption from the elevated inflation trajectory in major economies, an extended phase of tight financial conditions from expectations of interest rates remaining elevated over a prolonged horizon, protracted geopolitical hostilities, supply chain fragmentations and substantive slowdown in China. Global inflation, though moderating, remains hostage to the risk of a wage-price spiral owing to tight labour markets in several AEs. There is a strong common global component in headline and core inflation across countries (Box I.2), which could exert

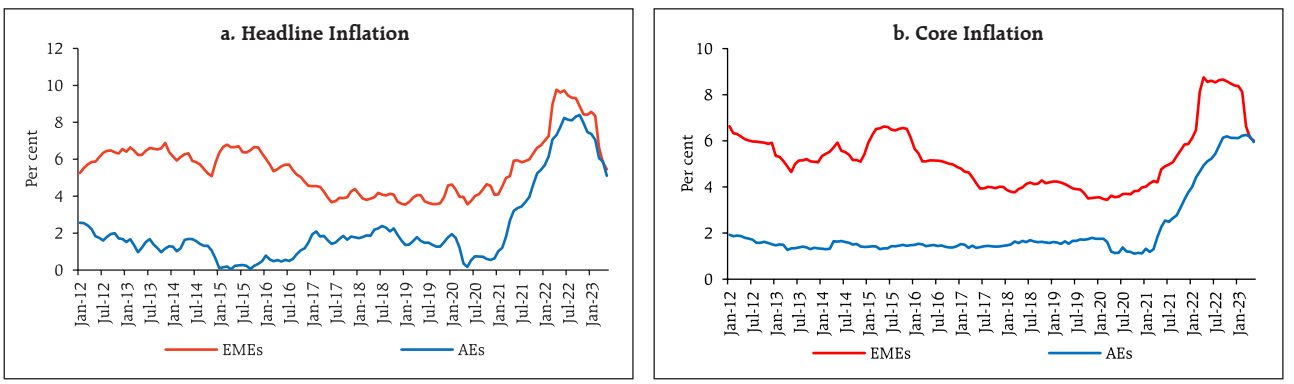
Box I.2: Inflation Co-movements and Idiosyncrasies: A Cross-Country Analysis

The sharp rise in global commodity prices, the widespread supply chain disruptions caused by the pandemic and the conflict in Ukraine, and strong demand due to large monetary and fiscal stimulus led to an upsurge in inflation across geographies in 2022 (Chart I.2.1a and b). Structural factors such as movements in international trade and financial flows and more integrated supply chains added to the synchronisation of inflation (Ha *et al.*, 2019). To empirically assess the role of such global (common) factors, a Generalised Dynamic Factor Model (GDFM) is estimated for headline as well as core inflation for a sample of 26 countries[11] including both AEs and emerging market economies (EMEs) for the period January 2012-May 2023 (Equation 1 below).

$$\pi_{it} = b_i(L)f_t + \xi_{it} \quad \ldots (1)$$

where π_{it} is headline or core inflation of country i at time t; the multiplicative term $b_i(L)f_t$ represents the common component whereas ξ_{it} is the idiosyncratic (*i.e.*, country-specific) component of inflation. The common component captures the impact of a common global shock or factor f_t on country-level inflation filtered through country loadings represented by the lag polynomial $b_i(L)$ (Forni *et al.*, 2000). The global component is the weighted average of the common component of the sample economies, with the weights being their respective shares in the aggregate GDP at market exchange rates. The empirical analysis indicates that the share of the global component[12] in the variance of inflation is (i) higher for AEs than EMEs (both for headline and core) on the one hand and (ii) higher for headline than core inflation on the other (Chart I.2.2 a and b). Thus, the co-movement in inflation is stronger in AEs relative to EMEs and in headline inflation relative to core. The share of variance explained by the global common factor for core inflation was muted in the pre-

Chart I.2.1: Headline and Core Inflation



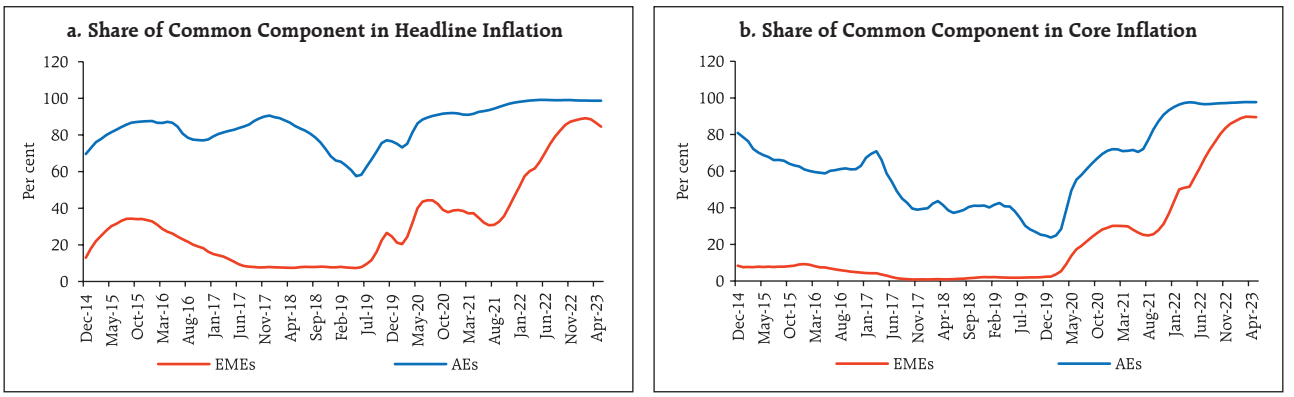
Sources: RBI staff estimates; CEIC; IMF.

(Contd.)

[11] The sample AE countries are: Canada, Czech Republic, European Union, Israel, Japan, Norway, Singapore, South Korea, Sweden, Switzerland, Taiwan, United Kingdom and United States. The sample EMEs are: Brazil, Colombia, Hungary, India, Indonesia, Mexico, Nigeria, Peru, Philippines, Russia, Romania, South Africa and Thailand.

[12] Based on 36-month moving average.

Chart I.2.2: Share of Common Component in Headline and Core Inflation in AEs and EMEs



Source: RBI staff estimates.

Table I.2.1: Factors Driving the Common Component in Headline and Core Inflation

	Headline Inflation			Core Inflation		
	(1)	(2)	(3)	(4)	(5)	(6)
	Global	EMEs	AEs	Global	EMEs	AEs
Dependent variable, lag	0.940***	0.943***	0.940***	0.992***	0.990***	0.992***
	(0.011)	(0.011)	(0.011)	(0.008)	(0.008)	(0.008)
Crude Inflation	0.058***	0.027***	0.065***	0.020*	0.013**	0.021*
	(0.015)	(0.008)	(0.017)	(0.011)	(0.006)	(0.012)
Food Inflation	0.061***	0.030***	0.068***	0.051***	0.028***	0.057***
	(0.016)	(0.008)	(0.018)	(0.012)	(0.006)	(0.013)
Dollar Appreciation	0.038***	0.021***	0.041***	0.029***	0.020***	0.031***
	(0.009)	(0.004)	(0.010)	(0.007)	(0.003)	(0.007)
Metal Price (y-o-y)	-0.016	-0.008	-0.018	-0.001	-0.004	0.000
	(0.016)	(0.008)	(0.017)	(0.011)	(0.006)	(0.013)
VIX (y-o-y)	-0.001	-0.000	-0.002	0.012**	0.009***	0.013*
	(0.008)	(0.004)	(0.009)	(0.006)	(0.003)	(0.007)
Constant	0.008	0.003	0.009	0.014**	0.006**	0.015**
	(0.007)	(0.004)	(0.008)	(0.005)	(0.003)	(0.006)
Adj. R2	0.990	0.989	0.990	0.995	0.994	0.995
Observations	136	136	136	136	136	136

Standardized values of independent variables; standard errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Source: RBI staff estimates.

pandemic period but has surged in the pandemic phase and remains elevated.

A deep dive into the potential determinants shows that the global component is highly persistent and driven by international crude prices, global food inflation and US dollar appreciation for headline as well as core inflation, and for AEs as well as EMEs. The volatility in financial markets – represented by the VIX – is a significant driver of the common component of core inflation, but not of headline inflation. Shocks to global crude and food prices and the US dollar have stronger impact on the common component of headline inflation than that of core inflation (Table I.2.1).

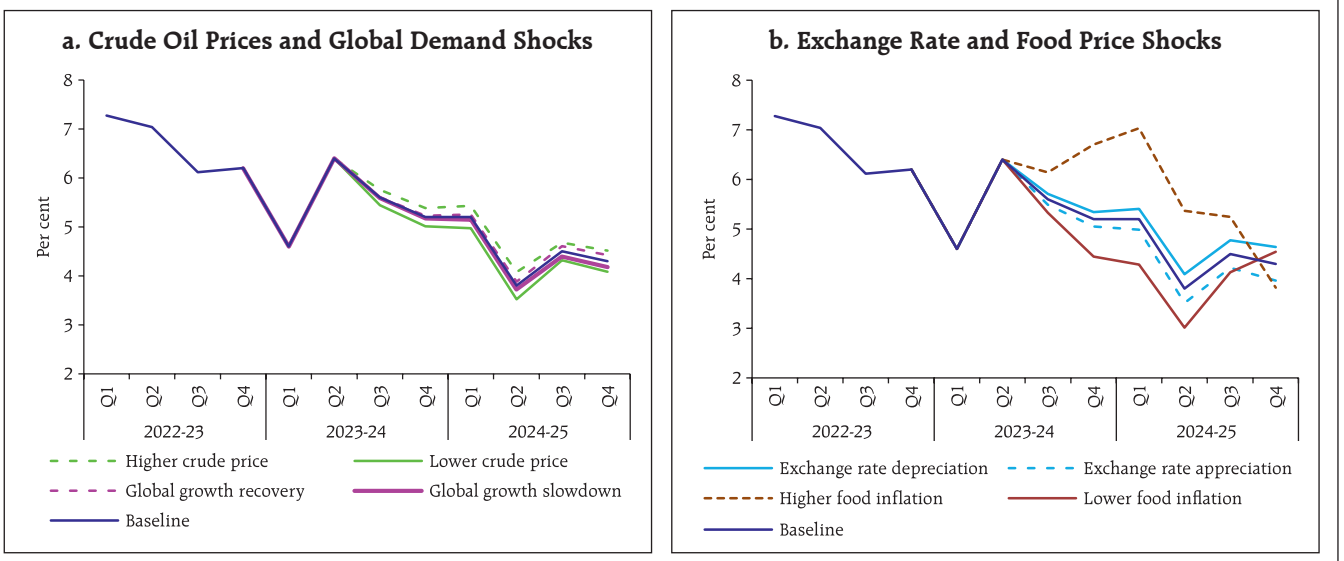
References:

Forni, M., Hallin,M., Lippi, M., and Reichlin, R. (2000), "The Generalized Dynamic-Factor Model: Identification and Estimation", *The Review of Economics and Statistics*, Vol. 82, pp. 540-554.

Ha, J., Kose, M. A., and F. Ohnsorge (2019): *Inflation in Emerging and Developing Economies: Evolution, Drivers, and Policies*, Washington, DC: World Bank.

sustained upward inflation pressures and necessitate further monetary tightening which, in turn, could weigh down on output. 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, if inflation in major economies retreats faster than anticipated, geopolitical tensions ebb and the stimuli measures are able to reverse the slowdown in the Chinese economy quickly, global growth may remain resilient. In this scenario, if global growth is higher by 50 bps, domestic growth

Chart 1.11: Impact of Risk Scenarios on the Baseline Inflation Path



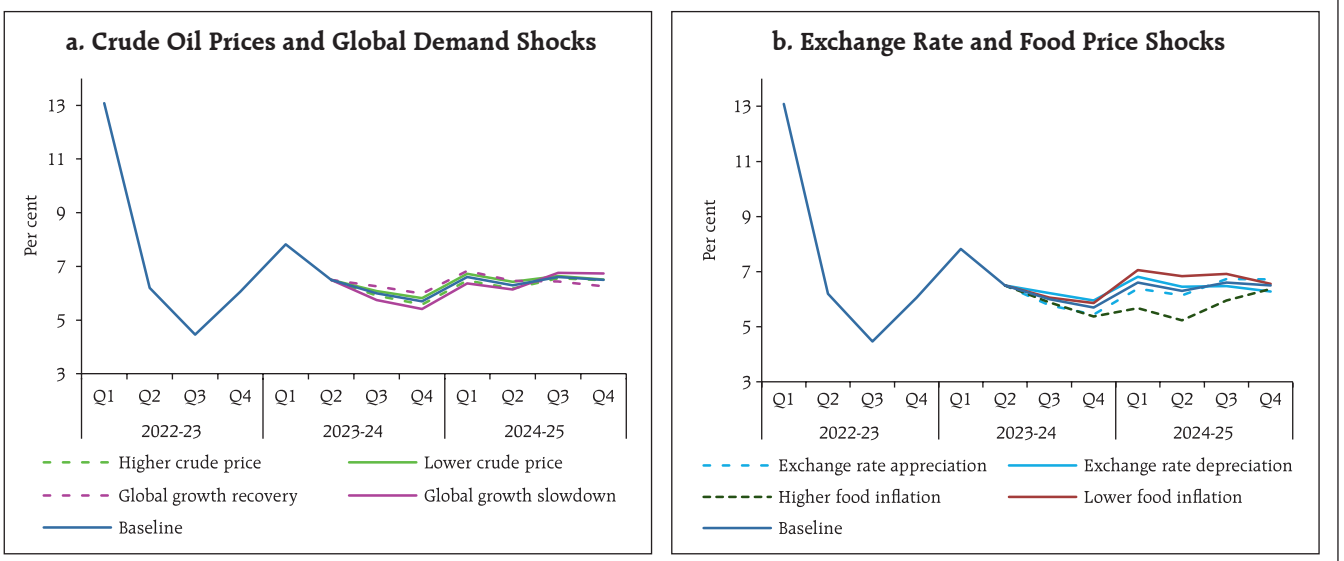
Source: RBI staff estimates.

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 over the past six months. An escalation of geopolitical hostilities and further production cuts by OPEC *plus* amidst strong demand pose upside risks to global crude prices. Assuming crude oil price to be 10 per cent above the baseline, domestic inflation and growth could be higher by 30 bps and weaker by around 15 bps, respectively. Conversely, a de-escalation of geopolitical tensions, improved supply from non-OPEC producers and alternative energy sources, and a further weakening of global demand owing to aggressive monetary policy actions by central

Chart 1.12: Impact of Risk Scenarios on the Baseline Growth Path



Source: RBI staff estimates.

banks 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 domestic product prices, inflation could ease by around 30 bps with a boost of 15 bps to growth (Charts I.11a and I.12a).

(iii) Exchange Rate

The INR has fluctuated in both directions against the US dollar over the past six months. Looking ahead, the 'higher for longer' interest rate scenario in the US and other AEs could keep risk aversion towards EME assets elevated and impinge upon capital flows. Global foreign direct investment flows are also slowing. Crude oil and other commodity prices could harden over the baseline. Should the INR depreciate by 5 per cent over the baseline, inflation could edge up by 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 bright spot in the global economy and is pivotal to the global outlook. These developments, along with a strengthening of domestic macroeconomic fundamentals, could enhance India's attraction 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 (Charts I.11b and I.12b).

(iv) Food Inflation

Food inflation exhibited sizeable volatility in H1:2023-24, driven by large shocks to vegetable prices due to extreme weather events which are occurring more frequently and with more force. The risk of *El Niño* has materialised, resulting in the driest August on record, and water reservoir levels have dipped below the decadal average levels. These developments impart a heightened uncertainty to the *kharif* and the ensuing *rabi* crops. The global food price outlook is also subject to significant upside risks from the historically unprecedented heatwave sweeping across the globe. All these developments could impart sizeable upside to the domestic food inflation trajectory and could raise headline inflation by around 100 bps over the baseline. On the other hand, given the robust *kharif* sowing, improved irrigation facilities, the IOD turning positive, ample foodgrains buffer stocks and effective supply management could help ease food inflationary pressures and pull headline inflation 50 bps below the baseline (Charts I.11b and I.12b).

I.5 Conclusion

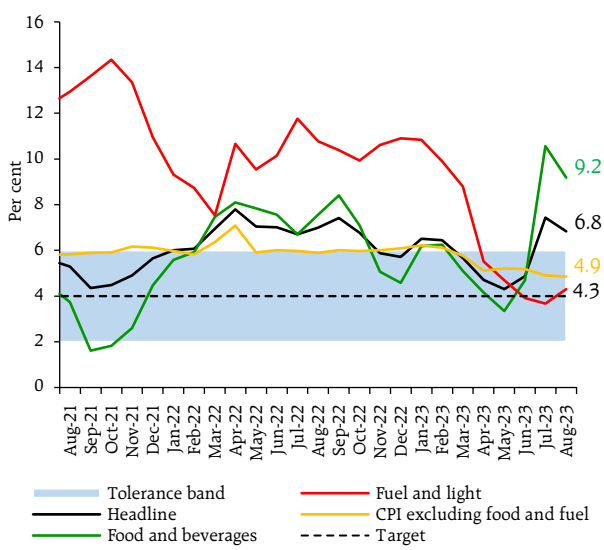
Economic activity in India is expected to remain backed up by strong macroeconomic fundamentals. Large supply shocks are, however, leading to recurrent bouts of inflation and pose challenge to the overall outlook. The uneven south-west monsoon, *El Niño* formation and the volatile global food prices outlook impart significant uncertainty to the outlook of food and headline inflation, even as core inflation is showing some signs of easing. Thus, price developments warrant heightened vigil and monetary policy remains focused on aligning inflation with the target. A firm anchoring of inflationary expectations can pave the path for sustained growth in the medium-term. Geopolitical hostilities, stubborn global inflation, volatile global financial markets and energy prices, and climate shocks are the key risks to the growth and the inflation outlook.

II. Prices and Costs

Headline inflation has been undergoing considerable volatility, breaching the upper tolerance band of 6 per cent in July-August, due to repeated supply side shocks even as core inflation has been moderating. Industrial and farm input price pressures have eased while nominal rural wage growth has been firming up. Going forward, the inflation trajectory will be shaped by weather conditions and the evolution of global food and crude oil prices.

Since the April 2023 MPR, consumer price index (CPI) headline inflation[1] has seen considerable volatility, moving in a wide range of 4.3 per cent to 7.4 per cent during February-August 2023. It initially moderated from 6.4 per cent in February 2023 to 4.3 per cent in May 2023. These gains were reversed from June on accentuation of food price pressures, and headline inflation surged to 7.4 per cent in July. In August, the onset of vegetable price correction softened it to 6.8 per cent. Core inflation (CPI excluding food and fuel)[2] has eased between February and August 2023 by 1.3 percentage points (Chart II.1).

Chart II.1: CPI Inflation (y-o-y)



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

The Reserve Bank of India (RBI) Act enjoins the RBI to set out deviations of actual inflation outcomes from projections, if any, and the underlying reasons thereof. The April 2023 MPR had projected inflation at 5.1 per cent for Q1:2023-24 and 5.4 per cent for Q2 (Chart II.2). In Q1, actual inflation at 4.6 per cent trailed projection by 50 basis points (bps), as food inflation turned out to be lower than anticipated due to a muted seasonal pick-up in vegetables prices during April-May and a sustained decline in prices of edible oil. In Q2 (July-August), on the other hand, the actual outcome at 7.1 per cent exceeded the projection by 170 bps due to a steep rise in vegetables prices, particularly those of tomatoes. In fact, vegetable prices and even overall food prices registered the highest month over month increase in the current CPI series (2012=100) in July, resulting in the projection error.

II.1 Consumer Prices

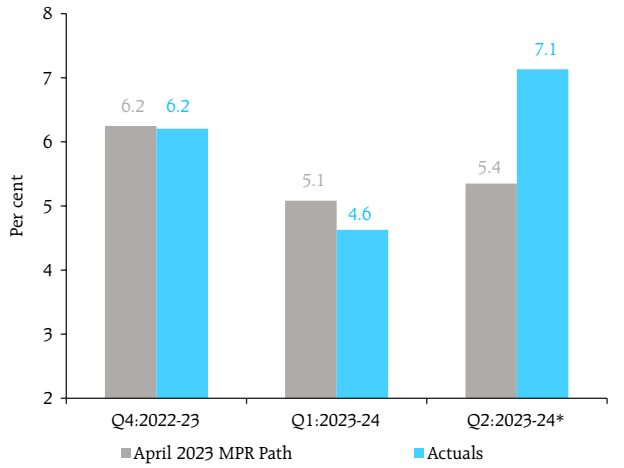
During H1:2023-24, headline inflation movements benefited from strong favourable base effects[3] averaging one percentage point during March-May 2023, which pulled down headline inflation from 6.4 per cent in February to 4.3 per cent in May. Thereafter, a pick-up in the price momentum,

[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.

[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.

Chart II.2: CPI Inflation (y-o-y): Projection *versus* Actual

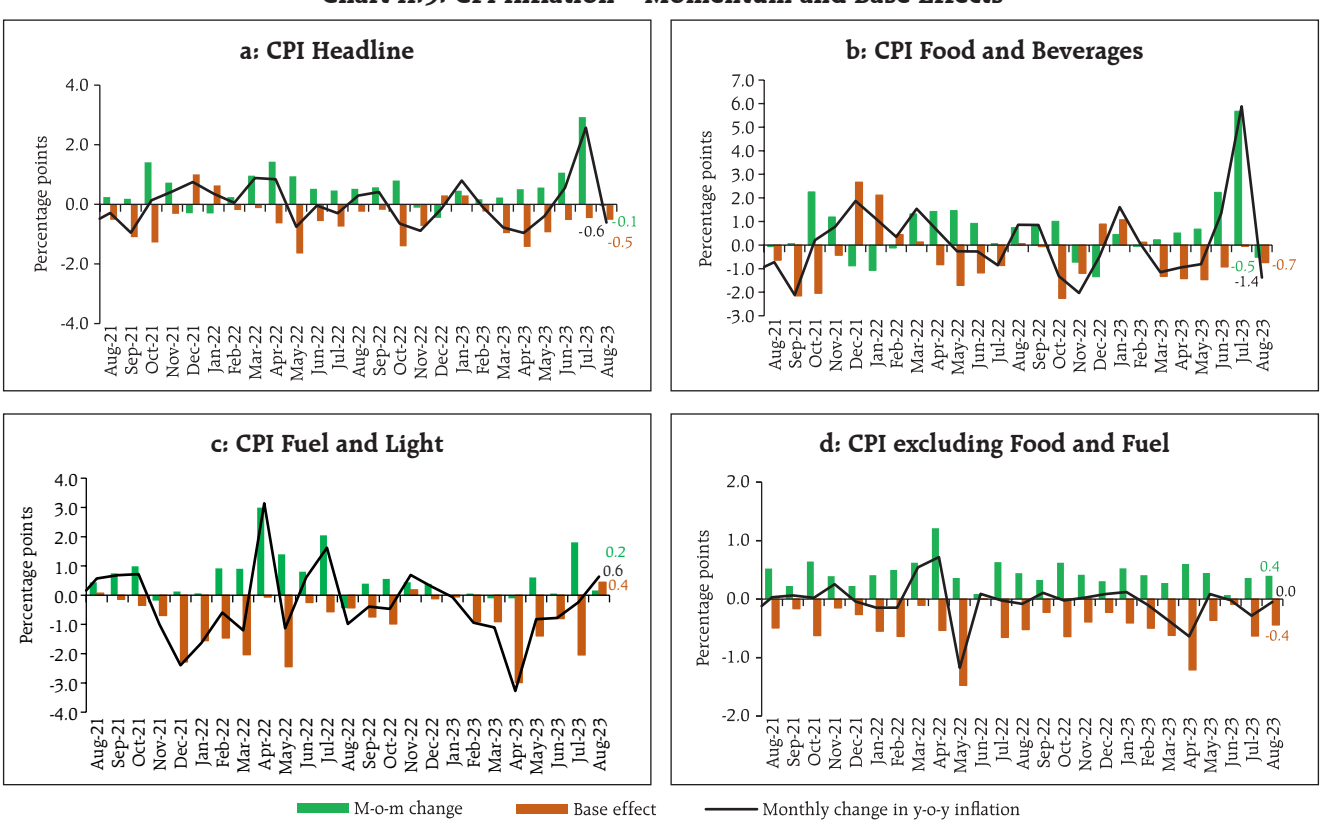


*: Projections for Q2:2023-24 *vis-a-vis* actual average inflation for July-August 2023.
Sources: NSO; and RBI staff estimates.

alongside waning base effects led to an uptick in headline inflation to 4.9 per cent in June. In July, an all-time high momentum in food prices (5.7 per cent) and strong momentum in fuel (1.8 per cent) led to a record monthly momentum of 290 bps in headline inflation, pushing the y-o-y inflation to 7.4 per cent. In August, a decline in momentum, along with favourable base effects helped soften inflation to 6.8 per cent (Chart II.3).

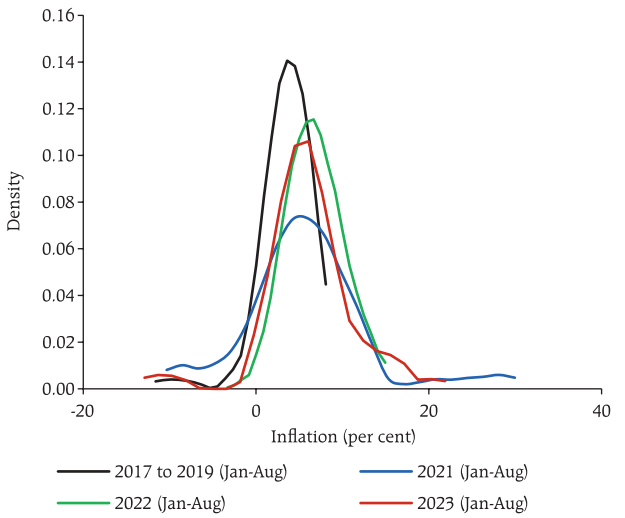
The CPI inflation distribution during 2023 *vis-à-vis* the earlier years was marked by a significant increase in standard deviation, mirroring the large variation in inflation rates, even as the mean of the distribution fell to 5.8 per cent in 2023 (January-August) from 6.8 per cent in the corresponding period of 2022

Chart II.3: CPI Inflation – Momentum and Base Effects



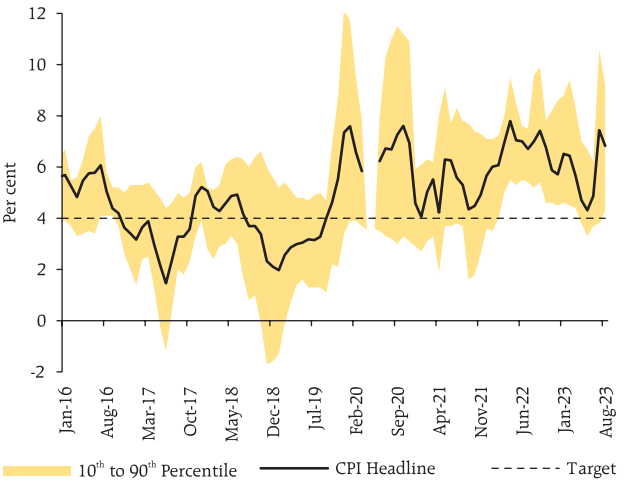
Sources: NSO; and RBI staff estimates.

Chart II.4: Average CPI Inflation (y-o-y) (Kernel Density Estimates)



Sources: NSO; and RBI staff estimates.

Chart II.5: CPI Sub-Group/Group Inflation Range (y-o-y)

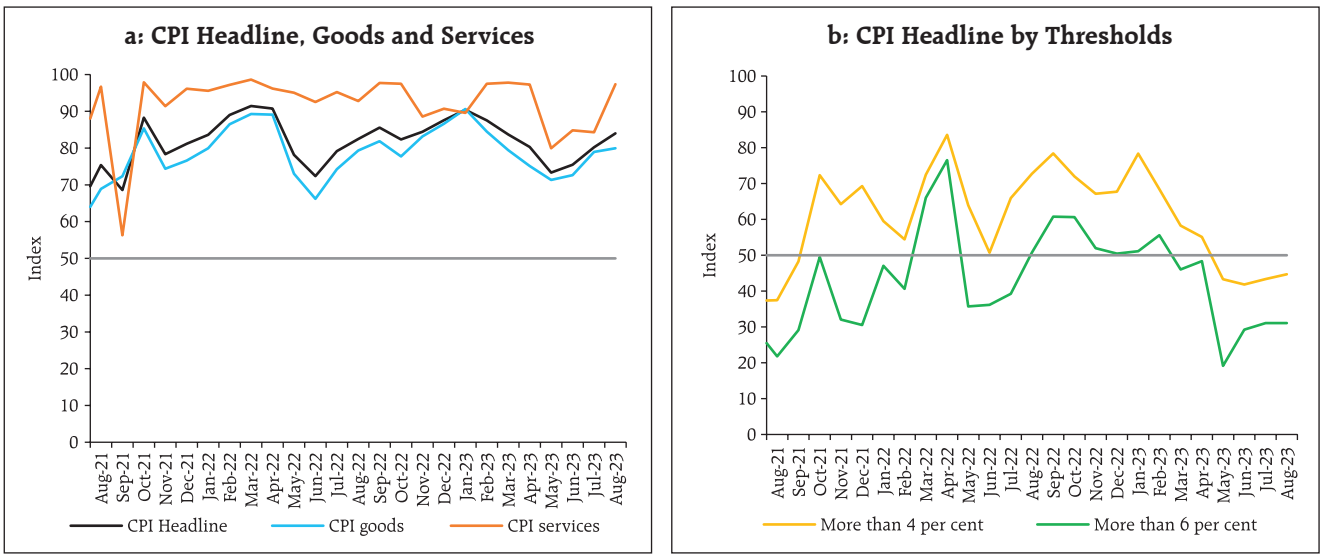


Note: The imputed CPI prints for April and May 2020 have been regarded as a break in the CPI series.
Sources: NSO; and RBI staff estimates.

(Chart II.4). Inflation variability increased substantially across the CPI sub-groups during July-August 2023 following the vegetable price shock (Chart II.5).

Diffusion indices (DIs)[4] softened during March-May 2023 as the fall in inflation was accompanied by a narrowing of the spread of price increases across the CPI basket, driven largely by prices of goods (Chart II.6a). Moreover, unlike a year ago when price increases in excess of 4 per cent on a seasonally adjusted annualised rate (saar) basis were the norm

Chart II.6: CPI Diffusion Indices (M-o-M Seasonally Adjusted)



Sources: NSO; and RBI staff estimates.

[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.

across the CPI basket, there was a marked slowdown in the magnitude of price increases since March 2023 as measured by threshold DI[5] (Chart II.6b). During June-August, the diffusion of price increases broadened across goods and services, though a majority of items registered price increases of less than 4 per cent on a saar basis.

II.2 Drivers of Inflation

A historical decomposition of inflation using a vector autoregression (VAR)[6] model indicates that the moderation in inflation in Q1:2023-24 came from a waning of supply side shocks as also from the disinflation engendered by the transmission of past monetary policy actions. Of the 270 bps moderation in headline inflation (from 7.3 per cent in April-June 2022 to 4.6 per cent in April-June 2023), 130 bps was due to monetary policy tightening (a cumulative increase of 250 bps in the policy rate) and the remaining 140 bps was due to the waning of supply shocks. The jump in inflation in Q2:2023-24 (up to August) was entirely due to adverse supply shocks even though the restraining effects of cumulative monetary tightening were still playing out (Chart II.7a).

Goods inflation (with a weight of 76.6 per cent in overall CPI) contributed around three-fourths of headline inflation during March-May 2023 and services (with a weight of 23.4 per cent) the remaining one-fourth. By August, the contribution of goods to overall inflation rose to 81 per cent (Chart II.7b). Within goods, perishable items (non-durable with a 7-day recall[7]), particularly fruits, vegetables, and other food items such as eggs, meat, fish and milk were the main drivers. The contribution of semi-perishable items (non-durable goods with a 30-day recall) such as petroleum products, household items (particularly, washing soaps and powders), personal care items (like toiletries) and medicines declined from 46 per cent in March 2023 to 29 per cent in August. Similarly, the contribution of durables (goods with a 365-day recall) like clothing and footwear items, motor cycle/scooter, and household goods (furniture and electronic items) to overall inflation declined to 9 per cent in August 2023 from 14 per cent in March 2023.

With the gradual moderation in the international commodity prices since September 2022, the contribution of imported components[8] to headline inflation turned negative towards the end of 2022, driven down by the y-o-y fall in the prices of edible oils, energy, electronic goods parts, and polymer (Chart II.7c). With the pick-up in the global commodity prices in July 2023, primarily driven by energy prices, the negative contribution of imported inflation lessened to (-)1.2 per cent in August.

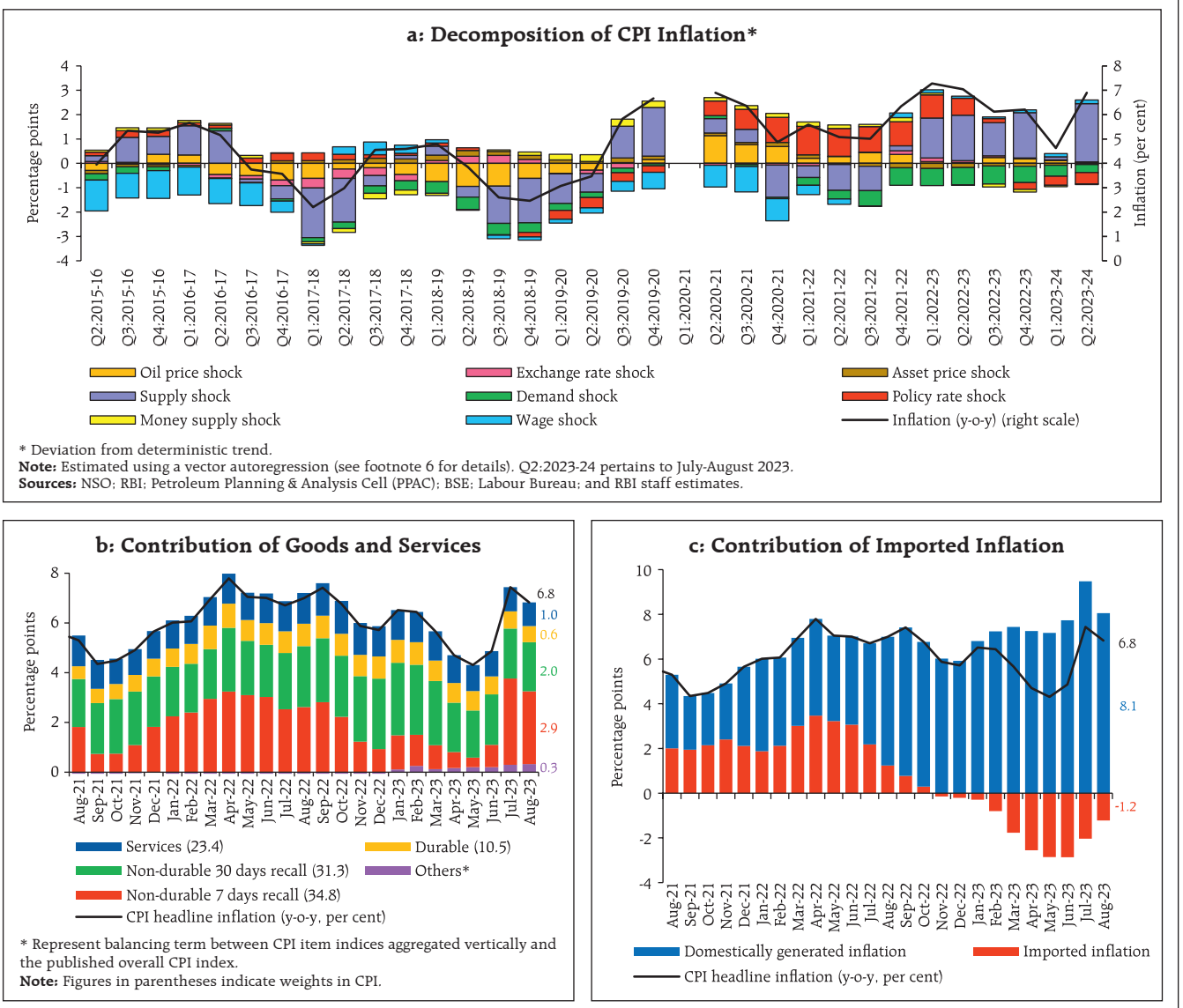
[5] Threshold diffusion indices capture the dispersion of price increases in CPI basket beyond the specified saar thresholds of 4 per cent and 6 per cent.

[6] Historical decomposition estimates the contribution of each shock to the movements in inflation over the sample period (Q4:2010-11 to Q2:2023-24) 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.

[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] 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.

Chart II.7: Drivers of CPI Inflation



* Deviation from deterministic trend.
Note: Estimated using a vector autoregression (see footnote 6 for details). Q2:2023-24 pertains to July-August 2023.
Sources: NSO; RBI; Petroleum Planning & Analysis Cell (PPAC); BSE; Labour Bureau; and RBI staff estimates.

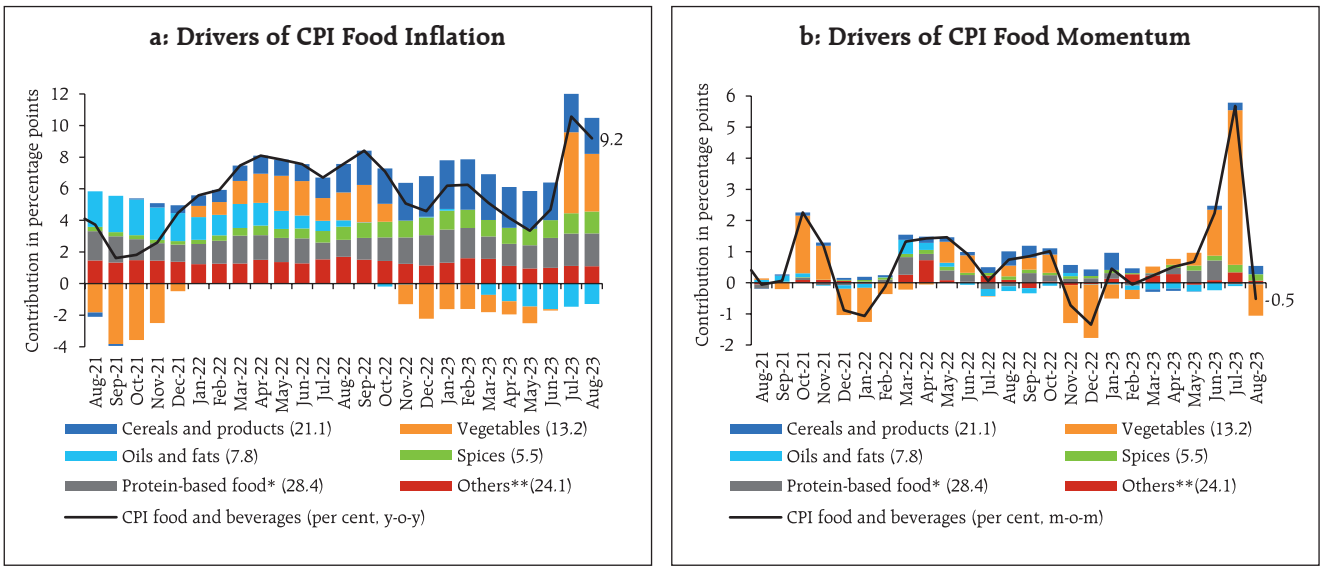
* Represent balancing term between CPI item indices aggregated vertically and the published overall CPI index.
Note: Figures in parentheses indicate weights in CPI.

Sources: NSO; and RBI staff estimates

Food Group

Food and beverages (weight of 45.9 per cent in the CPI basket) inflation, which was muted in Q1:2023-24 at 4.1 per cent, increased sharply to 10.6 per cent in July, led by the steep increase in vegetables prices. With corrections in the vegetable prices on fresh crop arrivals, food inflation moderated to 9.2 per cent in August. CPI food inflation excluding vegetables, however, increased to 6.4 per cent during July-August from 5.4 per cent in Q1 as inflation in respect of cereals, pulses, and spices remained elevated. Inflation in oils and fats remained in deflation, partially offsetting the upside pressures across other major sub-groups in the food basket (Chart II.8). The sharp increase in vegetables prices in July was due to supply disruptions caused by heavy rainfall and floods in the northern parts of the country and lower production due to pest attacks on crops in Karnataka and Maharashtra. Uneven rainfall distribution, delayed sowing of rice, and lower stock of wheat along with lower production

Chart II.8: CPI Food Inflation



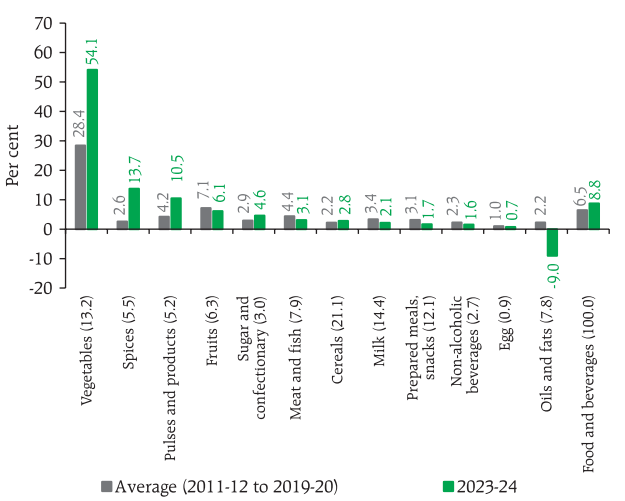
* Includes meat and fish, egg, milk and pulses.
** Includes fruits, sugar, non-alocoholic beverages and prepared meals.
Note: Figures in parentheses indicate weights in CPI food and beverages.
Sources: NSO; and RBI staff estimates.

of spices contributed to the hardening of prices in cereals and spices.

The overall food price build-up in 2023-24 was higher than historical patterns, driven by vegetables, spices, pulses, sugar and cereals. The price build-ups in six of the twelve sub-groups – fruits; meat and fish; milk; prepared meals; non-alcoholic beverages; and eggs – were lower than their long-term averages (Chart II.9).

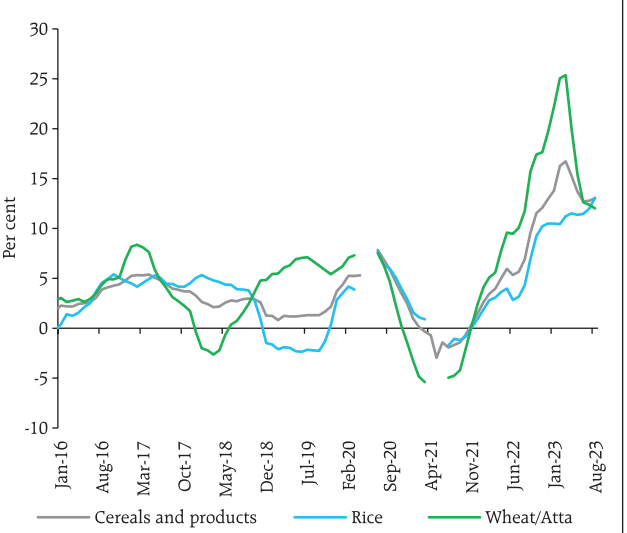
Inflation in cereals (weight of 9.7 per cent in the CPI and 21.1 per cent in the food and beverages group) remained elevated during April-August 2023 (Chart II.10). After a decline between March and May 2023, wheat prices surged as *rabi* wheat crop was

Chart II.9: Financial Year Price Build-up (August over March)



Note: Figures in parentheses indicate weights in CPI - food and beverages.
Sources: NSO; and RBI staff estimates.

Chart II.10: Cereals Inflation (y-o-y)



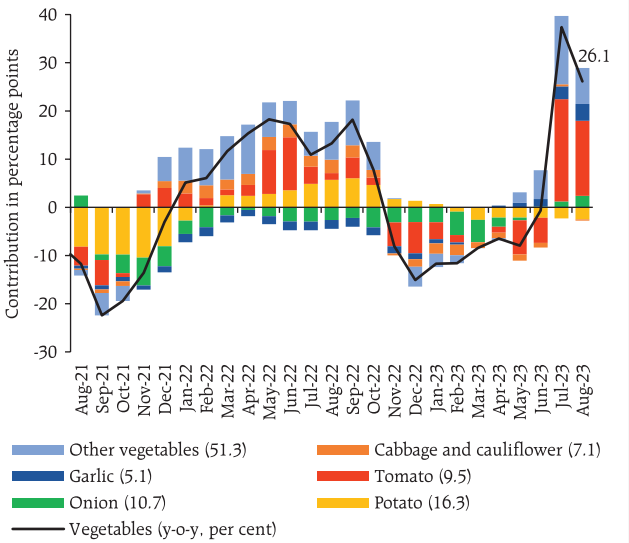
Sources: NSO; and RBI staff estimates

impacted by unseasonal rains. Rice prices increased sharply as uneven rainfall distribution led to delay in *kharif* sowing. However, sowing eventually picked up (1.9 per cent over last year as on September 29, 2023) on account of revival in monsoon. As part of the supply side interventions to improve domestic supply and ease price pressures, the Government (i) announced to release a cumulative 5 million tonnes of wheat and 2.5 million tonnes of rice in the open market in a phased manner; (ii) imposed an export duty on parboiled rice, restricted exports of non-basmati rice and levied stock limits on wheat; and (iii) stopped the diversion of subsidised rice to distilleries for ethanol production.

After being in deflation during November 2022-June 2023, prices of vegetables (weight of 6.0 per cent in the CPI and 13.2 per cent in the food and beverages group) increased sharply to record a y-o-y inflation of 37.4 per cent in July 2023, due to weather related crop damage and disrupted supply chains in North India. A pick-up in market arrivals and improved supply conditions caused inflation in this category to moderate to 26.1 per cent in August (Chart II.11).

Among key vegetables, tomato prices, on a y-o-y basis, surged by 202.1 per cent in July. A revival in market arrivals moderated tomato price inflation to 180.3 per cent in August 2023. Potato prices have remained in deflation since February 2023 on account of higher production last year (an increase of 6.3 per cent in 2022-23 as per 1st advance estimates (AE) over 2021-22). Onion prices, which were in deflation during September 2021-May 2023, recorded an inflation of 23.2 per cent in August 2023 on lower production [(-) 2.1 per cent in 2022-23 1st AE over 2021-22] as well as low quality of the *rabi* crop reducing shelf life. Overall, the record price increase in July propelled the tomato, onion, and potato (TOP) group price build-up (July-August over March) to one of the largest ever seen in the current CPI series (Chart II.12a). Vegetables excluding TOP – ginger, garlic, cauliflower, cabbage, brinjal and green chillies – also witnessed high price pressures in July due to rain induced supply disturbances. The price build-up in non-TOP vegetables during 2023-24 (up to August) was unprecedented by historical patterns and contributed substantially to the spike in vegetables inflation (Chart II.12b). With the improving supply situation, the prices of vegetables excluding TOP corrected in August. To rein in prices, the government announced sale of tomatoes at concessional rates at several markets in the country during July-August 2023 and release of onions (under the *Price Stabilisation Fund*) at subsidised rates from the buffer stocks.

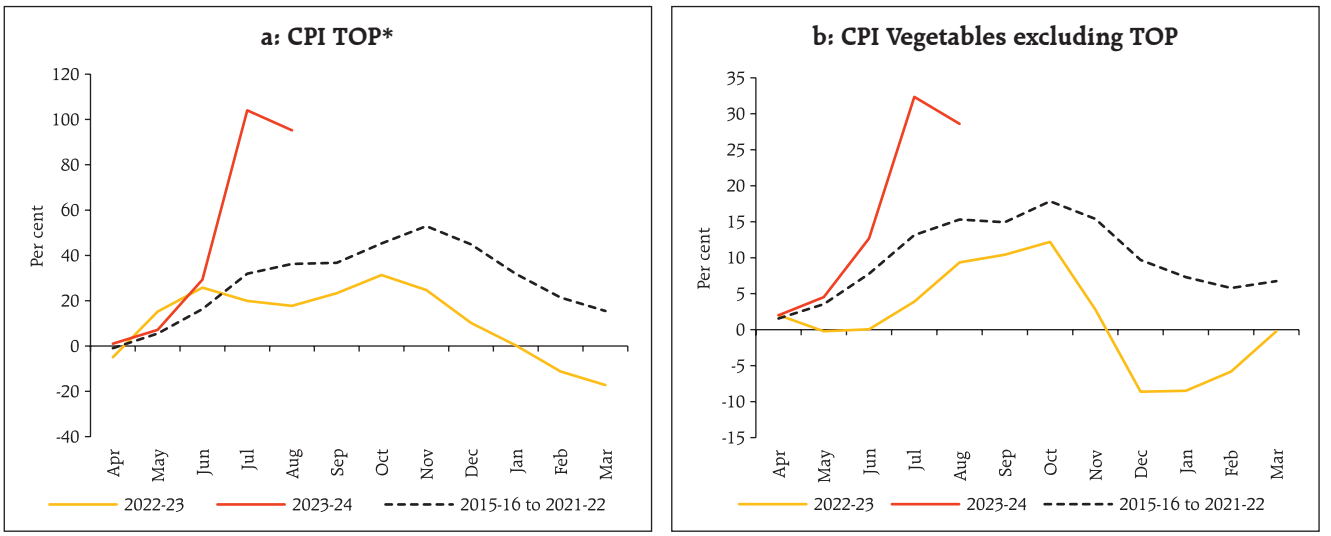
Chart II.11: Drivers of Vegetable Inflation (y-o-y)



Note: Figures in parentheses indicate items' weights in CPI-vegetables.
Sources: NSO; and RBI staff estimates.

Inflation in fruits (weight of 2.9 per cent in the CPI and 6.3 per cent within the food and beverages group) has moderated since April 2023 on the back of higher production (0.2 per cent as per 2022-23 1st AE over 2021-22). However, there was an uptick in inflation in July-August 2023, primarily driven by a rise in apple prices to 21.3 per cent (y-o-y) in August from an average of 5.1 per cent in Q1:2023-24 as floods in Himachal Pradesh damaged apple plantations and led to supply disruptions. Mango prices remained

Chart II.12 : Price build-up in CPI Vegetables



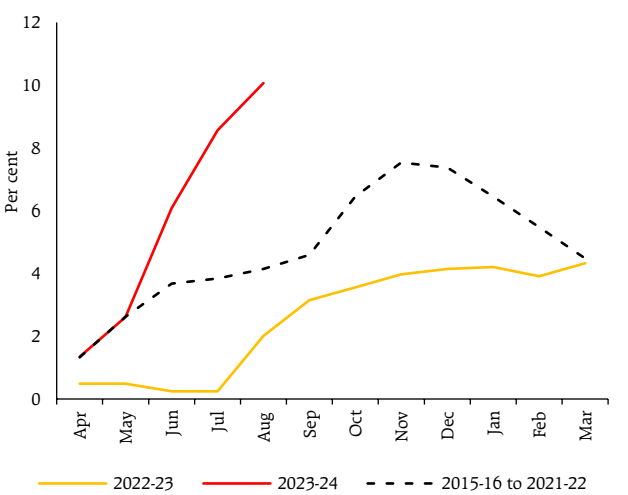
*: TOP denotes tomatoes, onions and potatoes.
Sources: NSO; and RBI staff estimates.

in deflation since April 2023, while banana price inflation moderated from 21.8 per cent in March 2023 to 2.2 per cent in August on the back of comfortable production.

Inflation in pulses (weight of 2.4 per cent in the CPI and 5.2 per cent in the food and beverages group) increased gradually, with a substantial price build-up from April leading to a print of 13.0 per cent in August 2023. The uptick came from lower production and deficient *kharif* sowing. As per the 3rd AE of 2022-23, the *kharif* production of pulses was lower than the final estimates for 2021-22, particularly for *tur* and *urad* ((-) 18.7 per cent and (-) 3.2 per cent, respectively). Owing to the downward revision, the pulses stock-to-use (STU) ratio has also fallen. Furthermore, deficient *kharif* sowing of (-) 4.9 per cent in *tur*, (-) 1.3 per cent in *urad* and (-) 6.0 per cent in *moong* (as on September 29, 2023) also added to price pressures (Chart II.13 and Chart II.14). To contain price pressures and improve domestic availability, the government (i) imposed stock limits on *tur* and *urad* on June 2, 2023, which will be effective till December 31, 2023; (ii) removed procurement ceilings of 40 per cent for *tur*, *urad* and *masoor* under the Price Support Scheme (PSS) for 2023-24 to encourage higher sowing acreage; and (iii) decided to release *tur* from the national buffer in a calibrated manner.

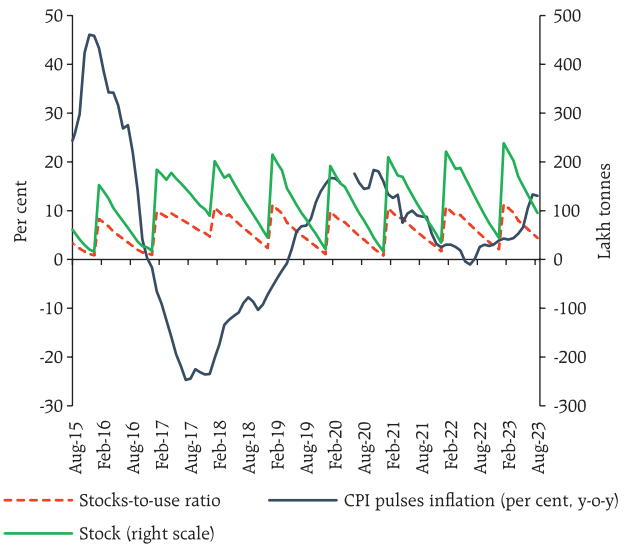
Prices of animal-based protein items increased sharply in H1:2023-24 (April-August), driven by milk

Chart II.13: CPI Pulses and Products (Price build-up)



Sources: NSO; and RBI staff estimates.

Chart II.14: Pulses Inflation and Stock-Use Ratio

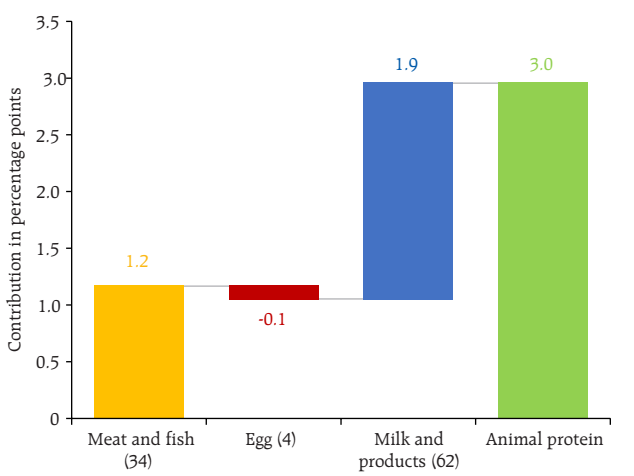


Note: Stock here refers to total available pulses for consumption from production and net imports; with the government, farmers and open market.
Sources: MOSPI; DGCI&S; CACP; Ministry of Agriculture; and RBI staff estimates.

and products (weight of 6.6 per cent in the CPI and 14.4 per cent within the food and beverages group) (Chart II.15) which averaged 8.5 per cent during April-August 2023 as major milk co-operatives like *Amul* raised retail prices by ₹2-3 per litre twice from February 2023, citing high input costs. Prices of eggs, meat and fish eased in July-August 2023 due to low seasonal demand.

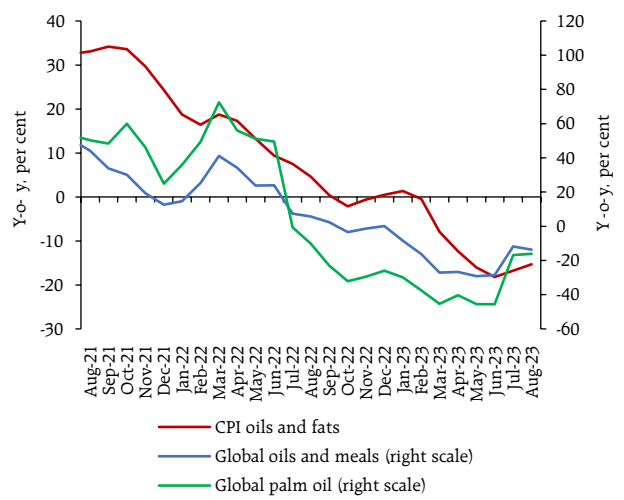
Prices of oils and fats (weight of 3.6 per cent in the CPI and 7.8 per cent within the food and beverages group) were in deflation during April-August 2023, reflecting falling international prices and higher domestic production of oilseeds (8.0 per cent as per 3rd AE of 2022-23 over 2021-22) (Chart II.16). As part of price stabilisation measures, the government reduced the basic import duty on refined soyabean oil and refined sunflower oil from 17.5 per cent to 12.5 per cent (on June 15, 2023, effective till March 31, 2024) and exempted imports of crude soybean oil and crude sunflower oil from basic customs duty and agriculture infrastructure and development cess (AIDC) till June 30, 2023 for tariff rate quota (TRQ) holders to ensure domestic availability and affordable prices. Ghee and butter price inflation remained at elevated levels, reflecting the pass-through of higher milk prices.

Chart II.15: Drivers of Animal Protein Inflation (H1:2023-24 over H2:2022-23)



Note: Figures in parentheses indicate weights in CPI-animal protein group. H1:2023-24 refers to April-August.
Sources: NSO; and RBI staff estimates.

Chart II.16: Edible Oil Prices: Domestic and Global



Sources: World Bank Pink Sheet; NSO; and RBI staff estimates.

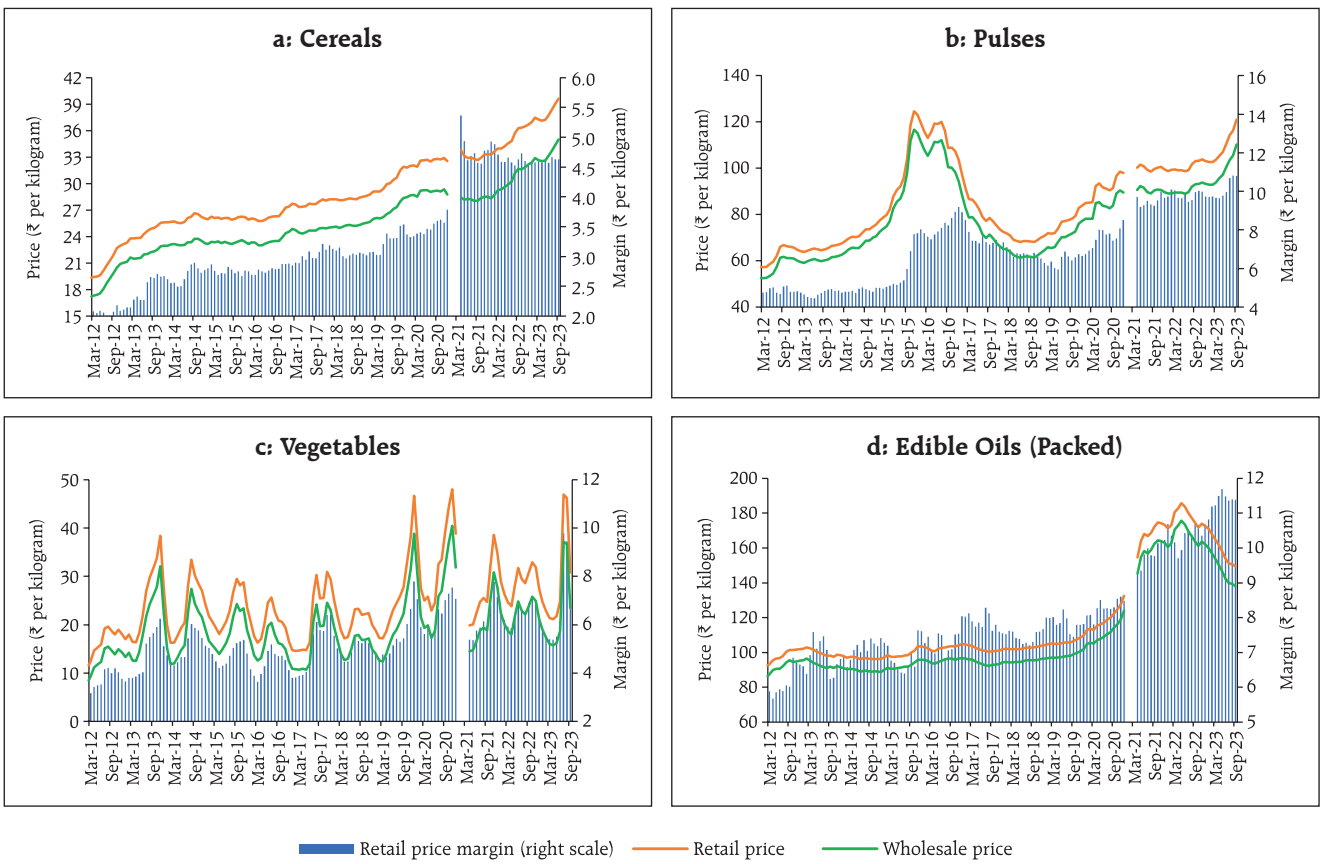
Inflation in prices of sugar and confectionery (weight of 1.4 per cent in the CPI and 3.0 per cent in the food and beverages group) increased gradually during April-August 2023, reflecting reduced production in 2022-23 season from the earlier estimate and the pickup in demand during summer months.

Among other food items, inflation in prices of spices witnessed a sustained rise, averaging 19.9 per cent during April-August 2023 and driven mainly by *jeera* (cumin) and dry chillies due to subdued production for the second consecutive year in 2022-23 on account of poor weather conditions and crop substitution in major producing states. On a y-o-y basis, *jeera* recorded the highest increase in prices at 118.2 per cent in August; inflation in prices of dry chillies was also elevated averaging 24.2 per cent during April-August 2023. Inflation in prepared meals moderated gradually, reflecting the waning of the pass-through of past increases in input costs such as edible oils, LPG, and transport costs.

Retail Margins

Retail price margins – the difference of retail and wholesale prices[9] – remained broadly unchanged for cereals. Pulses price margins underwent an increase during July-September 2023, driven by retail prices of *tur*, *urad*, *moong* and gram. Price margins in edible oils (groundnut, soyabean, sunflower and mustard

Chart II.17: Retail, Wholesale Prices and Margin



Sources: Department of Consumer Affairs, Ministry of Consumer Affairs, Food and Public Distribution; and RBI staff estimates.

[9] 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.

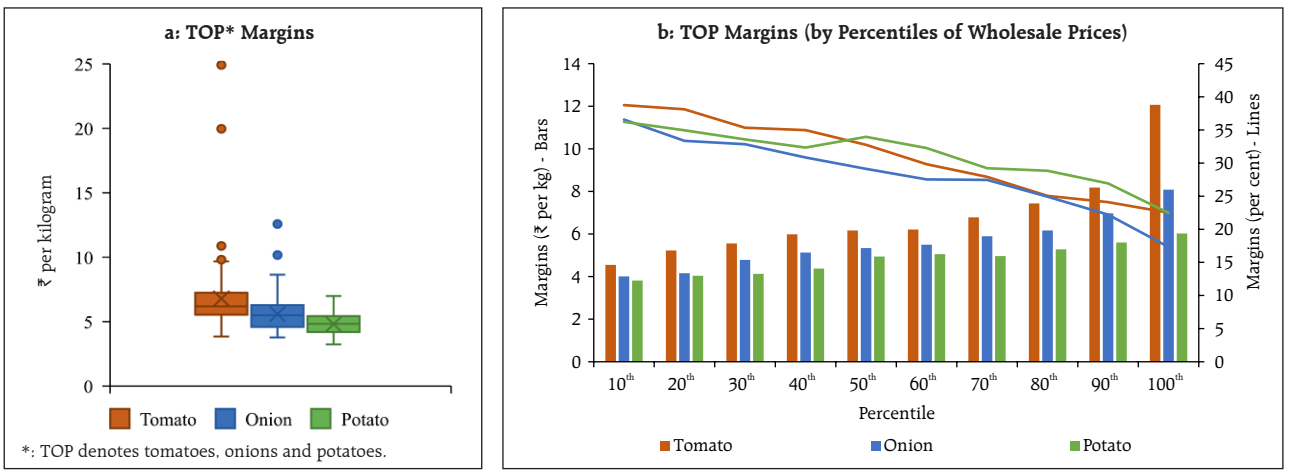
oil) remained elevated and steady even as wholesale prices registered a downward movement. Margins in vegetables prices picked up significantly during June-August 2023, owing to the sharp increase in retail margins in tomatoes (Chart II.17). With an easing of tomato prices starting the third week of August 2023, retail margins for vegetables softened in September 2023. The sensitivity of margins to wholesale prices in the TOP group is the highest for tomatoes and the lowest for potatoes (Box II.1).

Box II.1: Vegetable Retail Margins: Some Stylised Evidence

Volatile movements in food items, especially vegetables, have brought increased focus on retail margins and their behaviour in the past few years (Jose *et al.* 2021, Bhoi *et al.* 2019). During January 2014-August 2023, margins[10] were the highest for tomatoes, followed by onions and potatoes (Chart II.1.1a). Mapping TOP margins with the corresponding wholesale price levels, it is observed that as wholesale prices increase, margins also rise. During July 2014 to August 2023, when the TOP wholesale prices rose from the 10th to the 100th percentile of the distribution, margins increased by three times for tomatoes, and two times for onions, while the increase was low in case of potatoes. However, as a percentage of wholesale prices, margins were seen to fall. From the 10th to the 100th percentile, the margins in tomatoes fell from 39 per cent to 23 per cent, in onions from 37 per cent to 17 per cent, and in potatoes from 36 per cent to 22 per cent (Chart II.1.1b).

The sensitivity of retail TOP margins to changes in wholesale prices can be assessed by regressing the TOP margins (expressed as ₹ per kg) on to their respective wholesale prices (bracketed into percentiles of the wholesale price distribution). For tomatoes, for each one rupee increase in wholesale prices in the lowest 10th percentile, margins increased by 30 paise; the increase was lower at 25 paise in the 50th percentile and 20

Chart II.1.1: TOP Retail Margins



Sources: DoCA, GoI; RBI staff estimates.

(Contd.)

[10] Margins have been computed as the difference between retail and wholesale prices. Monthly retail and wholesale prices of TOP provided by Department of Consumer Affairs (DCA), GoI have been used for the analysis.

Table II.1.1: Estimates of Sensitivity of Retail Margins to Wholesale Price Levels

Percentiles of Wholesale Prices	Margins (₹ per kg)		
	Tomato	Onion	Potato
10th	0.307**	0.105**	-0.011
	(0.025)	(0.019)	(0.033)
20th	0.292**	0.101**	-0.003
	(0.022)	(0.018)	(0.031)
30th	0.280**	0.113**	0.004
	(0.018)	(0.011)	(0.028)
40th	0.262**	0.116**	0.014
	(0.016)	(0.008)	(0.026)
50th	0.249**	0.117**	0.022
	(0.014)	(0.008)	(0.025)
60th	0.242**	0.118**	0.025
	(0.013)	(0.007)	(0.023)
70th	0.228**	0.120**	0.033
	(0.011)	(0.005)	(0.021)
80th	0.210**	0.119**	0.040*
	(0.009)	(0.004)	(0.019)
90th	0.203**	0.112**	0.042**
	(0.008)	(0.004)	(0.016)
100th	0.194**	0.108**	0.040**
	(0.005)	(0.002)	(0.013)
Constant	1.362**	3.152**	4.447**
	(0.416)	(0.196)	(0.417)
Adj R-squared:	0.978	0.966	0.931

Note: ** and * indicate significance at 5 and 10 per cent levels, resepectively. Figures in parentheses indicate standard errors. The sample period for the analysis is July 2014-August 2023. ARIMAX regression framework was used for estimation, with AR(1) and MA(1) terms included in the specifications. Diagnostic tests confirm no autocorrelation.
Source: RBI staff estimates.

paise in the 100th percentile. For onions, the sensitivity of margins to changes in wholesale prices was lower and more stable – for each one rupee increase in the wholesale prices, retail margins increased by around 10-12 paise across percentiles. In the case of potatoes, the sensitivity of margins to wholesale prices remained largely insignificant within the 10th to 70th percentiles and became significant only when the wholesale prices reached the highest end of the percentile distribution (Table II.1.1). Overall, the analysis shows that margins are the highest and most sensitive to wholesale price variations in the case of tomatoes and least in the case of potatoes. The margin sensitivities to wholesale price changes taper along higher percentiles of wholesale prices and decline or at most remain stable, when expressed as a percentage of wholesale prices.

Reference:

Bhoi B.B., Kundu S., Kishore V. and Suganthi, D. (2019), "Supply Chain Dynamics and Food Inflation in India", *RBI Bulletin*, October.

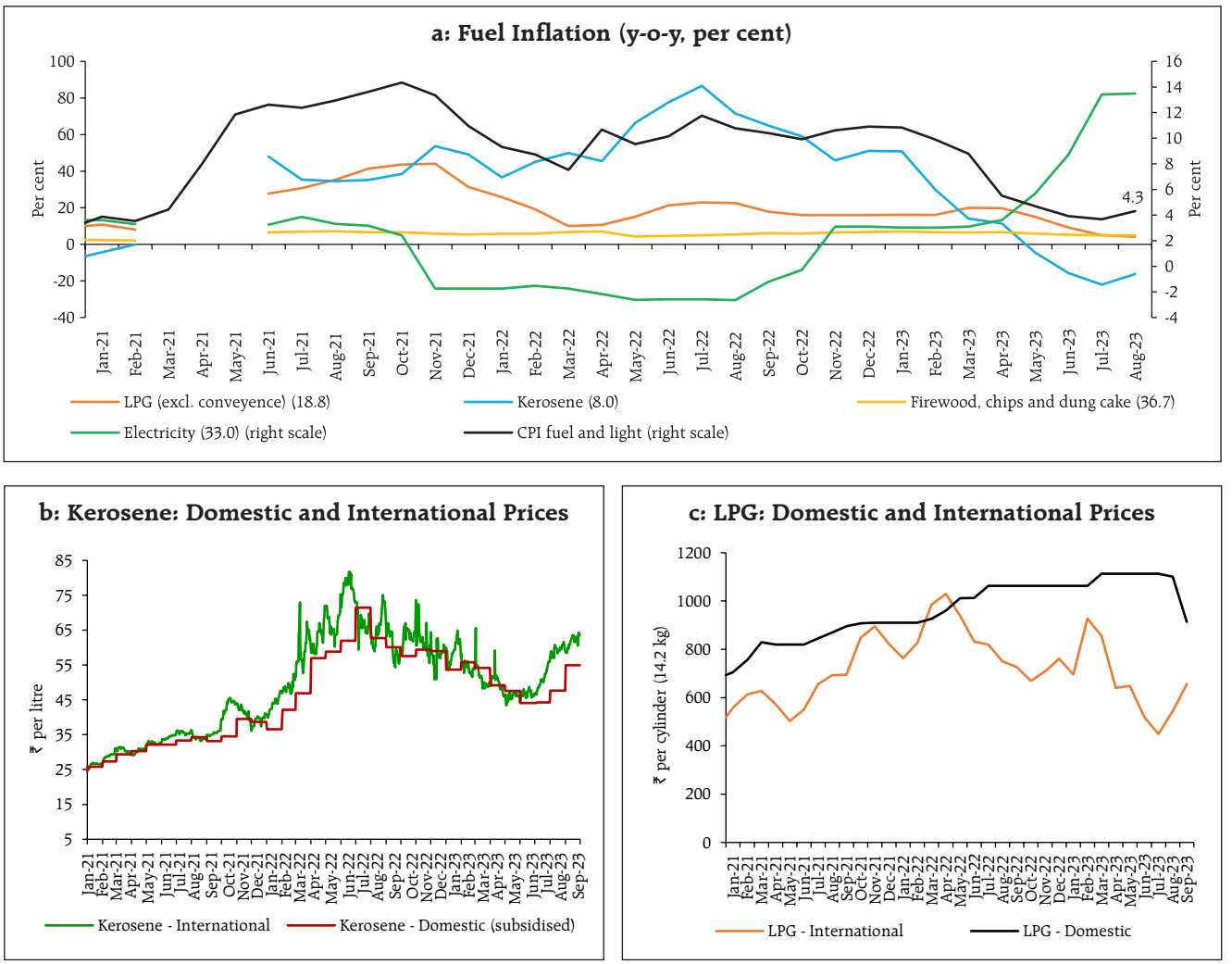
George A.T., Bhatia S., John J. and Das P. (2023), "An Examination of Retail Margins", *mimeo.*

Jose J., Kishore V. and Bhoi B.B (2021), "COVID-19 Impact on Food Price Mark-ups in India", *RBI Bulletin*, August.

Fuel Group

CPI fuel inflation moderated from 8.8 per cent in March 2023 to 3.7 per cent in July on account of softening of kerosene and domestic liquified petroleum gas (LPG) prices, before it rose to 4.3 per cent in August. With domestic prices of LPG kept unchanged between March and late August, the moderation came from favourable base effects. Kerosene prices remained in deflation during May-August 2023 on a y-o-y basis as domestic prices fell in line with international prices, aided by favourable base effects. Firewood and chips prices also moderated during March-August. Electricity prices, on the other hand, registered a substantial increase from May, leading to a record inflation (y-o-y) of around 13.5 per cent in August (Chart II.18).

Chart II.18: 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 items' weights in CPI-fuel and light group.
Sources: NSO; Bloomberg; IOCL; and RBI staff estimates.

Core (CPI excluding Food and Fuel)

Core inflation (CPI excluding food and fuel) eased from 6.1 per cent in February 2023 to 4.9 per cent during July-August. Exclusion-based measures of underlying inflation, which remove volatile items such as petrol, diesel, gold, and silver also witnessed moderation in the range of 130-140 bps during this period (Table II.1).

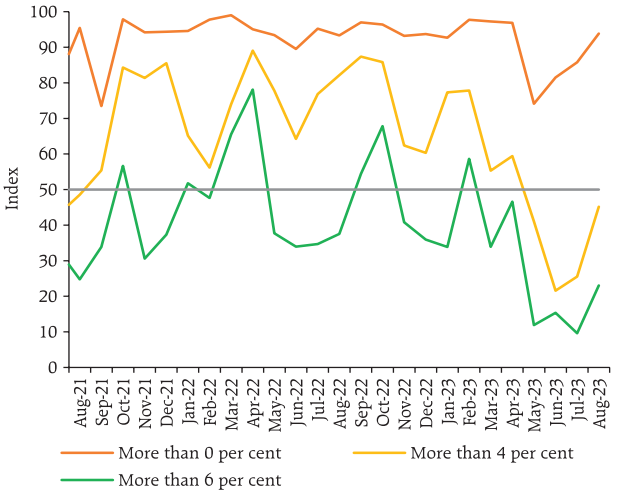
Reversing the generalisation and persistence observed during 2022-23, core inflation softened during 2023-24 (April-August), along with a lower standard deviation (Chart II.19). During April-May 2023, threshold diffusion indices of core CPI items registering price increases of greater than 6 per cent (saar) as well that of 4 per cent (saar) moved into the contraction zone, indicating some abatement in the

Table II.1: 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)
Aug-22	5.9	6.2	6.2
Sep-22	6.0	6.3	6.4
Oct-22	6.0	6.5	6.5
Nov-22	6.0	6.3	6.4
Dec-22	6.1	6.3	6.3
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

Note: (1) Figures in parentheses indicate weights in CPI.
(2) Derived as residual from headline CPI.
Sources: NSO; and RBI staff estimates.

Chart II.20: CPI excluding Food, Fuel, Petrol, Diesel, Gold and Silver: SAAR Diffusion Index by Thresholds

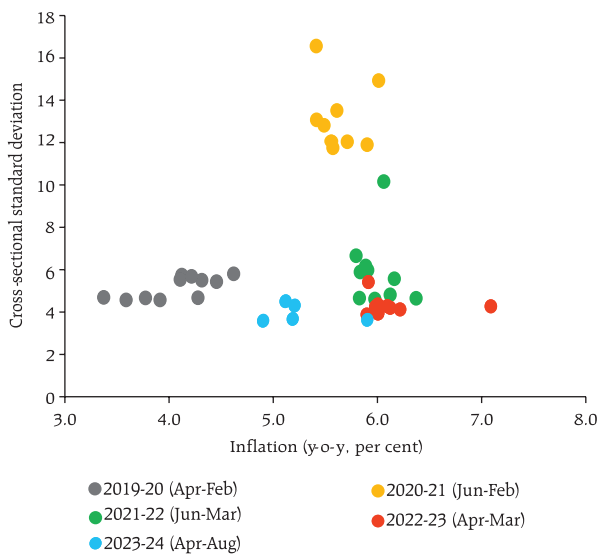


Sources: NSO; and RBI staff estimates.

intensity of price pressures. During June-August, the diffusion index rebounded, but threshold core DIs for saar of greater than 4 per cent and 6 per cent remained in contraction (Chart II.20).

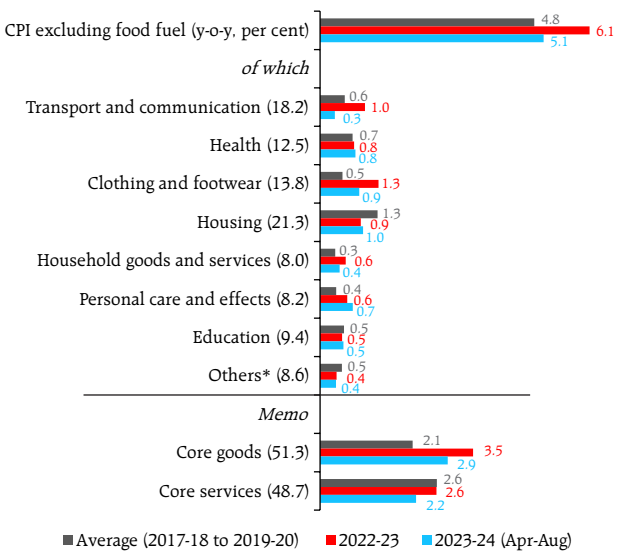
During 2023-24 (April-August), the contribution of transportation and communication and clothing and footwear sub-groups registered a significant softening (Chart II.21).

Chart II.19: CPI Inflation excluding Food and Fuel: Persistence



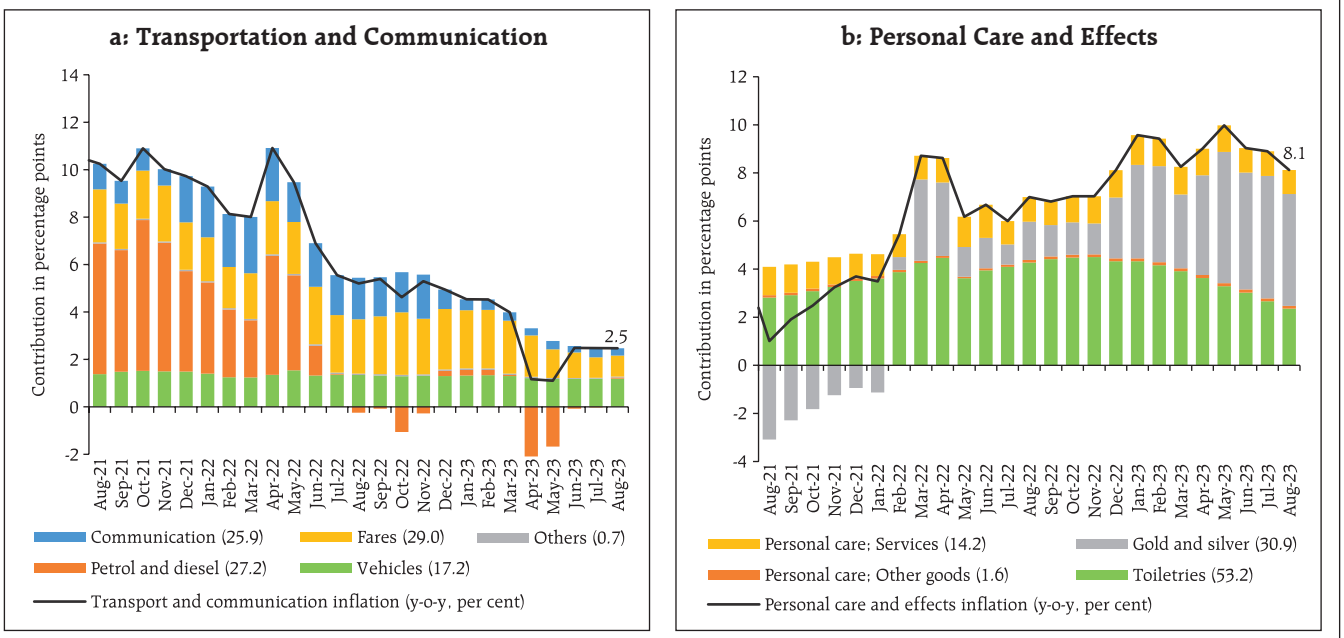
Sources: NSO; and RBI staff estimates.

Chart II.21: Contribution to CPI Inflation excluding Food and 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.

Chart II.22: Drivers of Transportation and Communication and Personal Care and Effects Inflation



Note: Figures in parentheses indicate weights in the respective sub-group.
Sources: NSO; and RBI staff estimates.

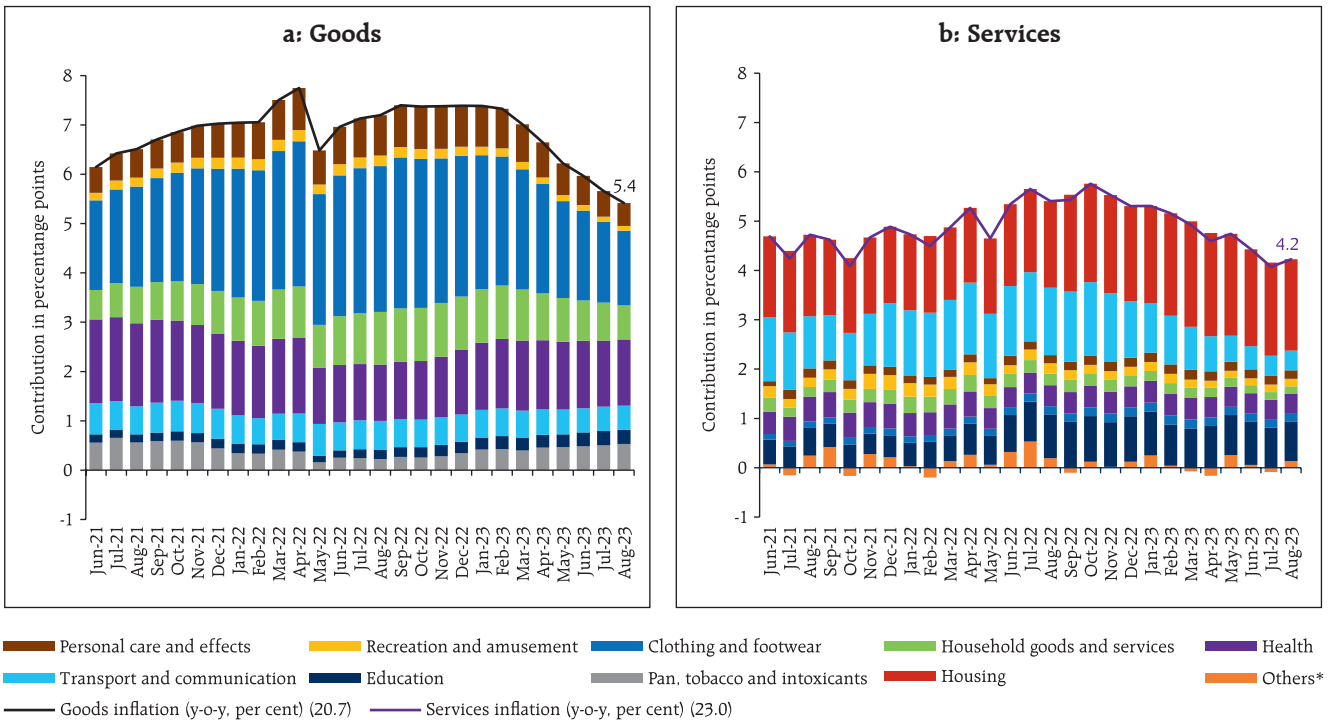
The movement of petrol and diesel prices into deflation during Q1:2023-24, along with a softening in transportation fares and communication services, led to the sharp moderation in transportation and communication inflation. A firming up of gold and silver prices kept personal care and effects inflation and its contribution to core inflation elevated (Chart II.22).

A decomposition of 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 a softening in both the categories, but mainly led by goods. While core goods inflation moderated by 190 bps from 7.3 per cent in February 2023 to 5.4 per cent in August, services core inflation fell by around 90 bps to 4.2 per cent. The key drivers of the softening in goods inflation were clothing and footwear, household goods and personal care and effects (excluding gold and silver) (Chart II.23a). In the case of services, transportation fares (bus/tram/taxi fare, air fare) and communication services along with housing drove the moderation in inflation (Chart II.23b).

Trimmed mean measures[11] also indicate a tempering of underlying inflation pressures, with weighted median inflation registering a decline of 140 bps between February and August 2023 (Table II.2).

[11] 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, and the items dropped differ from month to month.

Chart II.23: Contributions to CPI Inflation excluding Food, Fuel, Petrol, Diesel, Gold, and Silver



* Represent balancing item to reconcile divergence in CPI index between CPI items indices aggregated vertically, across items and the published sub-group/group/overall CPI index.
Note: Figures in parentheses indicate weights in CPI.
Sources: NSO; and RBI staff estimates.

Other Measures of Inflation

Sectoral measures of CPI inflation for rural areas, *i.e.*, CPI agricultural labourers (CPI-AL) and rural labourers (CPI-RL) as also for industrial workers (CPI-IW) exceeded CPI headline inflation during March-June 2023 across most major groups. During July-August 2023, CPI-AL, CPI-RL, and CPI-IW edged up on higher food prices, in line with headline CPI. Wholesale price index (WPI) inflation, which was on a downward trajectory since October 2022, spiralled down into deflation in April-August, partly offset by higher vegetable prices in July, and fuel prices in August. The deflation in WPI pulled down the deflators for gross value added (GVA) and gross domestic product (GDP) in Q1:2023-24 (Chart II.24a).

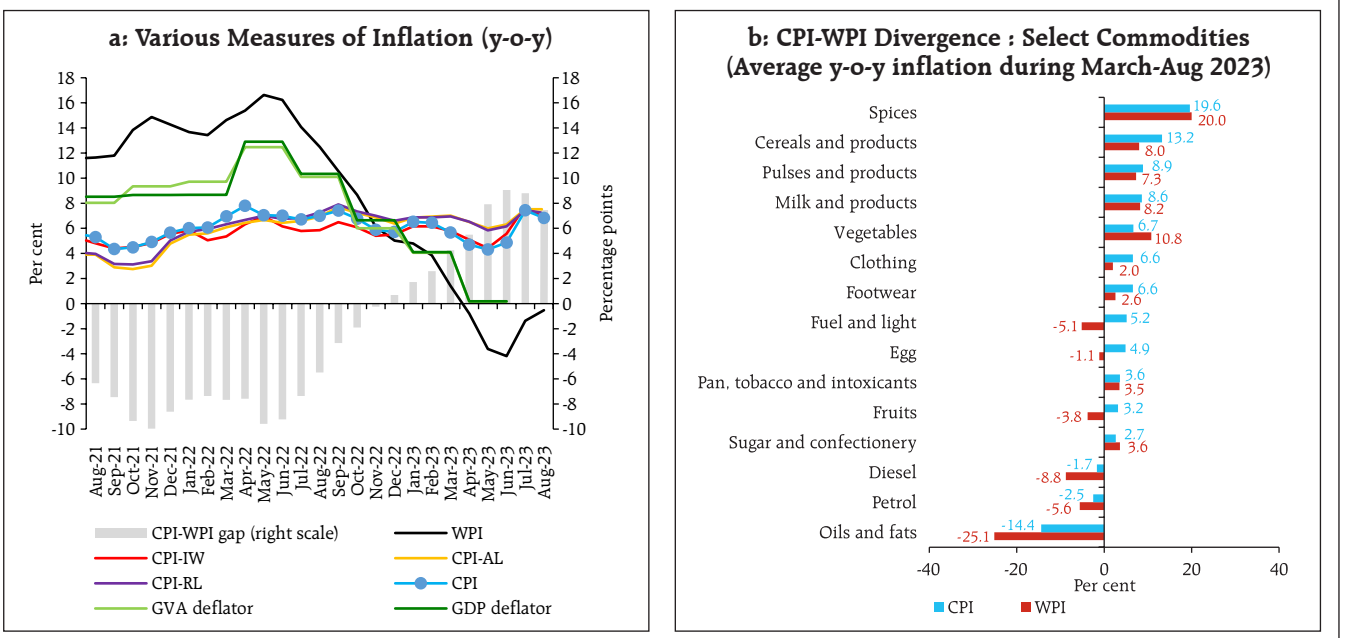
Table II.2: Trimmed Mean Measures of Inflation (y-o-y)

Month	5% trimmed	10% trimmed	25% trimmed	Weighted Median
Aug-22	6.6	6.4	6.1	6.5
Sep-22	6.9	6.6	6.5	6.7
Oct-22	6.8	6.6	6.6	6.6
Nov-22	6.5	6.5	6.5	6.6
Dec-22	6.5	6.5	6.5	6.9
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

Sources: NSO; and RBI staff estimates.

Overall, WPI inflation remained far below headline CPI inflation during March-August 2023, driven down by the fuel group – CPI contains transport fuel (petrol and diesel) prices of which have remained flat since August 2022, whereas WPI

Chart II.24: Alternative Measures of Inflation



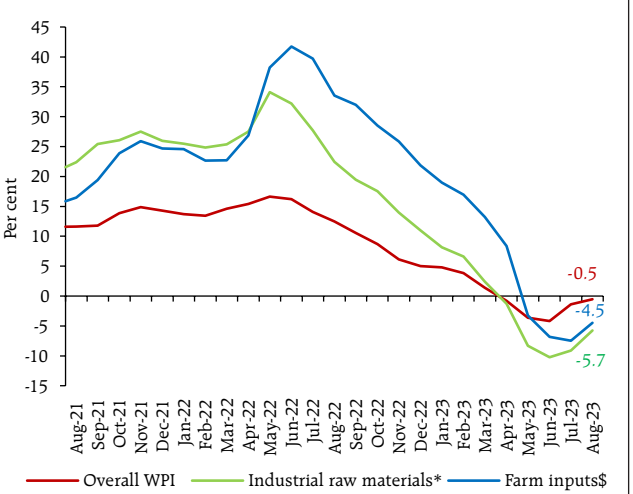
Sources: NSO; Labour Bureau; Ministry of Commerce and Industry; and RBI staff estimates.

contains in addition to petrol and diesel, other fuels such as aviation turbine fuel, naphtha and furnace oil, all of which were by and large in deep deflation tracking international prices. In terms of other major groups, WPI inflation in food (particularly, cereals, milk and pulses), clothing and footwear, and pan, tobacco and intoxicants also ruled below the corresponding CPI groups/subgroups (Chart II.24b).

II.3 Costs

Costs, as measured by WPI inflation in industrial raw materials and farm inputs, entered negative territory in April-May 2023 and remained muted since then, reflecting easing international commodity prices (Chart II.25). Prices of industrial inputs such as high-speed diesel (HSD), naphtha, aviation turbine fuel (ATF), bitumen, furnace oil, and petroleum coke were in deflation during April-August, mirroring international crude oil price movements. The other contributory factors were non-food primary articles, particularly cotton and oilseeds, whose prices declined due to lower international prices and higher domestic production. Minerals price inflation, however, recorded an uptick during July-August 2023 driven by metals, particularly copper, on rising demand coupled with limited supply owing

Chart II.25: Farm and Non-farm Input Cost Inflation (y-o-y)

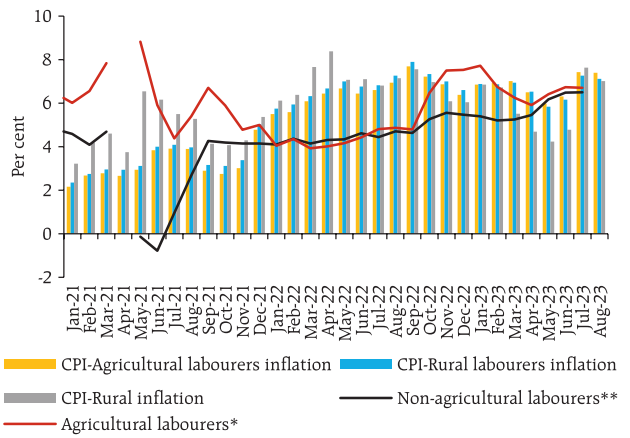


*: Comprise primary non-food articles, minerals, coal, aviation turbine fuel, high speed diesel, naphtha, bitumen, furnace oil, lube oil, petroleum coke, electricity, cotton yarn and paper and pulp from WPI.
$: Comprise high speed diesel, fodder, electricity, fertilisers, pesticides, and agricultural and forestry machinery from WPI.
Sources: Ministry of Commerce and Industry; and RBI staff estimates.

to constraints on new mining projects worldwide, increased taxes and environmental regulations. Farm input price inflation receded and turned negative from May 2023, driven by moderation in the prices of HSD and pesticides. Inflation in the price of WPI electricity – a key input in both industrial and farm inputs – declined sharply post April 2023 on account of a substantial decrease in coal prices coupled with favourable base effects.

Nominal rural wage growth accelerated to 6.6 per cent in July 2023 from 5.7 per cent in March 2023, with both agricultural and non-agricultural wages rising by more than 6 per cent (Chart II.26). While the increase in agricultural wage growth was recorded primarily in ploughing, picking works, horticulture, watering and irrigation works, packaging, and plant protection works, that in non-agricultural wages were broad based across the rural sector.

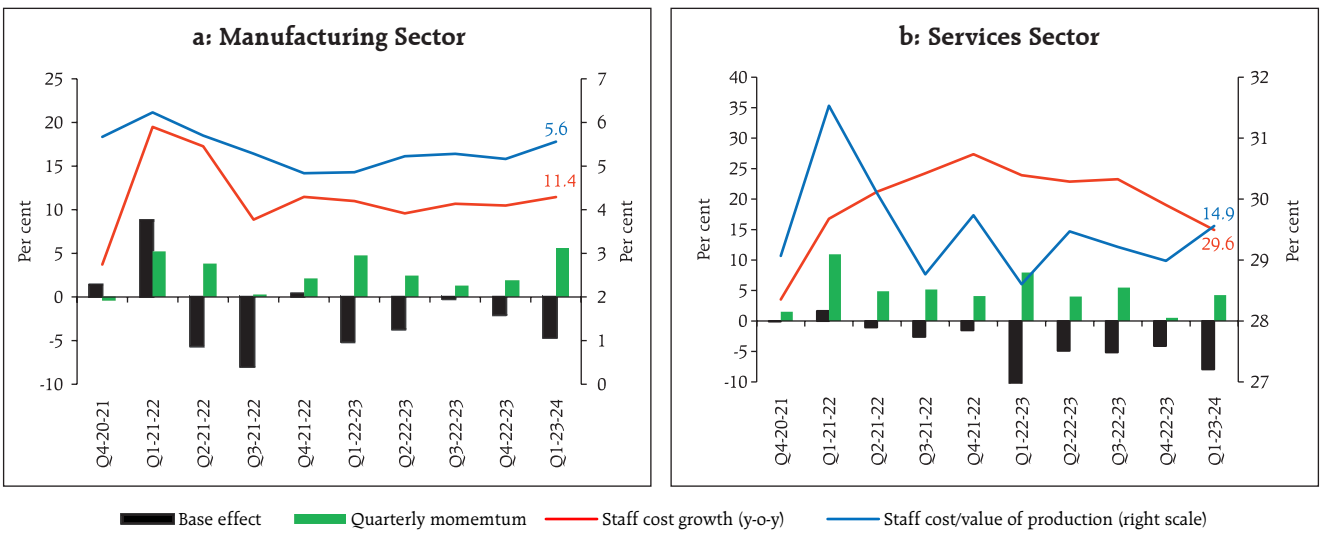
Chart II.26: Wage Growth (y-o-y) and Inflation in Rural Areas (y-o-y)



*: comprise ploughing, sowing, harvesting, picking, horticulture workers, fishermen, fishermen costal, loggers and wood cutters, animal husbandry, packaging, general agriculture labourers, plant protection workers.
**: comprise carpenter, blacksmith, mason, weavers, beedi makers, bamboo-cane basket weavers, handicraft workers, plumbers, electrician, construction workers, LMV & tractor drivers, sweeping/cleaning workers, and other non-agricultural labourers.
Note: Data for April-May 2021 were not released.
Sources: NSO; Labour Bureau; and RBI staff estimates.

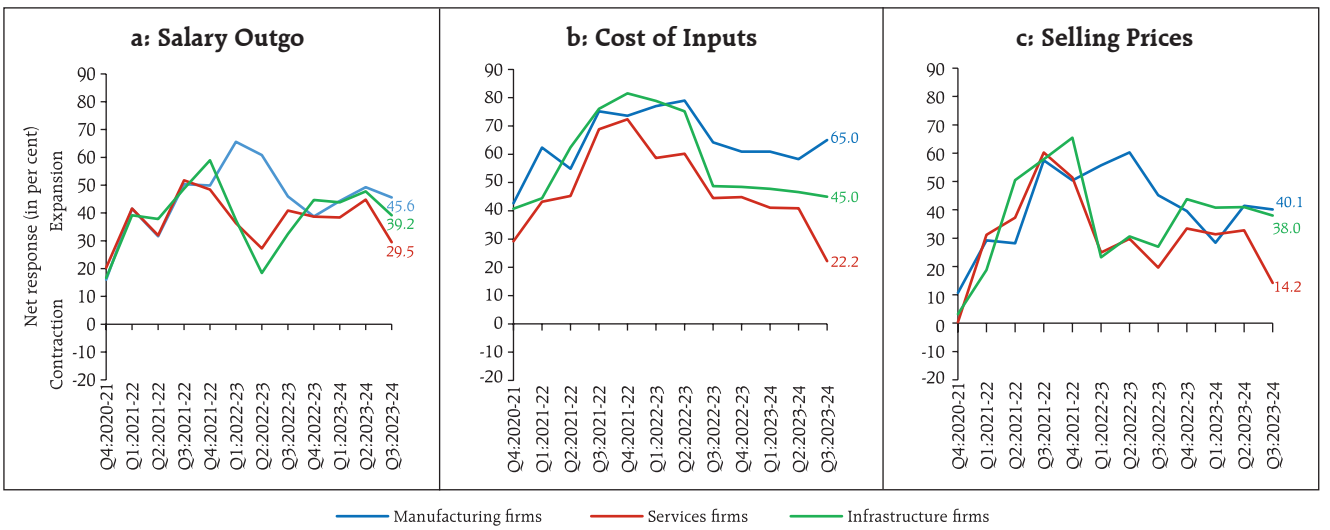
In the organised sector, staff cost growth (y-o-y) quickened in Q1:2023-24 in the manufacturing sector. In the services sector, staff cost growth (y-o-y) decelerated, notwithstanding positive momentum, due to a strong favourable base effect. The share of staff cost in the value of production rose in Q1 for both manufacturing and services sectors (Chart II.27).

Chart II.27: Staff Cost in Manufacturing and Services



Note: Staff cost growth (y-o-y) is based on a common set of companies.
Sources: Capitaline database; and RBI staff estimates.

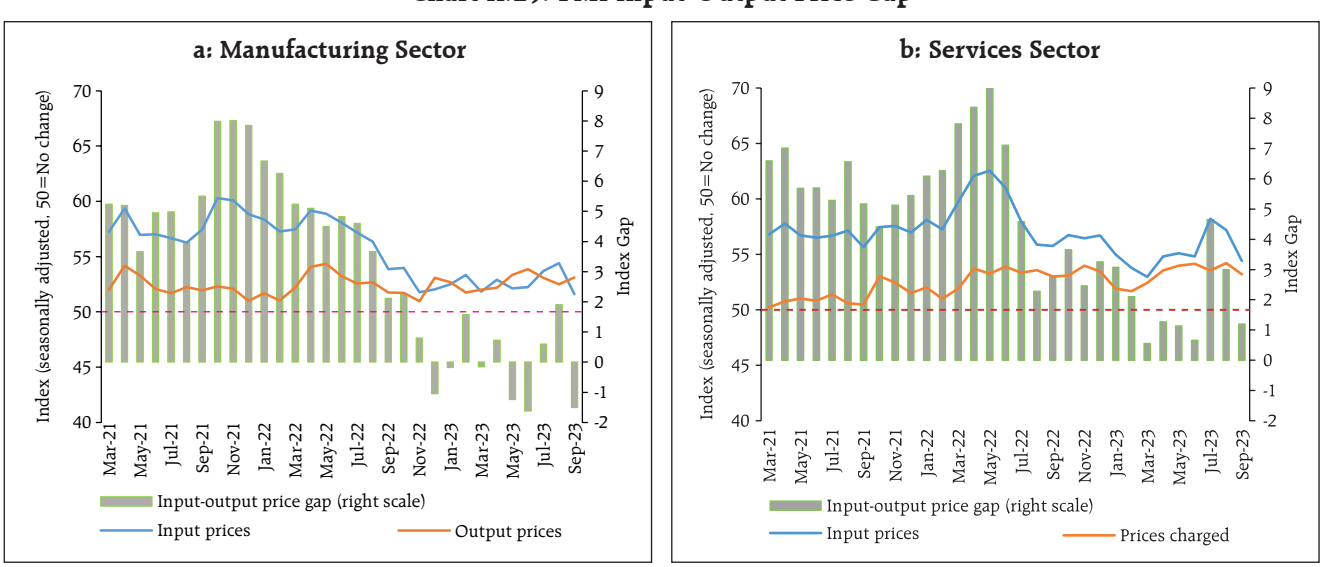
Chart II.28: Expectations of Cost and Price Conditions



Note: 'Net response' is the difference between the percentage of respondents reporting increase and those reporting decrease.
Sources: Reserve Bank's Industrial Outlook Survey; Services & Infrastructure Outlook Survey; and RBI staff estimates.

As per the firms polled in the Reserve Bank's enterprise surveys[12], the pace of salary outgoes for the manufacturing, infrastructure and services sectors is expected to moderate in Q3:2023-24. Both input cost pressures and selling prices are expected to moderate in Q3 for services and infrastructure sectors. Manufacturing firms expect an uptick in input prices in Q3, with selling price growth to be marginally lower over the previous quarter (Chart II.28).

Chart II.29: PMI Input-Output Price Gap



Sources: S&P Global; and RBI staff estimates.

[12] Industrial Outlook Survey; and Services and Infrastructure Outlook Survey.

One year ahead business inflation expectations[13] of firms polled by the Indian Institute of Management, Ahmedabad, remained stable at 4.3 per cent during July-August 2023 with a moderate rise in cost pressures and improvement in sales expectations.

As per manufacturing firms polled for the purchasing managers' index (PMI), the pace of increase in input prices which quickened for the third successive month in August 2023, significantly retreated in September due to reduction in aluminium and oil prices. Higher raw materials, labour costs and increased demand led to an increase in output prices in July-September *albeit* at a slower pace than in May-June 2023. For services sector, the pace of increase in input prices started to fall in August-September 2023 converging towards its long-run average which also led to easing in prices charged to a six-month low. The input-output price gap reversed for manufacturing sector in September 2023 while it narrowed for services sector. (Chart II.29).

II.4 Conclusion

Climate events imparted substantial volatility to the inflation trajectory in H1:2023-24. Going forward, the overall inflation and the food inflation trajectory will likely be shaped by the intensity of *El Niño* conditions, the impact of the skewed south-west monsoon and global energy and food prices.

Pro-active supply side measures assume importance in mitigating the adverse impact of supply shocks in the short-run. Medium-term policies to encourage crop diversification, promote climate-resilient crops, improve storage conditions, facilitate value addition in agriculture and augment agricultural supply chains would make food prices more resilient to climate vagaries. Monetary policy would persevere in its efforts to maintain price stability, to progressively align inflation with the target rate, thereby securing the prerequisite conditions for a high and sustainable growth over the medium term.

[13] 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 held up well in H1:2023-24, underpinned by private consumption and investment activity. The sustained buoyancy in services, consumer and business optimism, government's continued thrust on capex, and healthy balance sheets of banks and corporates brighten the outlook. Geopolitical tensions, geoeconomic fragmentation, signs of a global economic slowdown and El Niño conditions pose risks.

Underpinning the resilience of domestic economic activity in H1:2023-24, private consumption was driven by stable urban demand and a gradual revival in rural demand. Investment activity gained traction from sustained government capex. On the other hand, weak external demand restrained domestic activity. On the supply side, the broad-based buoyancy of services activity was sustained by the strong momentum driving contact-intensive services. Agriculture activity has withstood the vicissitudes of the south-west monsoon. Manufacturing sector extended a modest recovery on the back of moderating input cost pressures and improving profit margins.

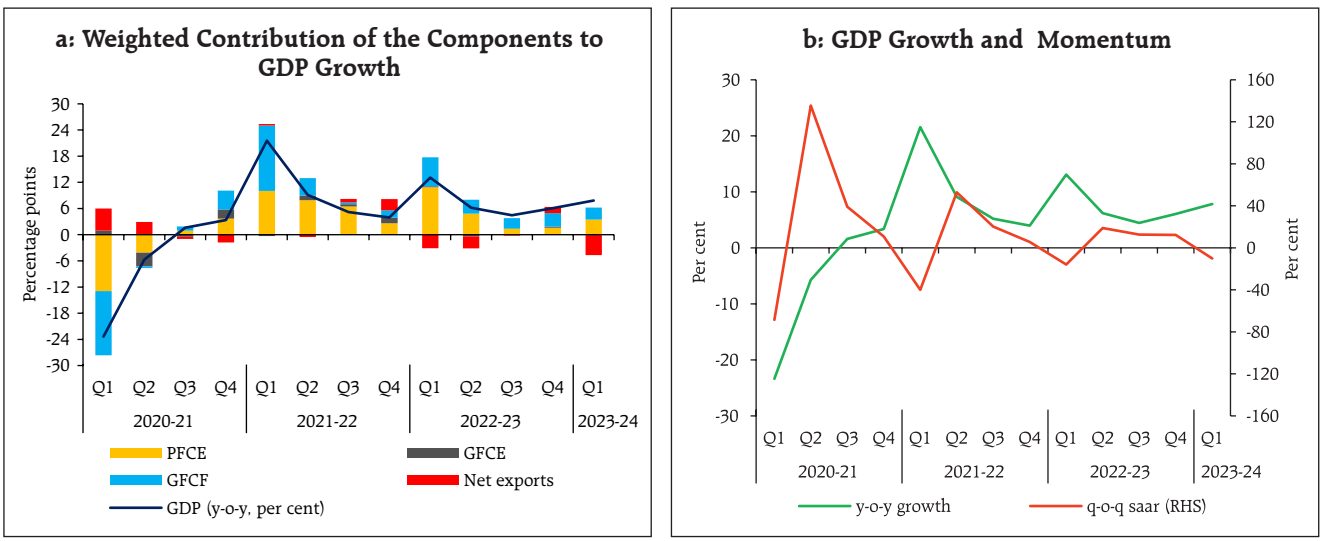
III.1 Aggregate Demand

Aggregate demand conditions exhibited buoyancy with real gross domestic product (GDP) posting a growth of 7.8 per cent (year-on-year, y-o-y) in Q1:2023-24, surpassing its pre-pandemic level by 13.6 per cent (Chart III.1 and Table III.1). The momentum of GDP – quarter-on-quarter (q-o-q) seasonally adjusted annualised growth rate (saar) – exhibited the usual seasonal decline in Q1:2023-24 in line with the post-pandemic trends, *albeit* the pace of contraction was less than a year ago.

GDP Projections *versus* Actual Outcomes

The April 2023 Monetary Policy Report (MPR) had projected real GDP growth at 7.8 per cent for

Chart III.1: GDP Growth and its Constituents



Note: saar – Seasonally adjusted annualised rate.
Sources: National Statistical Office (NSO); and RBI staff estimates.

Table III.1: Real GDP Growth

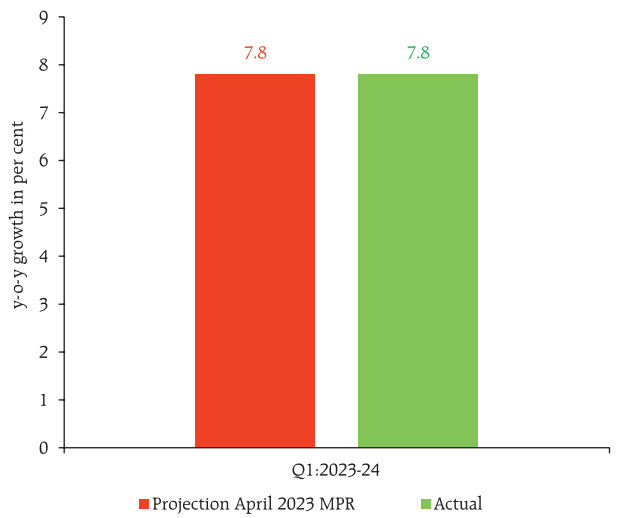
(y-o-y, per cent)

Item	2021-22	2022-23	Weighted Contribution		2021-22				2022-23				2023-24
	(FRE)	(PE)	2021-22	2022-23	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Private final consumption expenditure	11.2 (5.4)	7.5 (13.4)	6.4	4.4	17.6 (-9.3)	14.2 (5.9)	10.8 (12.6)	4.7 (11.8)	19.8 (8.6)	8.3 (14.7)	2.2 (15.0)	2.8 (14.9)	6.0 (15.1)
Government final consumption expenditure	6.6 (5.6)	0.1 (5.7)	0.7	0.0	-2.1 (6.3)	11.7 (-17.6)	5.8 (0.9)	11.8 (38.0)	1.8 (8.3)	-4.1 (-20.9)	-0.6 (0.2)	2.3 (41.1)	-0.7 (7.5)
Gross fixed capital formation	14.6 (6.2)	11.4 (18.3)	4.6	3.7	61.0 (-9.6)	12.4 (11.1)	1.2 (4.3)	4.9 (19.6)	20.4 (8.8)	9.6 (21.7)	8.0 (12.6)	8.9 (30.3)	8.0 (17.5)
Exports	29.3 (17.5)	13.6 (33.4)	5.5	3.0	46.1 (8.8)	25.1 (17.2)	27.8 (16.8)	22.4 (27.1)	19.6 (30.1)	12.2 (31.6)	11.1 (29.8)	11.9 (42.3)	-7.7 (20.1)
Imports	21.8 (5.2)	17.1 (23.2)	4.6	4.0	44.8 (-14.6)	26.6 (4.2)	19.7 (13.6)	6.7 (19.5)	33.6 (14.1)	23.1 (28.2)	10.7 (25.7)	4.9 (25.3)	10.1 (25.6)
GDP at market prices	**9.1 (2.7)**	**7.2 (10.1)**	**9.1**	**7.2**	**21.6 (-6.9)**	**9.1 (2.9)**	**5.2 (6.9)**	**4.0 (7.5)**	**13.1 (5.3)**	**6.2 (9.2)**	**4.5 (11.6)**	**6.1 (14.0)**	**7.8 (13.6)**

Notes: Component-wise weighted contributions to growth do not add up to GDP growth because change in stocks, valuables and discrepancies are not included.
Figures in parentheses are growth rates over 2019-20. FRE: First revised estimates; PE: Provisional estimates.
Sources: NSO; and RBI staff estimates.

Q1:2023-24. Actual growth turned out to be the same as the projection (Chart III.2).

Chart III.2: GDP Growth - Projection *versus* Actual - Q1:2023-24



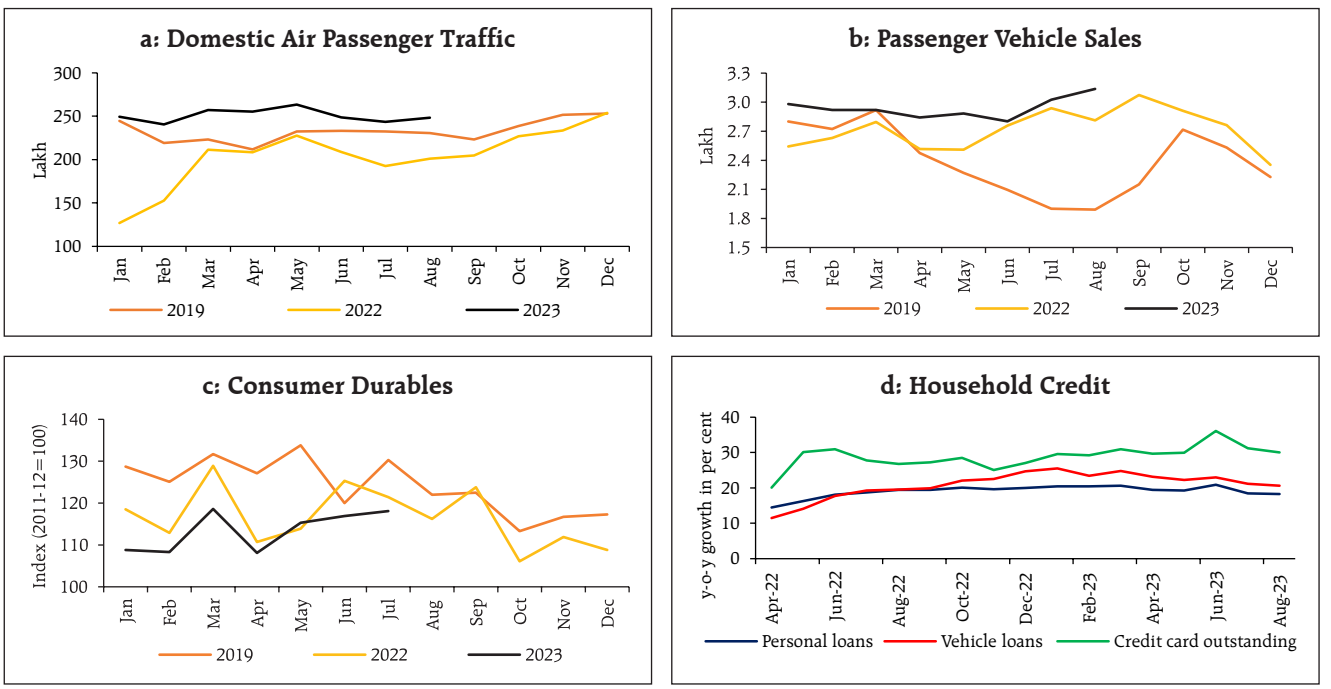
Sources: NSO; and RBI staff estimates.

III.1.1 Private Final Consumption Expenditure

Private final consumption expenditure (PFCE) – the mainstay of aggregate demand – rose by 6.0 per cent in Q1:2023-24 and contributed 3.5 percentage points to overall GDP growth. Amongst the high frequency indicators (HFIs) of urban consumption, domestic air passenger traffic and passenger vehicle sales recorded sustained growth in H1 (Chart III.3a and b); however, consumer durables were subdued during April-July, dragged down by textiles, readymade garments, and cut and polished diamonds (Chart III.3c). Bank credit to households remained supportive of urban consumption (Chart III.3d).

Rural demand showed incipient signs of recovery in H1 (Chart III.4). Tractor sales recovered during May-August, exceeding pre-pandemic levels. Motorcycle sales also expanded in Q1 but dipped in July-August and trailed last year levels. Consumer non-durables

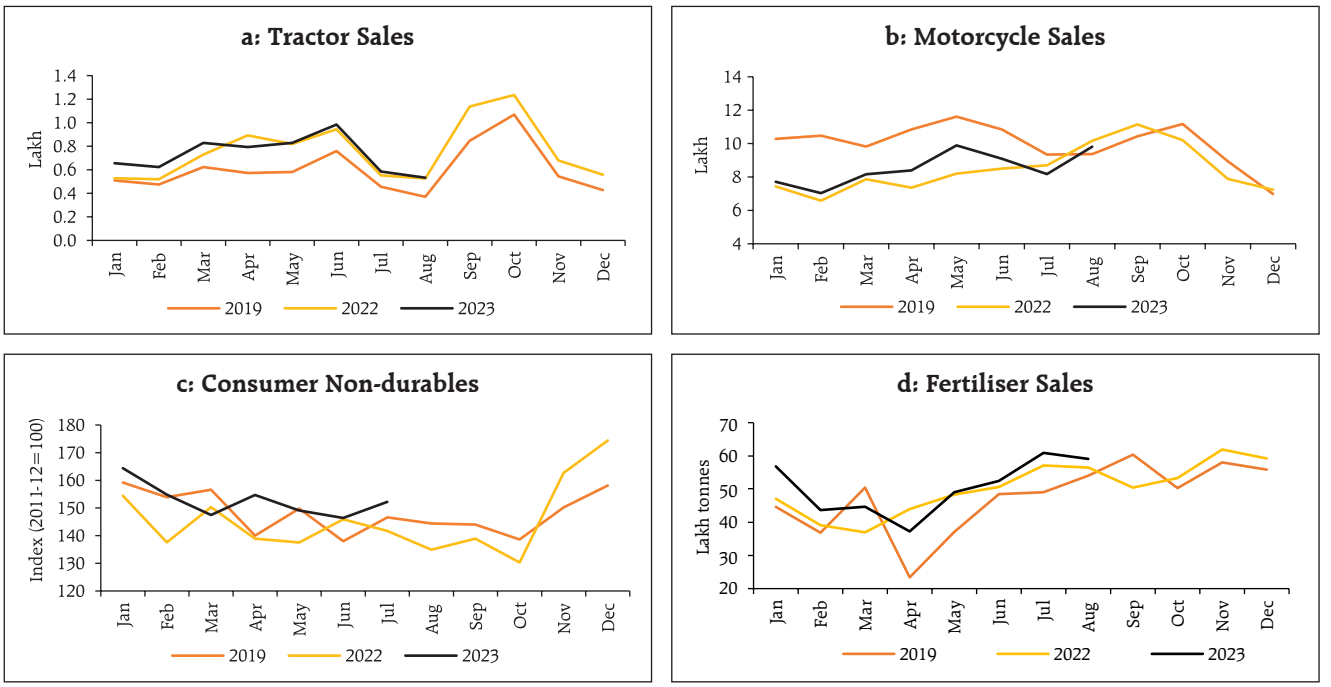
Chart III.3: Urban Demand: High-Frequency Indicators



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

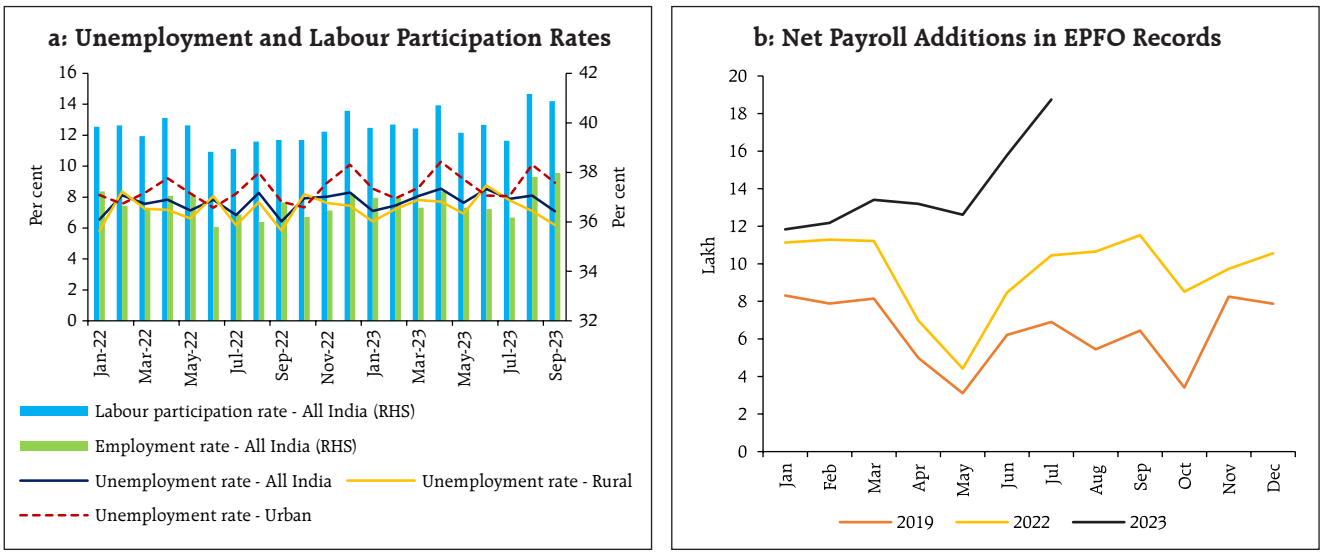
and sales volume of major fast-moving consumer goods (FMCGs) improved in H1. Fertiliser sales recovered in July-August after a dip in Q1 with the progress of *kharif* sowing.

Chart III.4: Rural Demand: High-Frequency Indicators



Sources: Tractor Manufactures Association; SIAM; NSO; and Ministry of Chemicals and Fertilisers.

Chart III.5: Employment Situation in India



Sources: CMIE; and Employees' Provident Fund Organisation (EPFO).

The labour force participation rate[1] inched up to 40.9 per cent in September 2023 from 39.8 per cent in March (Chart III.5a). The unemployment rate increased to 8.9 per cent in September from 8.6 per cent in March in urban areas while in rural areas it moderated to 6.2 per cent from 7.8 per cent during this period. The Employees' Provident Fund Organisation (EPFO) payrolls data point to an improvement in employment conditions in the organised sector during June-July (Chart III.5b).

III.1.2 Gross Fixed Capital Formation

Gross fixed capital formation (GFCF) expanded by 8.0 per cent in Q1:2023-24, driven up by the government's capex push and a modest uptick in private sector investment. The share of GFCF in GDP was 34.7 per cent in Q1, the same as a year ago. Amongst the key underlying indicators, imports of capital goods expanded during April-August, led by machinery, electrical and non-electrical goods and iron and steel (Chart III.6a). Railway locomotives, separators, bodies of trucks and buses supported the domestic production of capital goods (Chart III.6b). Coincident indicators of construction activity – steel consumption and cement production – posted strong growth in H1, bolstered by both residential spending and government's infrastructure push (Chart III.6c and d).

Capacity utilisation (CU) in the manufacturing sector[2] recorded a seasonal dip to 73.6 per cent in Q1:2023-24 from 76.3 per cent in Q4:2022-23, close to the long-term average of 73.7 per cent[3]. Seasonally adjusted capacity utilisation improved to 75.4 per cent from 74.1 per cent (Chart III.7). Stretched capacity utilisation in manufacturing presages the need for new capacity additions to keep pace with the strength of underlying domestic demand in the economy.

The interest coverage ratio (ICR)[4] of listed non-financial private companies in the manufacturing and

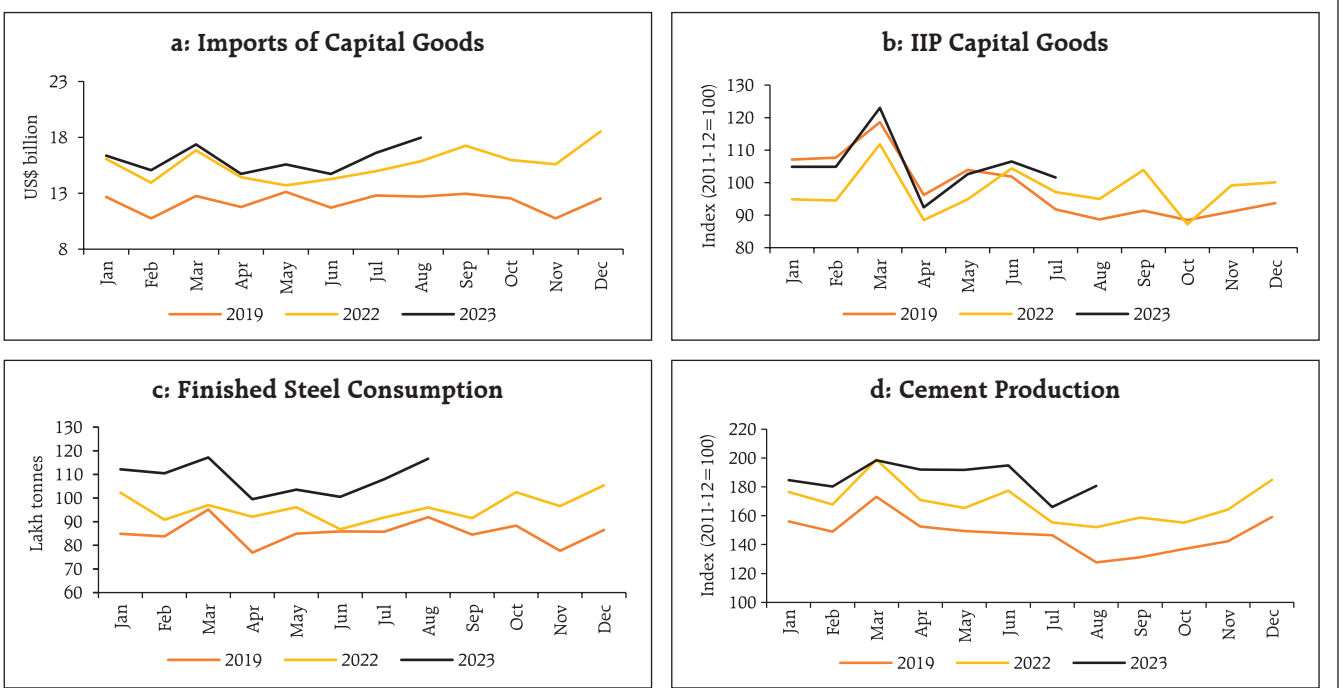
[1] Based on the Centre for Monitoring Indian Economy's (CMIE) Consumer Pyramids data.

[2] Based on RBI's survey of order books, inventories and capacity utilisation.

[3] Long term average is for the period Q1:2008-09 to Q1:2023-24 excluding Q1:2020-21.

[4] The interest coverage ratio is the ratio of earnings before interest and taxes (EBIT) to interest expenses.

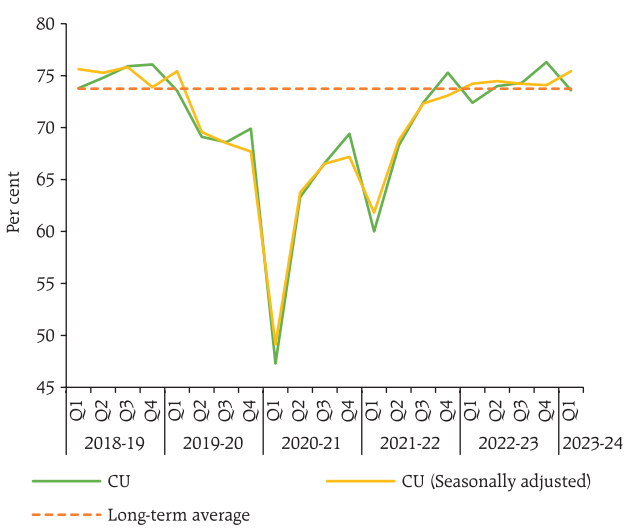
Chart III.6: Indicators of Investment Demand



Sources: Directorate General of Commercial Intelligence and Statistics (DGCI&S); NSO; Joint Plant Committee; and Office of Economic Adviser.

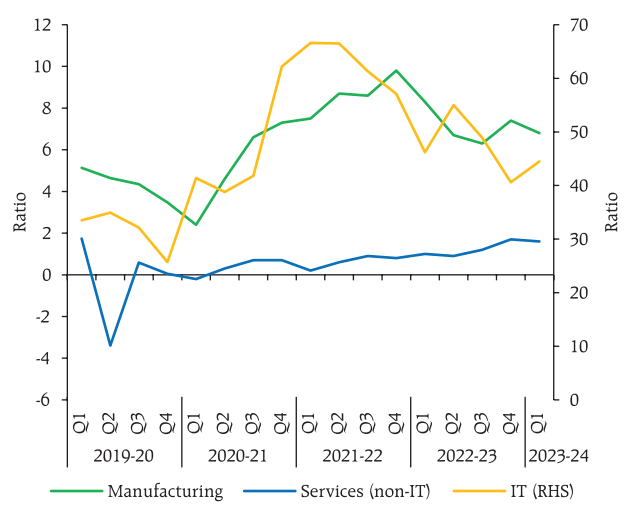
information technology (IT) sectors persisted at high levels in Q1, indicating comfortable debt servicing capacity. The ICR of non-IT services companies also ruled above the threshold level of one (Chart III.8).

Chart III.7: Capacity Utilisation in Manufacturing



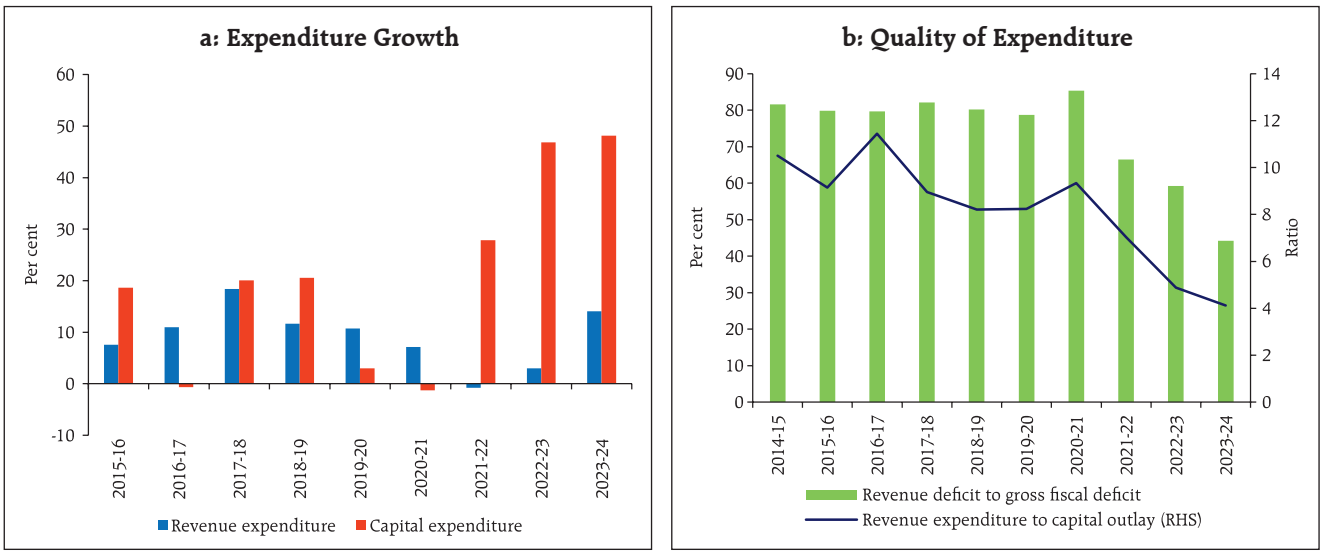
Source: RBI.

Chart III.8: Interest Coverage Ratio



Note: Data for Q1:2023-24 are based on results of 1,712 listed private manufacturing companies and 760 listed private non-financial services companies.
Source: RBI staff estimates.

Chart III.9: Centre's Expenditure during April-August



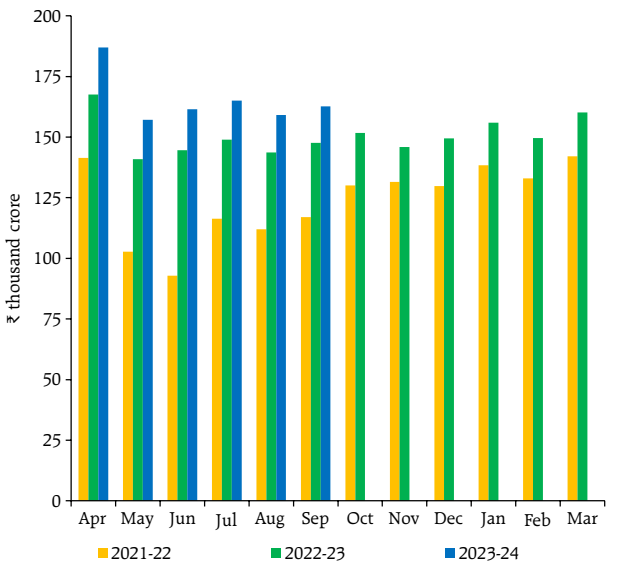
Sources: Controller General of Accounts (CGA) and RBI staff estimates.

III.1.3 Government Consumption

Government final consumption expenditure (GFCE) contracted by 0.7 per cent in Q1:2023-24, pulling down GDP growth. The central government's revenue expenditure excluding interest payments and subsidies grew by 13.1 per cent (y-o-y) during April-August 2023[5]. The outgo on major subsidies surged by 32.5 per cent during April-August due to higher food and fertiliser subsidies. Capital expenditure expanded by 48.1 per cent (y-o-y) during April-August, driven by 35.3 per cent increase in capital outlay, led by railways sector (Chart III.9a). The revenue expenditure to capital outlay (RECO) ratio decreased to 4.1 in April-August from 4.9 a year ago, indicative of the ongoing qualitative improvement in central government expenditure (Chart III.9b).

On the receipts side, the central government's gross tax revenues increased by 16.5 per cent y-o-y during April-August 2023, driven by a growth of 26.1 per cent in direct taxes. Indirect tax revenues expanded by 7.9 per cent y-o-y, aided by goods and services tax (GST) collections and custom duties (Table III.2 and Chart III.10). GST collections (centre plus states) drew buoyancy from improving economic activity and compliance. Custom duty receipts surged - despite a contraction in merchandise exports and

Chart III.10: GST Collections (Centre *plus* States)



Source: Press Information Bureau (PIB).

[5] Growth was (-)7.3 per cent in Q1:2023-24 and 65.4 per cent in July-August 2023. The high July-August growth was partly due to base effect.

Table III.2: Central Government's Tax Collections

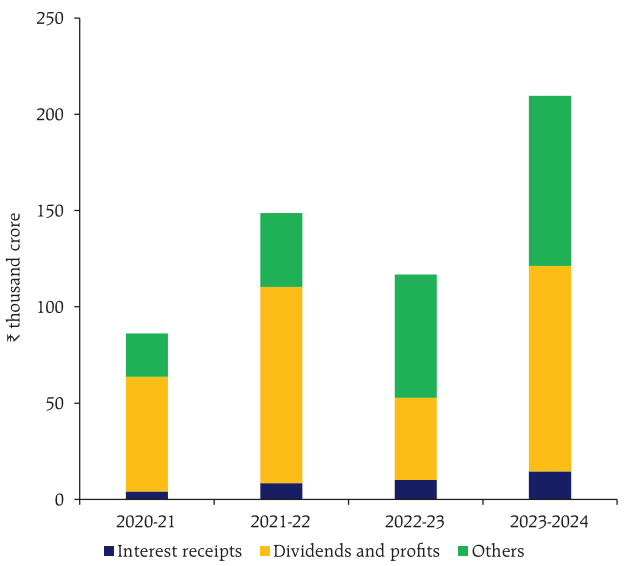
Item	₹ thousand crore				Per cent			
	BE		Actuals		Per cent to BE		Growth Rate	
	2022-23	2023-24	Apr-Aug 2022	Apr-Aug 2023	Apr-Aug 2022	Apr-Aug 2023	Apr-Aug 2022	Apr-Aug 2023
A. Direct taxes	**1,420.0**	**1,823.3**	**483.2**	**609.4**	**34.0**	**33.4**	**28.3**	**26.1**
Of which								
1. Corporation tax	720.0	922.7	207.6	238.9	28.8	25.9	23.6	15.1
2. Income tax	680.0	873.0	265.6	360.4	39.1	41.3	33.2	35.7
B. Indirect taxes	**1,337.8**	**1,537.6**	**537.4**	**579.7**	**40.2**	**37.7**	**11.3**	**7.9**
Of which								
1. Total GST	783.7	960.5	355.1	392.7	45.3	40.9	33.0	10.6
2. Custom duties	213.0	233.1	65.3	83.5	30.7	35.8	-14.3	27.8
3. Union excise duties	335.0	339.0	114.0	99.8	34.0	29.4	-17.0	-12.4
C. Gross tax revenue	**2,757.8**	**3,360.9**	**1020.6**	**1189.2**	**37.0**	**35.4**	**18.7**	**16.5**
D. Assignment to States/UTs	**816.6**	**1,021.4**	**317.8**	**382.5**	**38.9**	**37.4**	**49.5**	**20.4**
E. Net tax revenue	**1,934.8**	**2,330.6**	**700.1**	**803.9**	**36.2**	**34.5**	**8.6**	**14.8**

Note: BE: Budget Estimates.
Sources: Union Budget Documents; and CGA.

imports - on account of, *inter alia*, higher export and import duties for a few items. Union excise duties inched down, partly on account of the cut in excise duty on petrol and diesel in May 2022. Overall, net tax revenue of the central government increased by 14.8 per cent during April-August.

The central government's non-tax revenues jumped by 79.4 per cent during April-August 2023 due to higher dividends and profits (Chart III.11). The Reserve Bank of India's dividend rose to ₹87,416 crore from ₹30,307 crore last year. During April-August, the central government's gross fiscal deficit (GFD) stood at 36.0 per cent of the full year's budget estimates (BE), higher than 32.6 per cent a year ago.

Chart III.11: Non-tax Revenue - April-August



Source: CGA.

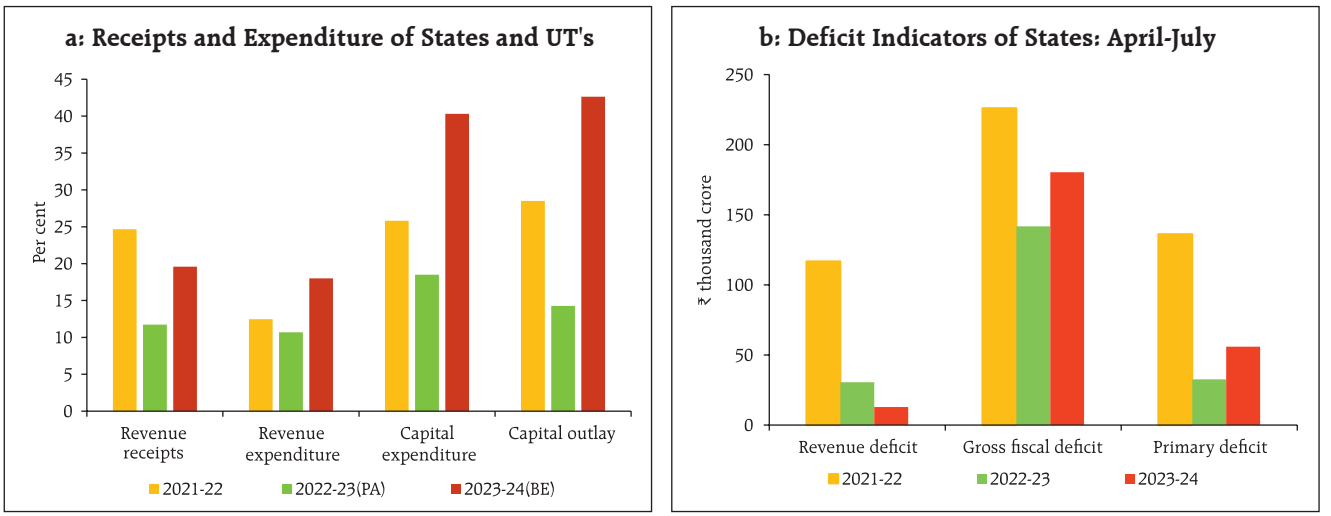
Turning to state governments, their consolidated GFD is budgeted at 3.1 per cent of the GDP in 2023-24, *i.e.*, within the 3.5 per cent limit stipulated by the central government. Growth in revenue receipts is budgeted to accelerate, led by tax revenue (Table III.3 and Chart III.12a). Capital spending is expected to rise by 40.3 per cent in 2023-24 on top of 18.5 per cent a year ago, boosted by the support of ₹1.3 lakh crore from the central government under the 'Scheme for Special Assistance to States for Capital Investment'. The revenue expenditure to capital outlay ratio is budgeted to fall to 5.0 in 2023-24 from 6.1 in 2022-23.

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

Item	(Per cent of 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: A: Actuals; PA: Provisional Accounts; BE: Budget Estimates. Data pertains to 31 States and UTs.
Sources: Budget Documents of State Governments; and Comptroller and Auditor General (CAG) of India.

Chart III.12: Trend in Key Indicators of the States/UTs



Notes: 1. Data in panel a pertain to 31 states/UTs.
2. Data in panel b pertain to 23 states.
Sources: Budget Documents of State Governments; and CAG.

Amongst the key deficit indicators of the states/UTs, consolidated revenue deficit improved during April-July 2023, while gross fiscal deficit deteriorated due to front loading of capex during this period (Chart III.12b). Capital expenditure of the states increased by 49.8 per cent y-o-y during April-July, aided by an additional instalment of tax devolution from the central government and an approval of ₹84,884 crores (as on July 25, 2023) from the centre under the 'Scheme for Special Assistance to States for Capital Investment'.

The Union Budget 2023-24 provided for gross and net market borrowings through dated securities at ₹15.43 lakh crore and ₹11.81 lakh crore, respectively. The centre's gross issuances of market borrowings through dated securities amounted to ₹8.88 lakh crore during H1 (57.6 per cent of the full year's budgeted amount) (Table III.4). The weighted average cost of issuances during H1 at 7.2 per cent was marginally lower than 7.3 per cent a year ago, while the weighted average maturity elongated to 17.6 years from 15.7 years. During H2, the Centre's gross market borrowings through dated securities have been planned for ₹6.55 lakh crore. States raised gross market borrowings of ₹3.58 lakh crore during H1 as against ₹4.37 lakh crore in the indicative calendar. During Q3:2023-24, indicative calendar has placed states gross market borrowings at ₹2.37 lakh crore. To meet the transitory mismatches between receipts and expenditure, the Ways and Means Advances (WMA) limit for the central government for H1 was ₹1.5 lakh crore, and it has been fixed at ₹50,000 crore for H2. For states/union territories, the WMA limits remained at ₹47,010 crore as recommended by the Advisory Committee on Ways and Means Advances to State Governments (Chairman: Shri Sudhir Shrivastava).

Table III.4: Government Market Borrowings

(₹ crore)

	2021-22			2022-23			2023-24 (April to September)		
	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	7,29,236	2,32,564	9,61,800
Gross borrowings	11,27,382	7,01,626	18,29,008	14,21,000	7,58,392	21,79,392	8,88,000	3,58,022	12,46,022

Sources: Government of India; and RBI staff estimates.

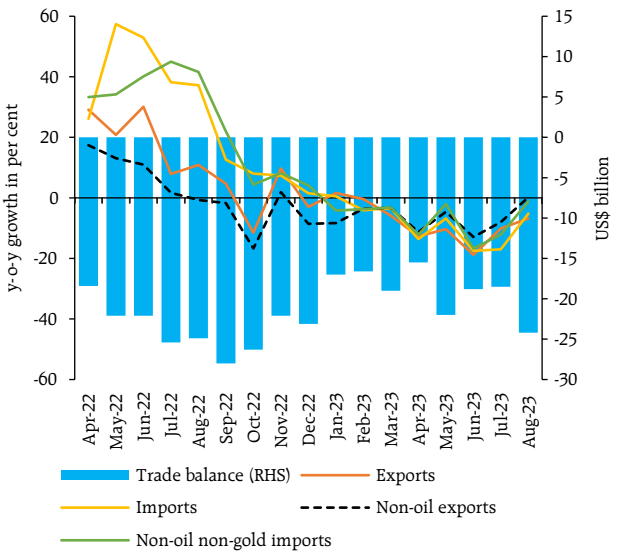
III.1.4 External Demand

India's external demand was weighed down by the slowing global economy, persisting geopolitical tensions, and geoeconomic fragmentation. Merchandise exports and imports (US$ terms) have been in contraction territory since February 2023. Services trade exhibited slowdown during April-August amidst global headwinds. According to the NSO, exports of goods and services contracted by 7.7 per cent in real terms, while imports of goods and services grew by 10.1 per cent, resulting in a sharp jump in the drag from net exports to (-) 6.4 per cent of GDP in Q1:2023-24 from (-) 0.1 per cent in Q4:2022-23 and (-) 2.3 per cent a year ago.

Merchandise exports (US$ terms) fell by 11.9 per cent y-o-y during April-August 2023, and merchandise imports by 12.1 per cent. The merchandise trade deficit moderated to US$ 98.9 billion in April-August 2023 from US$ 112.9 billion a year ago as the decline in imports outpaced that in exports (Chart III.13).

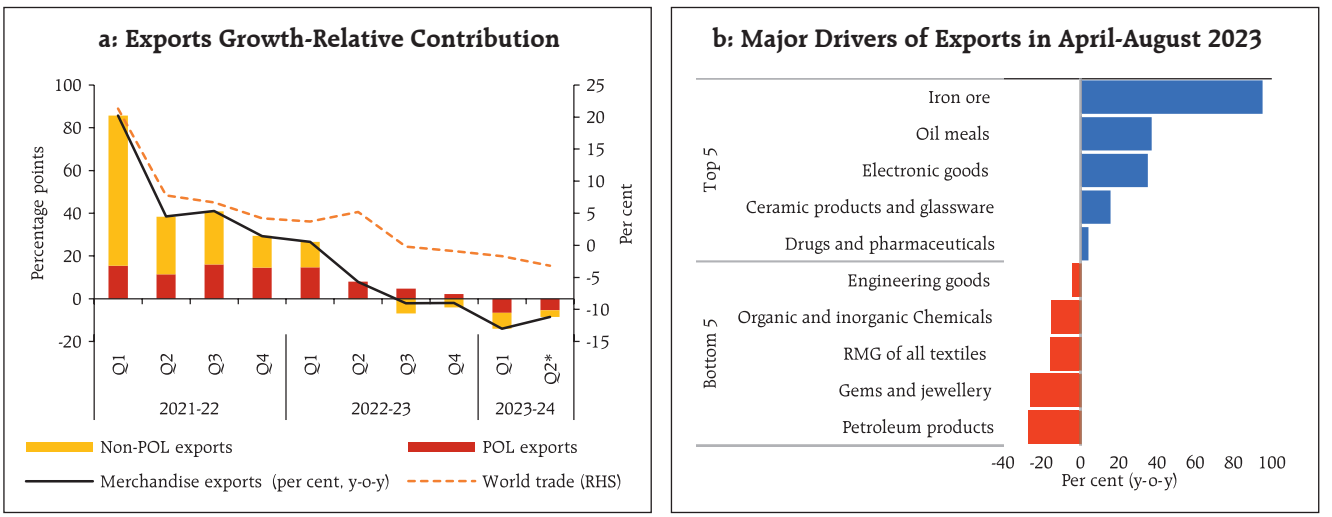
Merchandise exports experienced a broad-based downturn across commodities. During April-August 2023, 18 out of 30 major commodities (with a share of 73.9 per cent in the export basket) registered a decline on y-o-y basis, led by petroleum products, gems and jewellery and engineering goods. On the other hand, electronic goods, iron ore and drugs and pharmaceuticals, accounting for 13.5 per cent of total merchandise exports[6], contributed positively to export growth (Chart III.14). Overall, non-oil exports fell by 7.5 per cent during this period.

Chart III.13: Merchandise Trade



Source: DGCI&S.

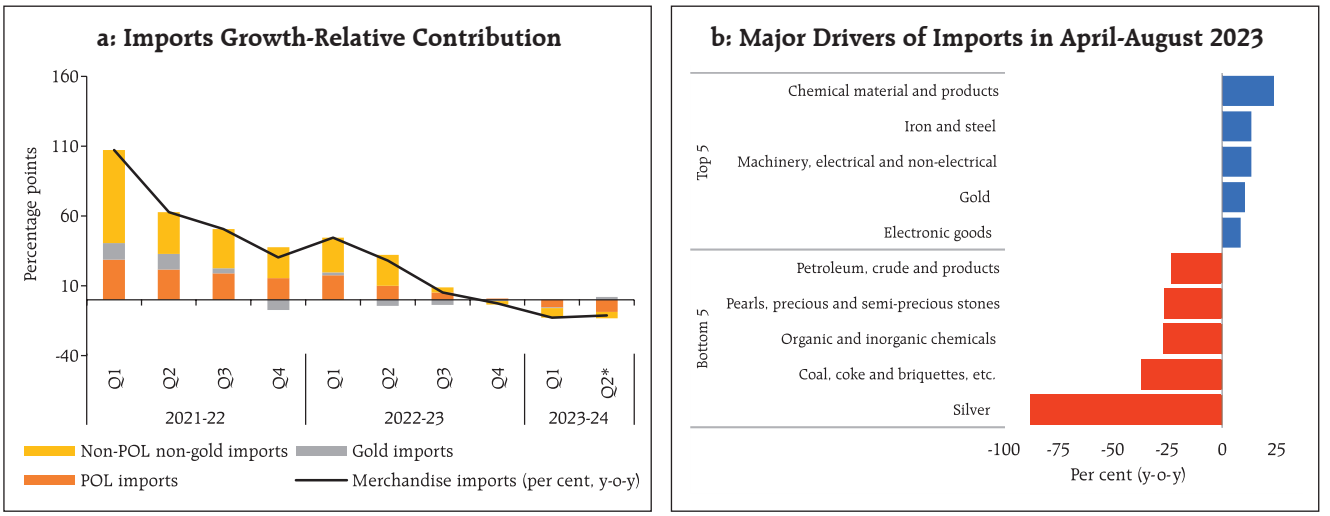
Chart III.14: Exports Growth



Notes: 1) Q2*: July-August 2023. World trade data is for July 2023.
2) The Chart b lists top 5 and bottom 5 commodities by relative contribution, sorted by y-o-y change during April-August 2023.
Sources: DGCI&S; CPB, Netherlands; and RBI staff estimates.

[6] The share is based on April-August 2023.

Chart III.15: Imports Growth



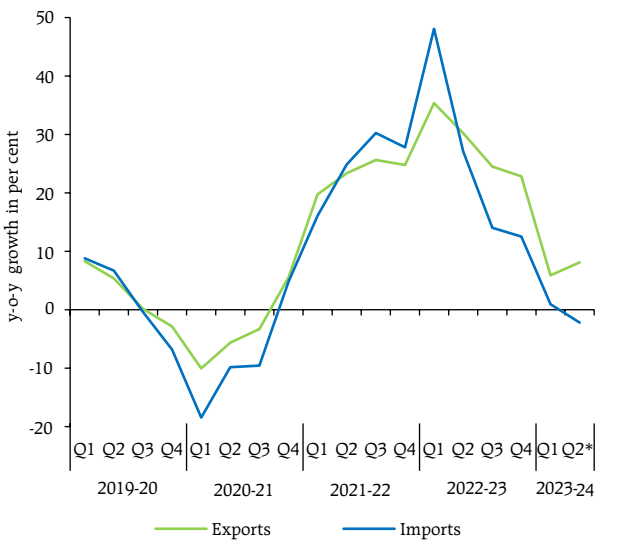
Notes: 1) Q2*: July-August 2023.
2) The chart b lists top 5 and bottom 5 commodities by relative contribution, sorted by y-o-y change during April-August 2023.
Sources: DGCI&S; and RBI staff estimates.

In the case of imports, 17 major commodities, accounting for 55.4 per cent of the imports basket, registered contraction during April-August 2023, driven by petroleum and crude products, coal and chemicals. Electronic goods, machinery, electrical and non-electrical products and gold imports, on the other hand, expanded (Chart III.15). Non-oil non-gold imports fell by 9.0 per cent.

Services exports were buoyed by software services, business and financial services and travel services in Q1:2023-24. Services exports growth moderated substantially to 6.8 per cent during April-August 2023 from 32.1 per cent a year ago, partly reflecting slowdown in key partner countries (Chart III.16). Services imports posted a muted growth of 0.9 per cent in Q1:2023-24, with decline in outgoes under transportation servces. Services imports declined by 1.5 per cent y-o-y in July-August 2023.

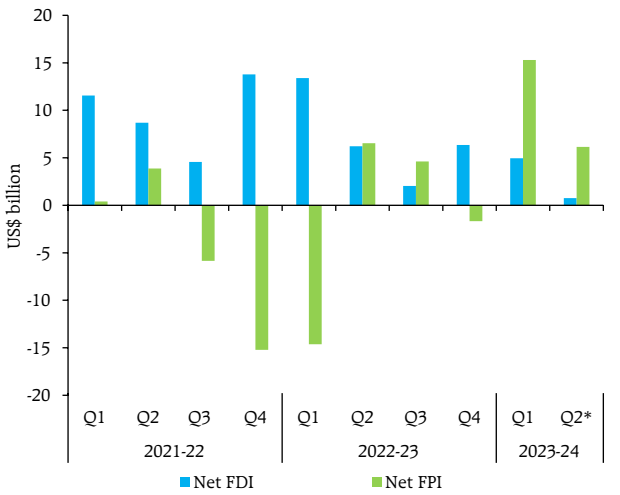
On a balance of payments basis, the current account deficit narrowed to 1.1 per cent of GDP in Q1:2023-24 from 2.1 per cent of GDP in the corresponding period of the previous year on the back of lower merchandise trade deficit, higher net surplus in services exports and robust inward remittances. In the financial account, net FDI inflows moderated to US$ 5.8 billion during April-July 2023 amidst a broader fall in global FDI flows (Chart III.17). Manufacturing, financial services, business services, and computer services were the major recipient sectors while Singapore, Japan, the Netherlands, the USA and Mauritius were the major source countries of inward FDI to India.

Chart III.16: Services Trade



Note: Data for Q1:2023-24 and Q2:2023-24 are provisional.
Q2*: July-August 2023.
Source: RBI.

Chart III.17: Net Foreign Direct and Portfolio Investment



Notes: Data for Q1:2023-24 and Q2:2023-24 are provisional.
*: Net FDI data is for July 2023.
Sources: National Securities Depository Limited (NSDL); and RBI.

Foreign portfolio investment (FPI) rebounded mainly through the equity route in response to investors' positive outlook on domestic growth and corporate earnings. FPI inflows of US$ 20.5 billion were recorded in H1:2023-24 as against an outflow of US$ 8.1 billion during the same period last year. External commercial borrowing (ECB) flows also exhibited a turnaround, with net inflows at US$ 4.5 billion in 2023-24 (up to August) in comparison with net outflows of US$ 3.2 billion in the same period of last year, driven by higher disbursements. Net accretions to non-resident deposits inched up to US$ 3.0 billion during April-July 2023 from US$ 1.4 billion a year ago, mainly due to higher flows in Foreign Currency Non-Resident (FCNR-B) deposits. As on September 29, 2023, India's foreign exchange reserves amounted to US$ 586.9 billion, equivalent to 10.1 months of projected merchandise imports in 2023-24 and 93.9 per cent of outstanding external debt at end-June 2023.

III.2 Aggregate Supply

Aggregate supply – measured by real gross value added (GVA) at basic prices – expanded by 7.8 per cent in Q1:2023-24 (11.9 per cent a year ago), led by services sector activity (Table III.5).

Table III.5: Real GVA Growth

(y-o-y, per cent)

Item	2021-22	2022-23	Weighted Contribution		2021-22				2022-23				2023-24
	(FRE)	(PE)	2021-22	2022-23	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Agriculture, forestry and fishing	**3.5 (7.8)**	**4.0 (12.0)**	**0.6**	**0.6**	**3.4 (7.4)**	**4.8 (9.4)**	**2.3 (7.2)**	**4.1 (7.6)**	**2.4 (10.0)**	**2.5 (12.1)**	**4.7 (12.3)**	**5.5 (13.5)**	**3.5 (13.8)**
Industry	**10.5 (11.5)**	**2.4 (14.2)**	**2.4**	**0.6**	**42.1 (3.9)**	**7.3 (13.8)**	**2.2 (11.9)**	**1.3 (16.4)**	**7.3 (11.5)**	**-2.5 (10.9)**	**0.1 (12.0)**	**4.7 (21.9)**	**4.6 (16.7)**
Mining and quarrying	7.1 (-2.1)	4.6 (2.4)	0.2	0.1	12.2 (-7.5)	10.6 (1.7)	5.4 (-0.3)	2.3 (-1.5)	9.5 (1.3)	-0.1 (1.6)	4.1 (3.8)	4.3 2.7)	5.8 (7.1)
Manufacturing	11.1 (14.3)	1.3 (15.8)	2.0	0.3	51.5 (6.3)	6.6 (16.2)	1.3 (14.3)	0.6 (20.2)	6.1 (12.8)	-3.8 (11.7)	-1.4 (12.7)	4.5 (25.6)	4.7 (18.1)
Electricity, gas, water supply and other utilities	9.9 (5.1)	9.0 (14.5)	0.2	0.2	16.3 (-1.6)	10.8 (6.4)	6.0 (6.7)	6.7 (9.4)	14.9 (13.1)	6.0 (12.8)	8.2 (15.5)	6.9 (16.9)	2.9 (16.3)
Services	**9.6 (0.9)**	**9.5 (10.5)**	**5.8**	**5.8**	**17.9 (-10.8)**	**11.0 (-0.5)**	**6.5 (6.3)**	**4.9 (9.1)**	**16.3 (3.7)**	**8.9 (8.4)**	**6.4 (13.2)**	**7.4 (17.2)**	**10.0 (14.1)**
Construction	14.8 (8.2)	10.0 (19.1)	1.1	0.8	77.0 (-8.7)	10.8 (5.3)	0.2 (8.6)	4.9 (26.0)	16.0 (6.0)	5.7 (11.3)	8.3 (17.7)	10.4 (39.1)	7.9 (14.3)
Trade, hotels, transport, communication	13.8 (-8.7)	14.0 (4.1)	2.3	2.5	41.4 (-28.6)	13.1 (-7.7)	9.2 (-1.2)	5.0 (1.8)	25.7 (-10.2)	15.6 (6.7)	9.6 (8.3)	9.1 (11.0)	9.2 (-2.0)
Financial, real estate and professional services	4.7 (6.9)	7.1 (14.6)	1.1	1.6	2.8 (1.9)	7.0 (1.6)	4.3 (14.4)	4.6 (13.2)	8.5 (10.6)	7.1 (8.8)	5.7 (20.9)	7.1 (21.3)	12.2 (24.1)
Public administration, defence and other services	9.7 (1.3)	7.2 (8.6)	1.2	0.9	6.5 (-7.9)	16.8 (2.5)	10.6 (5.1)	5.2 (4.5)	21.3 (11.6)	5.6 (8.2)	2.0 (7.2)	3.1 (7.8)	7.9 (20.5)
GVA at basic prices	**8.8 (4.2)**	**7.0 (11.5)**	**8.8**	**7.0**	**20.2 (-5.1)**	**9.3 (3.7)**	**4.7 (7.7)**	**3.9 (10.5)**	**11.9 (6.3)**	**5.4 (9.3)**	**4.7 (12.7)**	**6.5 (17.6)**	**7.8 (14.6)**

Notes: FRE: First revised estimates; PE: Provisional estimates.
Figures in parentheses are growth rates over 2019-20.
Sources: NSO; and RBI staff estimates.

Moderating global energy and non-energy prices supported value addition in both manufacturing and services sectors. Petroleum product prices have an asymmetric impact on activity: the positive impact of easing prices is lower than the negative impact of an equivalent increase in prices (Box III.1).

Box III.1: Asymmetric Impact of Energy Prices on Economic Activity

Global energy prices have a sizeable impact on output and prices in countries heavily dependent on imports of energy. The impact of oil and other energy prices increases/decreases on output can be asymmetric (Rahman and Serlitis, 2010; Catik and Onder, 2013). Against this backdrop, the potential asymmetric impact of oil prices on aggregate gross value added (GVA) and manufacturing GVA is assessed by using a non-linear autoregressive distributed lag (NARDL) modelling framework over the period Q1:2005-06 to Q1:2023-24. A linear model is also estimated for comparative analysis. The model includes the real weighted average lending rate (IR), the global index of industrial production (GIIP) as a control for global economic activity and wholesale price index (WPI) of diesel (OIL) (as a measure of domestic oil price). All variables, except the interest rate, are in log form in the long-run equation and in first differences in the short-run equation. Two models are estimated: (i) excluding GIIP (Model 1) and (ii) including GIIP (Model 2). The NARDL model takes the following form:

$$\Delta \log(Y_t) = \alpha + \sum_{j=1}^{p-1}\left[\alpha_j \Delta Y_{t-j}\right] + \sum_{j=1}^{q-1}\left[\beta_{i_j}\Delta X_{i_{t-j}}\right] + \sum_{j=1}^{q-1}\left[\pi_j^{+}\Delta OIL_{t-j}^{+} + \pi_j^{-}\Delta OIL_{t-j}^{-}\right] - \gamma\left(Y_{t-1} - \theta_0 - \theta_1 X_{i_t} - \theta_2^{+} OIL_t^{+} - \theta_2^{-} OIL_t^{-}\right) + u_t$$

$$Oil_t^{+} = \sum_{j=1}^{t} \Delta Oil_j^{+} = \sum_{j=1}^{t} \max(\Delta Oil_j\ , 0)$$

$$Oil_t^{-} = \sum_{j=1}^{t} \Delta Oil_j^{-} = \sum_{j=1}^{t} \min(\Delta Oil_j\ , 0)$$

where Y is the dependent variable (Aggregate GVA or Manufacturing GVA) and X are the explanatory variables (IR, GIIP, Oil^{+}, Oil^{-}). The bound tests confirms the presence of a long run cointegrating relationship. The model diagnostics are satisfactory and the coefficient of the error correction term in the short-run equations is negative, less than 1 and statistically significant.

The results indicate that an increase of one per cent in domestic diesel prices reduces manufacturing GVA and overall GVA growth by around 33-36 bps and 24-39 bps, respectively, whereas an equivalent reduction of one per cent in diesel prices boosts manufacturing GVA and overall GVA growth by a lower magnitude of around 7-8 bps and 4-9 bps, respectively (Table III.1.1). In the linear model, a one per cent increase/decrease in oil prices

Table III.1.1: Oil prices and GVA: Linear and Non-Linear ARDL Model Estimates

Panel A: Long Run Estimates

	Overall GVA				GVA: Manufacturing			
	Linear	Non-Linear	Linear	Non-Linear	Linear	Non-Linear	Linear	Non-Linear
	Model 1		Model 2		Model 1		Model 2	
Selected ARDL Model	(4,3,2)	(3,2,0)	(4,3,2,2)	(3,3,4,4)	(4,1,3)	(4,1,0)	(4,1,1,3)	(3,0,4,1)
IR	-0.017 (0.54)	-0.004 (0.57)	-0.041 (0.41)	-0.076 (0.04)	-0.004 (0.84)	-0.004 (0.72)	-0.015 (0.55)	-0.040 (0.02)
GIIP			0.29 (0.62)	0.87 (0.05)			-.003 (0.45)	1.11 (0.01)
OIL	-0.19 (0.03)		-0.23 (0.08)		-0.14 (0.00)		-0.14 (0.00)	
OIL⁺		-0.24 (0.00)		-0.39 (0.00)		-0.33 (0.00)		-0.36 (0.00)
OIL⁻		-0.04 (0.08)		-0.09 (0.07)		-0.08 (0.00)		-0.07 (0.08)
ECM	-0.09 (0.00)	-0.28 (0.00)	-0.06 (0.00)	-0.14 (0.00)	-0.39 (0.00)	-0.52 (0.00)	-0.25 (0.00)	-0.32 (0.00)
BPG test: p-value	0.54	0.62	0.38	0.81	0.96	0.99	0.91	0.58
LM test: p-value	0.92	0.25	0.32	0.47	0.34	0.20	0.86	0.35

Panel B: Coefficient Symmetry Tests (F-statistic)

(H0: Coefficients are symmetric)

	Overall GVA		GVA: Manufacturing	
	Model 1	Model 2	Model 1	Model 2
Long -run	33.1 (0.00)	10.7 (0.00)	31.5 (0.00)	11.1 (0.00)
Short run	-	23.7 (0.00)	-	0.01 (0.93)
Joint (Long and short-run)	-	15.4 (0.00)	-	5.9 (0.00)

Note: Figures in parentheses are p-values.
Source: RBI staff estimates.

(Contd.)

reduces/increases manufacturing GVA and overall GVA by a relatively modest 14 bps and 19 bps, respectively. The asymmetric impact could reflect incomplete pass-through by firms of higher input costs during the upswing phase of oil prices and the lower downward rigidity in output prices when oil prices correct. With oil prices remaining highly volatile, the adverse impact of any positive oil price shock is thus not fully offset by a similar degree of price correction.

References:

Çatık, A and Önder, A. (2013), "An Asymmetric Analysis of the Relationship between Oil Prices and Output: The case of Turkey", *Economic Modelling*, Vol. 33, pp. 884-892.

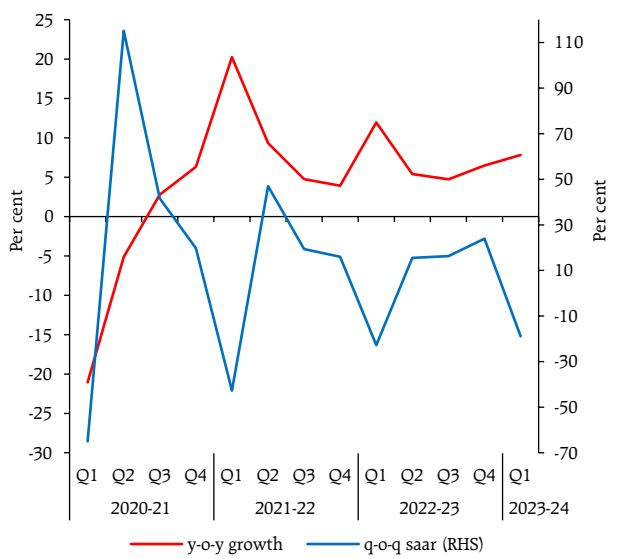
Rahman, S. and Serletis, A. (2010), "The Asymmetric Effects of Oil Price and Monetary Policy Shocks: A Non-linear VAR approach", *Energy Economics*, Vol. 32(6), pp. 1460-1466, November.

The momentum of GVA was negative in Q1, reflecting the post-pandemic pattern (Chart III.18).

III.2.1 Agriculture

Real GVA in agriculture, forestry and fishing posted a growth of 3.5 per cent in Q1:2023-24 (2.4 per cent a year ago). The south-west monsoon (June-September 2023) remained uneven in terms of spatial and temporal rainfall distribution. After a sluggish start in June, the monsoon gained strength in July but lost momentum in August and rainfall deficiency for the month at 36 per cent touched a new record. The monsoon, however, recovered in September, which helped to narrow the cumulative rainfall deficit to 6 per cent below the long period average (LPA) (6 per cent above LPA a year ago), with 29 out of the 36 sub-divisions receiving normal or above normal rainfall (Chart III.19a and b). The area under *kharif* sowing during 2023-24 swas marginally higher than last year. Amongst the major crops, area under rice was 1.9 per cent higher while acreage under pulses and oilseeds was lower by 4.2 per cent and 1.6 per cent, respectively (Chart III.19c). As of September 29, 2023, the reservoir levels stood at 73 per cent of the full capacity — below the last year's level of 89 per cent and the decadal average of 79 per cent (Chart III.19d). The production weighted rainfall (PRN) index was 93 as on September 30, 2023. The PRN for major crops was below normal except for cotton, pulses and oilseeds (Chart III.19e and f).

Chart III.18: GVA Growth and Momentum

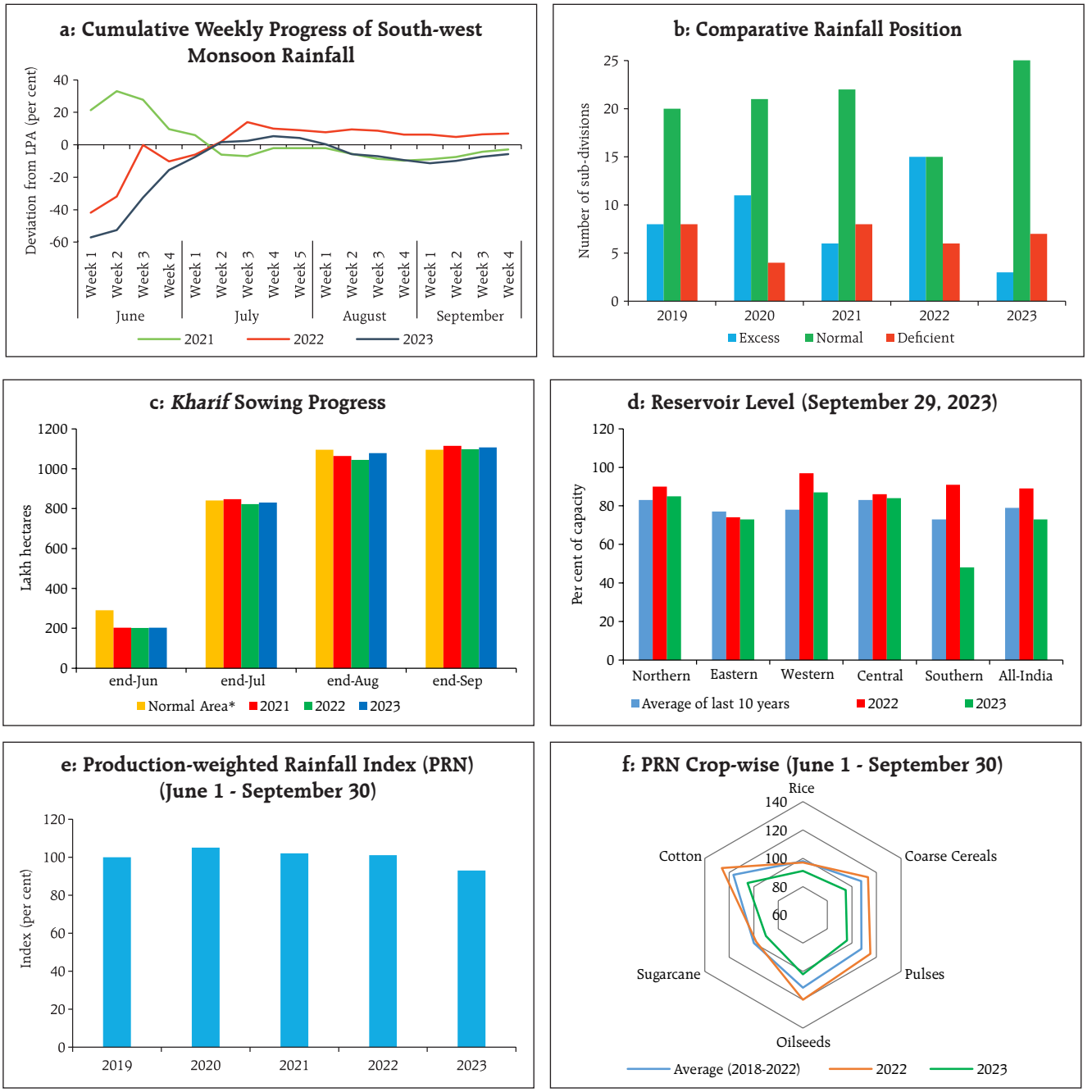


Sources: NSO; and RBI staff estimates.

The government announced an increase of 5.3-10.4 per cent in minimum support prices (MSP) for *kharif* crops, ensuring a return of at least 50 per cent over the cost of production (as measured by A2 plus FL[7]). The procurement of rice during the *kharif* marketing season 2022-23 ended at 570 lakh tonnes

[7] A2 (out of pocket expenses) plus FL (family labour) includes all paid out costs such as expenses on hired labour, machines, rent paid for leased land, seeds, fertilisers, irrigation charges, depreciation as well as imputed value of family labour.

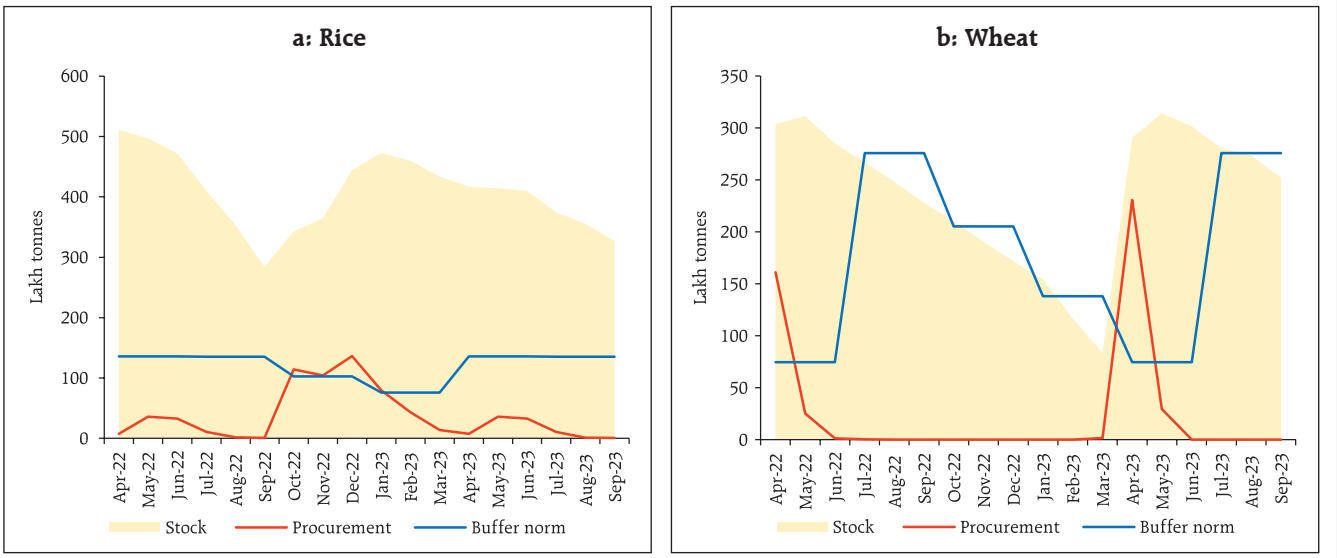
Chart III.19: Progress of Rainfall and *Kharif* Sowing



Note: *Normal area as on date is the average of 5 years - 2018-19 to 2022-23.
Sources: India Meteorological Department (IMD); Central Water Commission; Ministry of Agriculture and Farmers' Welfare; and RBI staff estimates.

was 3.9 per cent lower than in the previous year. For wheat, on the other hand, the procurement at 262 lakh tonnes as on September 27, 2023 was 39.4 per cent higher than last year. As on September 16, 2023, buffer stocks of rice and wheat at 326.4 lakh tonnes and 252.2 lakh tonnes, respectively, were 2.4 times and 0.9 times respective buffer norms (Chart III.20a and b).

Chart III.20: Stock, Procurement and Offtake Position – Rice and Wheat



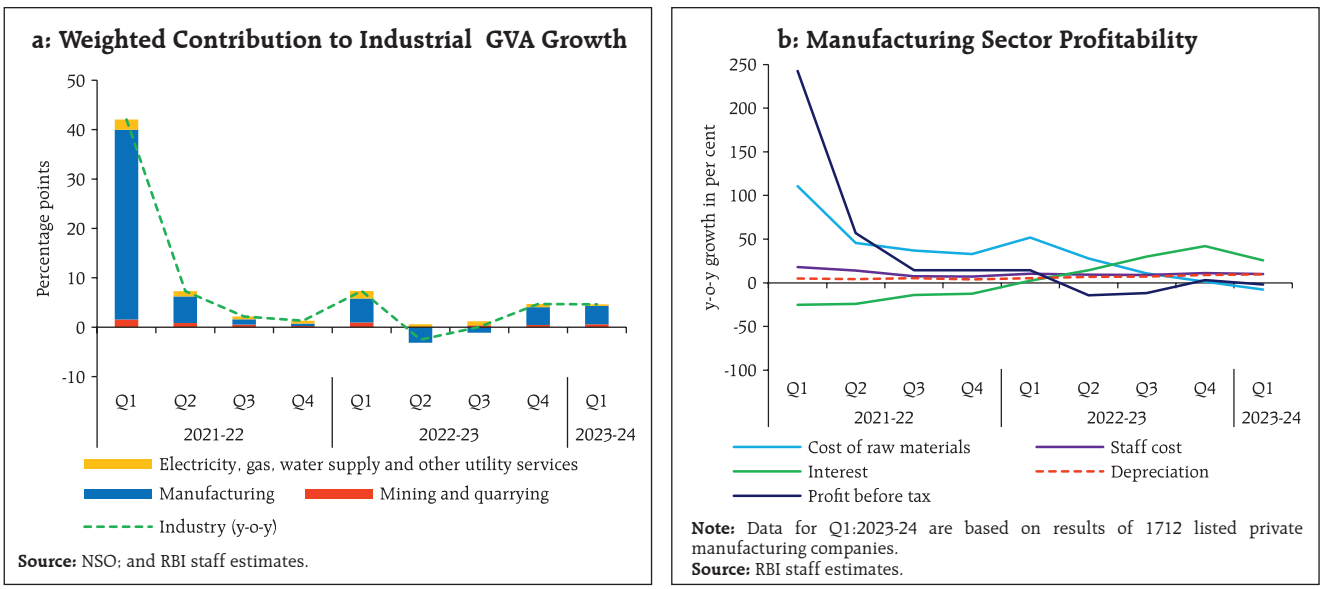
Note: Rice and wheat stock for September 2023 is as on September 16.
Source: Food Corporation of India.

III.2.2 Industry

Industrial GVA expanded by 4.6 per cent in Q1:2023-24 (7.3 per cent a year ago), driven by stronger manufacturing activity than a year ago, benefitting from easing input cost pressures and normalisation of supply chains (Chart III.21).

The index of industrial production (IIP) posted a growth of 4.8 per cent y-o-y during April-July 2023 (9.2 per cent above the pre-pandemic level), supported by all its constituents – mining, manufacturing and electricity (Chart III.22 and Table III.6). Pharmaceuticals, basic metals, non-

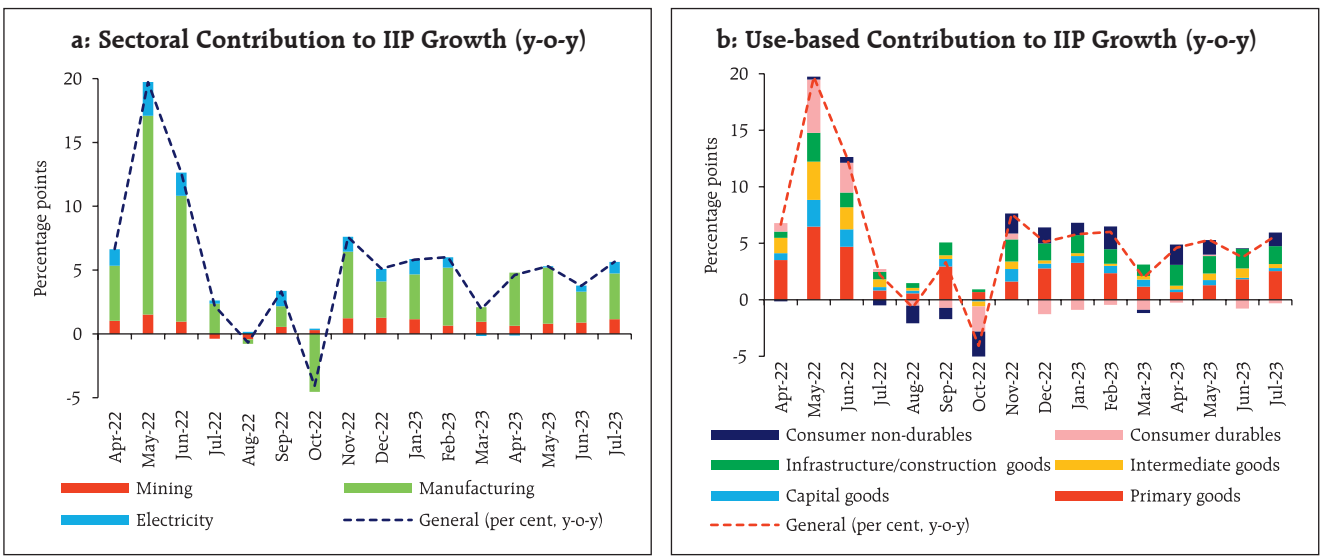
Chart III.21: Industrial GVA Growth



Source: NSO; and RBI staff estimates.

Note: Data for Q1:2023-24 are based on results of 1712 listed private manufacturing companies.
Source: RBI staff estimates.

Chart III.22: Index of Industrial Production (IIP)



Sources: NSO; and RBI staff estimates.

metallic mineral products, electrical equipment and motor vehicles were the main drivers of manufacturing activity. In terms of the use-based classification, the production of infrastructure and construction goods posted double digit growth, while that of consumer durables contracted.

Electricity, gas, water supply and other utility services registered moderate growth, owing to lower household demand for electricity due to the relatively colder weather conditions during Q1. Electricity generation rose by 5.3 per cent y-o-y in April-August 2023 (10.6 per cent a year ago). Thermal

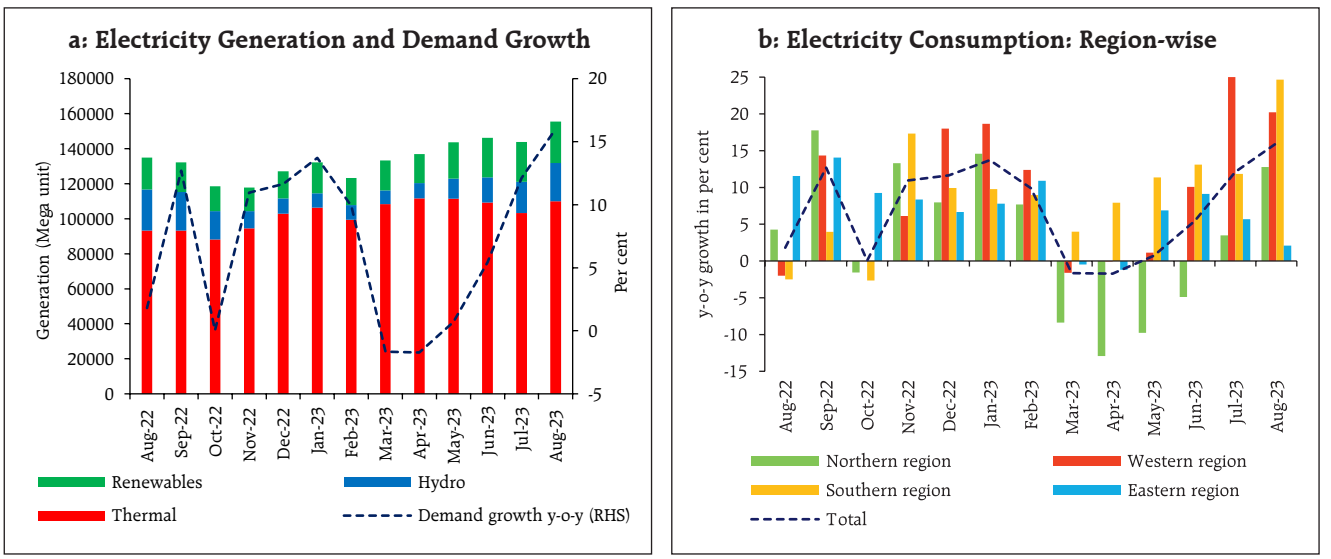
Table III.6: Industrial Sector y-o-y growth

(per cent)

	Indicators	2022-23				2023-24			
		Q1	Q2	Q3	Q4	Q1	Jul	Aug	Sep
1	PMI: Manufacturing (>50 indicates growth over previous month)	54.4	55.9	56.3	55.7	57.9	57.7	58.6	57.5
2	Index of Industrial Production (IIP)	12.8	1.6	2.8	4.5	4.6	5.7		
3	IIP: Manufacturing	12.8	1.5	1.4	3.9	4.8	4.6		
4	IIP: Primary goods	13.9	4.5	5.2	6.6	3.6	7.6		
5	IIP: Capital goods	29.6	6.9	8.2	10.5	4.8	4.6		
6	IIP: Infrastructure & construction goods	10.3	5.3	8.8	9.1	12.5	11.4		
7	IIP: Consumer durables	27.2	-2.7	-8.9	-6.8	-2.7	-2.7		
8	IIP: Consumer non-durables	1.2	-5.9	1.8	5.5	6.6	7.4		
9	Eight Core Industries (ECI)	13.9	5.7	4.9	7.0	6.0	8.4	12.1	
10	ECI: Steel	6.9	7.0	9.9	12.9	16.3	14.2	10.9	
11	ECI: Cement	17.2	4.9	10.1	3.7	12.7	6.9	18.9	
12	Electricity demand	18.5	5.8	7.3	6.9	1.5	12.1	16.0	
	Production of Automobiles								
13	Passenger vehicles	32.7	38.1	21.4	13.0	7.0	9.5	11.9	
14	Two wheelers	38.6	7.7	0.5	-3.0	1.3	-9.2	3.0	
15	Three wheelers	5.9	24.3	13.3	7.0	24.3	25.0	17.0	
16	Tractors	14.4	-1.6	6.2	34.7	-8.9	-12.1	-4.7	

Sources: CMIE; CEIC; NSO; SIAM; and RBI staff estimates.

Chart III.23: Electricity Generation and Consumption

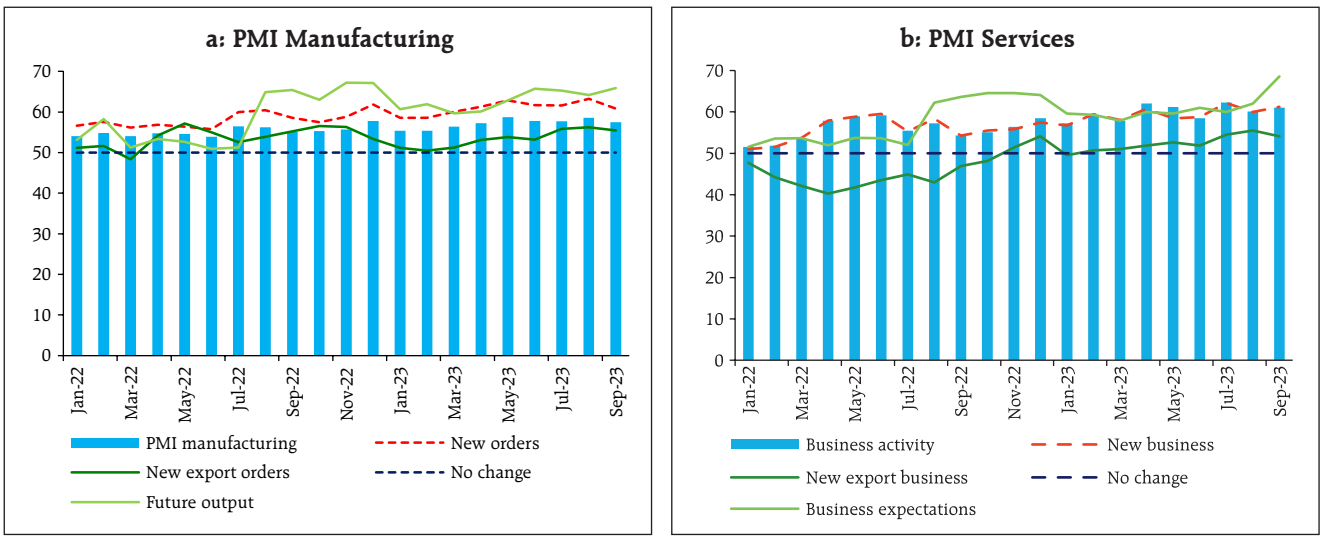


Sources: Central Electricity Authority; and Power System Operation Corporation Limited (POSOCO).

and renewable sources recorded an increase of 6.3 per cent and 14.5 per cent, respectively, during April-August 2023 (Chart III.23a). Region-wise, electricity demand remained strong in all regions except in the northern region. Demand in the northern region picked up in July-August (Chart III.23b).

The manufacturing purchasing managers index (PMI) indicated improvement in overall business conditions. It rose to 57.9 in H1:2023-24 from 55.7 in Q4:2022-23, with pick up in domestic and export orders. The future output index also strengthened (Chart III.24a).

Chart III.24: PMI Manufacturing and Services



Note: >50: Expansion, < 50: Contraction.
Source: S&P Global.

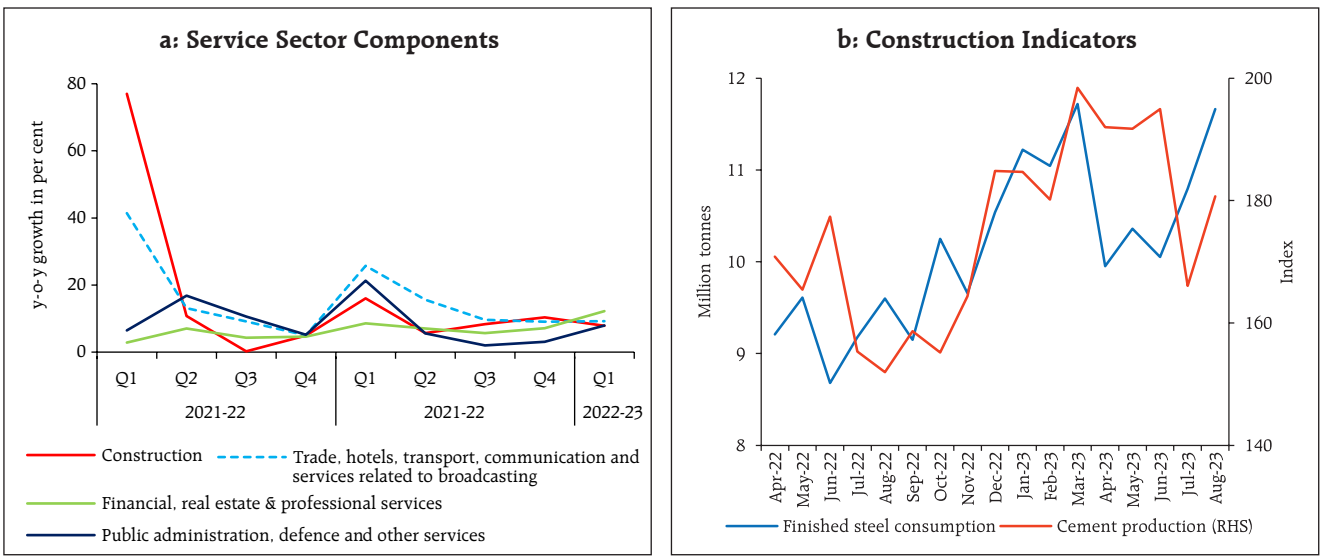
III.2.3 Services

Services sector GVA recorded a robust growth of 10.0 per cent y-o-y in Q1:2023-24, exceeding the pre-pandemic level by 14.1.per cent. It was buoyed by sustained growth in contact-intensive services, financial services, real estate activities and revival in construction activity (Chart III.25a). Trade, hotels, transport, communication, and other services trailed the pre-pandemic level by 2.0 per cent. Residential housing demand and infrastructure spending by the government propelled a strengthening of construction activity.

The traction in trade and transportation services continued in Q2, as reflected in high frequency indicators. GST collections and issuances of e-way bills – indicators of wholesale and retail trade – remained solid. Cement production and steel consumption reflected the improvement in construction activity (Chart III.25b). Domestic air passenger traffic expanded by 19.1 per cent in Q1 and by 24-26 per cent in July-August on the back of increased travel and business-related activities (Table III.7). High-speed diesel and toll collections point to a healthy growth in road transport in H1. Railway freight traffic and port cargo, after a muted growth of 1.1 per cent and 1.7 per cent, respectively, in Q1 made a smart recovery in Q2 especially in August.

Real GVA growth in financial, real estate and professional services accelerated to 12.2 per cent in Q1:2023-24 from 8.5 per cent a year ago. Bank credit and deposits expanded by 15.3 per cent (y-o-y) and 12.3 per cent as on September 22, suggesting continued buoyancy in financial services. In the real estate sector, new launches and sales increased by 10.9 per cent and 8.4 per cent respectively on a y-o-y basis during Q1 and surpassed their pre-pandemic levels (Chart III.26a). According to the RBI's all-India housing price index, housing prices increased by 5.1 per cent y-o-y in Q1, the highest in 19 quarters, led by Bengaluru, Delhi and Mumbai (Chart III.26b). Public administration, defence and other services (PADO) posted a robust growth of 7.9 per cent y-o-y in Q1 (21.3 per cent in Q1 of last year) primarily due to healthy growth in services like education, health,

Chart III.25: Services Sector



Sources: NSO; Office of Economic Adviser; and Joint Plant Committee.

Table III.7: Services Sector y-o-y growth

(per cent)

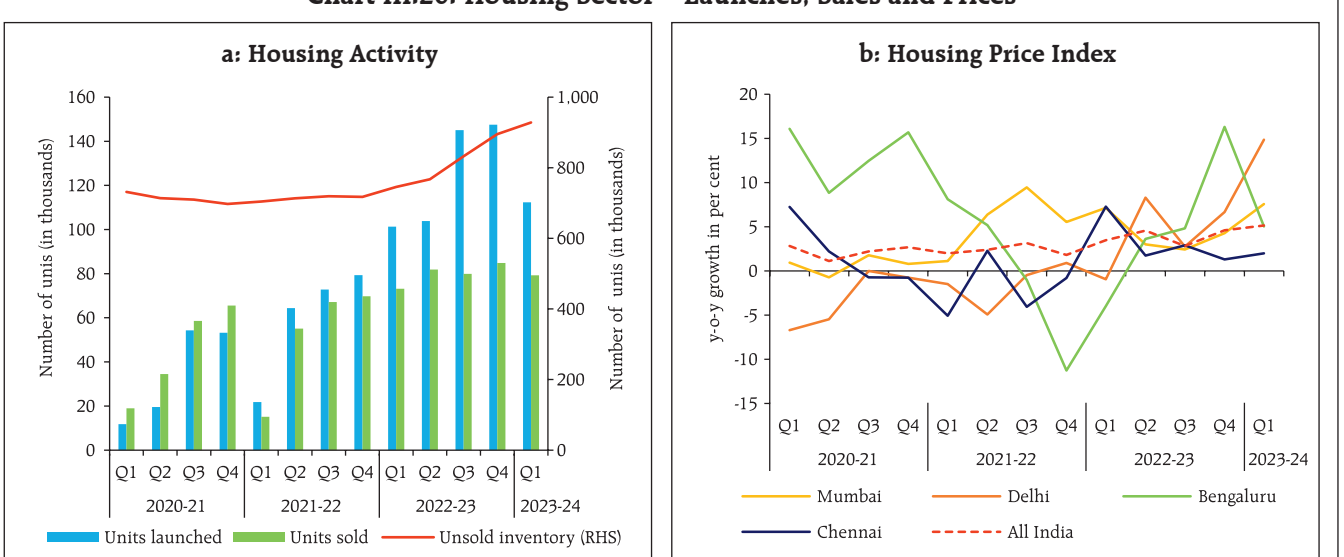
	Indicators	2022-23				2023-24			
		Q1	Q2	Q3	Q4	Q1	Jul	Aug	Sep
1	PMI: Services (>50 indicates growth over previous month)	58.7	55.7	56.6	58.1	60.6	62.3	60.1	61.0
	Construction								
2	Steel consumption	10.1	13.0	12.7	17.1	10.4	17.6	21.5	
3	Cement production	17.2	4.9	10.1	3.7	12.7	6.9	18.9	
	Trade, Hotels, Transport, Communication and Services related to Broadcasting								
4	Commercial vehicle sales	112.2	39.5	16.6	11.6	-3.3			
5	Domestic air passenger traffic	206.2	64.1	18.5	52.2	19.1	26.3	23.6	
6	Domestic air cargo	32.1	10.0	-3.0	2.3	-1.0	-4.1	6.0	
7	International air cargo	-1.7	-3.8	-11.0	-2.8	0.1	1.0	7.4	
8	Railway freight traffic	11.8	8.4	3.2	3.7	1.1	1.5	6.4	6.7
9	Port cargo	9.3	12.7	5.4	8.2	1.7	4.3	4.4	
10	Toll collection: volume	88.9	35.6	30.8	20.2	15.4	11.3	13.3	15.4
11	Petroleum consumption	18.8	10.5	7.6	6.6	6.4	2.1	6.5	
12	GST E-way bill	45.6	20.1	17.2	18.1	15.8	16.4	19.5	9.5
13	GST revenue	34.5	27.5	14.2	11.9	11.6	10.8	10.8	10.2
	Financial, Real Estate and Professional Services								
14	Credit outstanding	13.2	16.4	14.9	15.0	16.2	14.7	14.9	15.3
15	Bank deposits	8.3	9.2	9.2	9.6	12.9	12.0	12.3	12.3
16	Life insurance premium	39.7	36.6	19.1	-7.0	-0.9	-28.7	-18.5	
17	Non-life insurance premium	23.5	10.0	17.1	16.7	18.0	13.8	-3.7	

Sources: CMIE; CEIC; NSO; MOSPI; IRDAI; and RBI staff estimates.

recreation and cultural services, which offset the muted growth in government consumption.

The services PMI strengthened to 60.6 in Q1:2023-24 and 61.1 in Q2 from 58.1 in Q4:2022-23, driven by demand and new business gains (Chart III.24b). The Composite PMI index inched up from 58.3 in Q4:2022-23 to 60.9 in Q1:2023-24 and further to 61.3 in Q2.

Chart III.26: Housing Sector – Launches, Sales and Prices



Sources: PropTiger; and RBI.

III.3 Conclusion

Domestic economic activity held up well in H1:2023-24, despite an accentuated drag from weak external demand. Private consumption improved across urban, and rural constituents. Investment activity drew strength mainly from government capex. Looking ahead, the sustained buoyancy in services, consumer and business optimism, government's continued thrust on capex, healthy balance sheets of banks and corporates, and supply chain normalisation should support economic activity. Geopolitical tensions and geoeconomic fragmentation, volatility in global financial markets and energy prices, global economic slowdown and *El Niño* conditions pose risks to the domestic outlook.

IV. Financial Markets and Liquidity Conditions

Domestic financial markets exhibited orderly movements and were range-bound during H1:2023-24. Bank lending and deposit rates increased, but the pass-through of the past rate hikes is still incomplete. Bank credit growth remained strong. Going forward, the Reserve Bank will conduct market operations to ensure financial stability while providing liquidity to meet the productive requirements of the economy.

Introduction

During H1:2023-24, global financial markets were volatile, reflecting heightened uncertainty around the trajectory of monetary policy. Sovereign bond yields firmed up with core inflation remaining sticky, tight labour markets and disinflationary resolve in monetary policy stances. Global equity markets gained during April-July 2023 on optimism about an early end to the tightening cycle, but they corrected subsequently on expectations of policy rates staying higher for longer. The US dollar remained volatile as it fell to a 15-month low in mid-July but recouped its losses subsequently. Swings in capital flows and tight global financial conditions posed challenges to macroeconomic and financial stability in emerging market economies (EMEs).

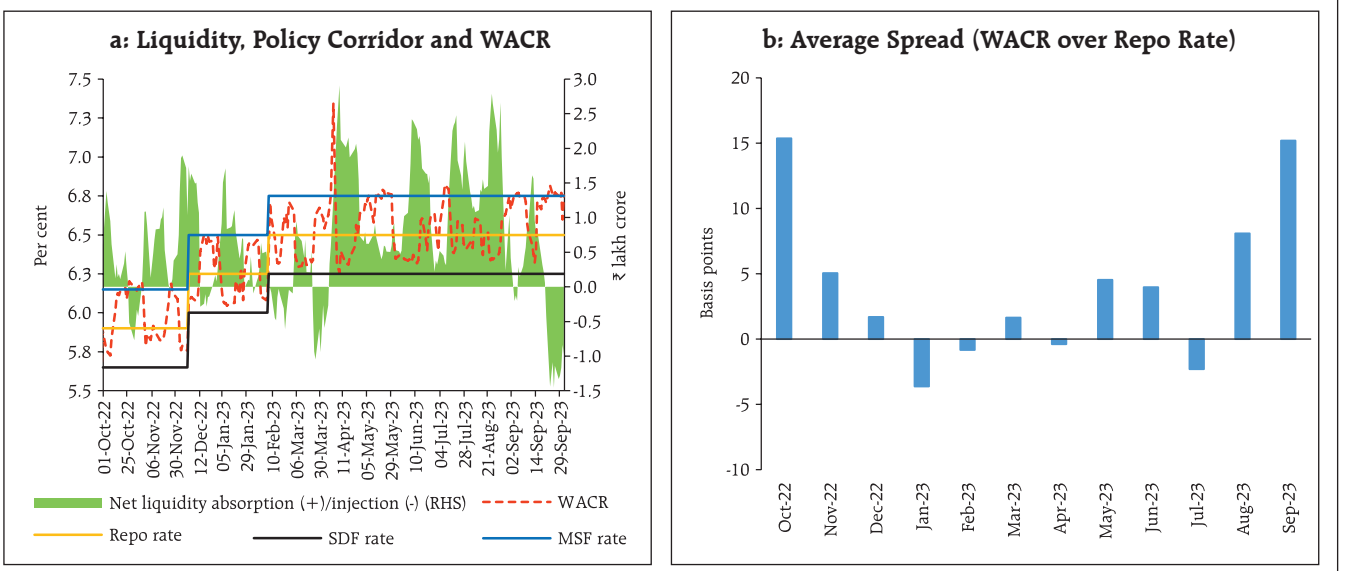
IV.1 Domestic Financial Markets

Domestic financial markets exhibited orderly movements. Money market rates were largely range bound while government bond yields eased from end-March 2023. The risk premium on corporate bonds moderated, equity market exhibited buoyancy and the INR underwent two-way movements. The transmission of cumulative policy rate changes led to a sustained firming up of bank deposit and lending rates. Growth in bank credit was robust, outpacing deposit expansion.

IV.1.1 Money Market

During H1:2023-24, money market rates oscillated within the policy corridor in tune with evolving liquidity conditions and market operations of the Reserve Bank (Chart IV.1a). On an average basis,

Chart IV.1: Policy Corridor and WACR



Source: Reserve Bank of India (RBI) and RBI staff calculations.

the weighted average call money rate (WACR), the operating target of monetary policy, was 5 bps above the repo rate (Chart IV.1b).

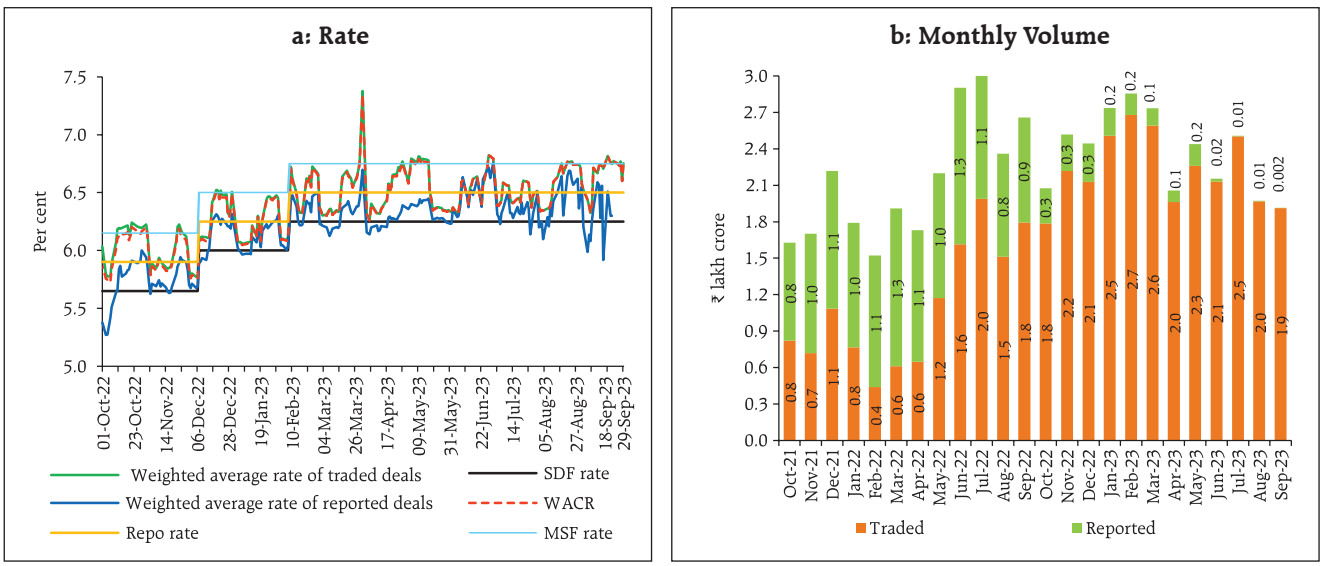
Other overnight money market rates *viz.*, triparty repo (TREPS) and market repo moved in tandem with the WACR, which intermittently firmed up above the MSF rate – the ceiling of the LAF corridor – in August and September due to frictional liquidity tightness caused by advance tax payments, goods and services tax (GST) outflows and the incremental CRR (I-CRR) prescribed for all scheduled banks in August 2023.

In the overnight call money segment, the weighted average rate (WAR) of traded deals[1] was 5 bps above the policy repo rate (on an average basis) while that of reported deals was 13 bps below during H1:2023-24 (Chart IV.2a). The average monthly volume of traded deals (₹2.1 lakh crore) dominated the reported segment (₹0.1 lakh crore) due to the Reserve Bank's directive to all eligible participants (including cooperative banks) to obtain NDS-CALL membership as well as the restoration of regular market hours in the call money market (Chart IV.2b). Consequently, the share of reported deals in the total call money market volume declined sharply from 33 per cent in September 2022 to less than 1 per cent in September 2023.

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 H1. The share of TREPS moderated to 64 per cent in H1 from 70 per cent in H2:2022-23, with a corresponding increase in the share of market repo to 34 per cent from 27 per cent (Chart IV.3). Among investors, mutual funds (MFs) remained the major lenders in the triparty repo segment (64 per cent share in H1 as compared with 67 per cent in H2:2022-23) as well as in the market repo segment (unchanged at 40 per cent). On the borrowing side, the share of public sector banks (PSBs) in TREPS and market repo declined to 50 per cent and 7 per cent, respectively, in H1 from 61 per cent and 15 per cent, respectively, in H2:2022-23.

Among money market instruments, the yield on 3-month T-bills (TBs) was broadly aligned with the

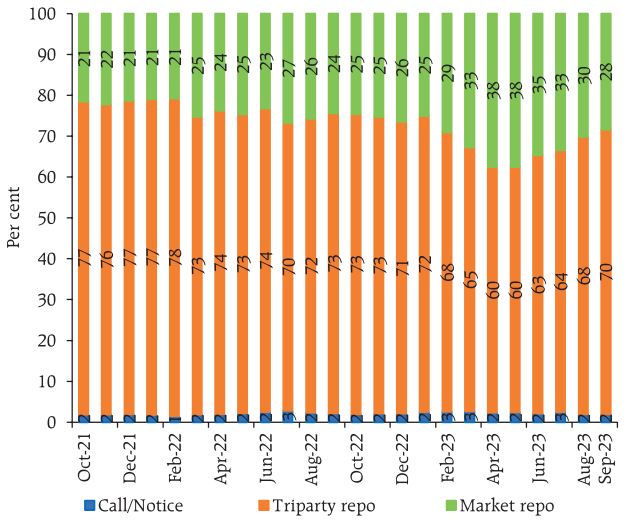
Chart IV.2: Traded and Reported Deals in the Call Money Market – Volume and Rate



Source: Clearing Corporation of India Ltd. (CCIL); RBI.

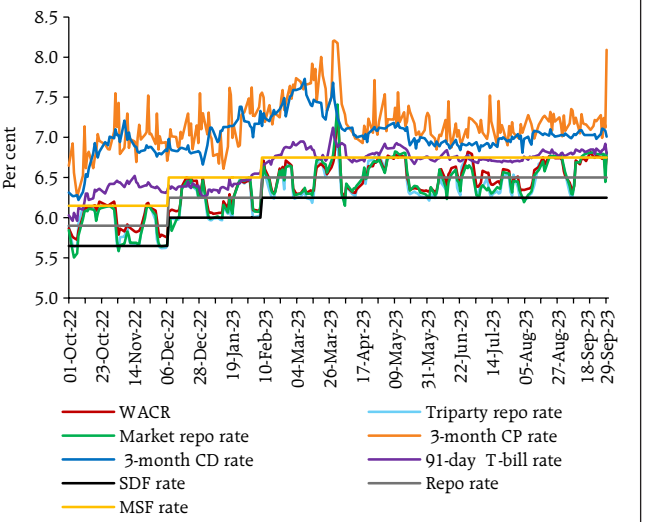
[1] 'Traded deals' are negotiated directly on the NDS-Call platform whereas 'reported deals' are over-the-counter (OTC) deals which are reported on the NDS-Call platform after the completion of negotiation of deals.

Chart IV.3: Share in Overnight Money Market Volumes



Sources: CCIL; RBI.

Chart IV.4: Money Market Rates and Policy Corridor



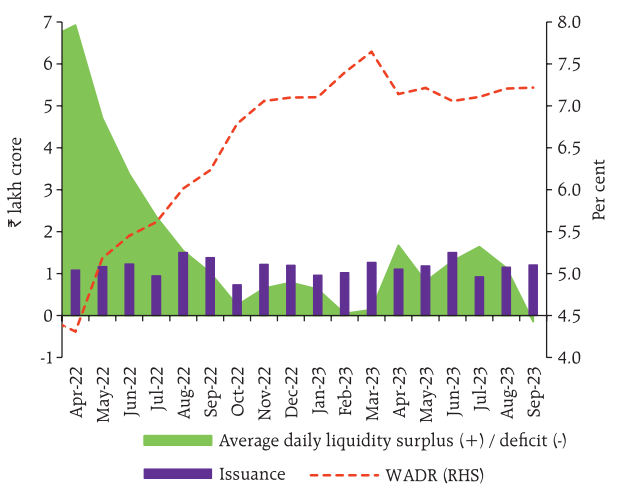
Sources: Financial Benchmarks India Pvt Ltd. (FBIL) and RBI.

MSF rate in H1 while that on commercial paper (CP) and certificates of deposit (CDs) ruled above the MSF rate (Chart IV.4). The spreads of TBs, CDs and CPs over the policy repo rate narrowed to 27 bps, 50 bps and 66 bps, respectively, in H1:2023-24 from 30 bps, 85 bps and 99 bps, respectively, in H2:2022-23.

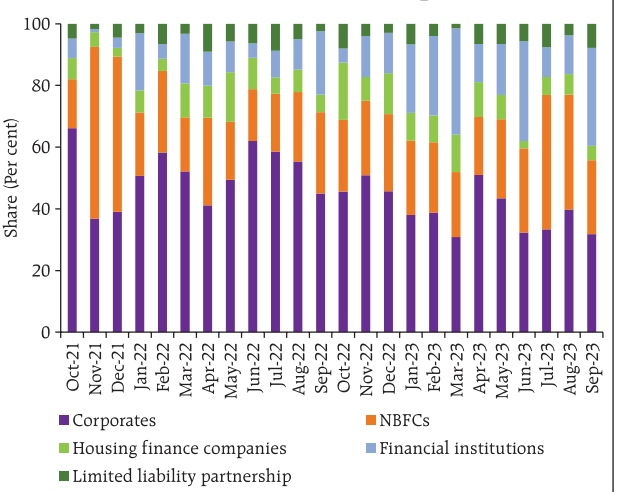
Fresh issuances of CDs moderated to ₹3.0 lakh crore in H1 (up to September 22) from ₹3.8 lakh crore in H2:2022-23 as deposit growth accelerated. Resource mobilisation through fresh issuances of CPs increased to ₹7.1 lakh crore during H1 from ₹6.4 lakh crore in H2:2022-23 (Chart IV.5a). The weighted average discount rate (WADR) of CP issuances declined to 7.15 per cent in H1:2023-24 from 7.21 per cent in H2:2022-23. Corporates remained the major issuers of CPs with a share of 39 per cent in H1 (Chart IV.5b).

Chart IV.5: Primary Issuances of Commercial Paper

a: Systemic Liquidity, Issuances and WADR



b: Institutional Break-up



Source: RBI; CCIL-F-TRAC; and RBI staff estimates.

Table IV.1: Maturity Profile of CP Issuances

(₹ lakh crore)

Tenor	H1: 2022-23	H2: 2022-23	H1: 2023-24
7- 30 days	0.69	0.38	0.45
31-90 days	4.00	3.13	3.18
91-180 days	1.87	1.94	2.75
181-365 days	0.75	0.97	0.70
Total	**7.32**	**6.42**	**7.09**
Outstanding (as at end-period)	**4.01**	**3.54**	**4.12**

Sources: CCIL F-TRAC and RBI staff estimates.

Among various maturity buckets, the 31-90 days segment had the largest share in fresh CP issuances [45 per cent in H1 as against 49 per cent in H2:2022-23] (Table IV.1).

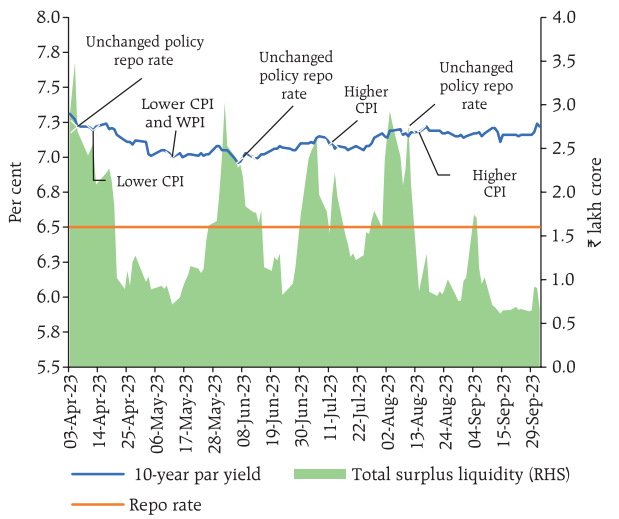
IV.1.2 Government Securities (G-sec) Market

During H1:2023-24, the 10-year G-sec yield softened by 9 bps reflecting domestic as well as global factors (Chart IV.6). Yields eased in April-May 2023 due to the MPC's decision to pause, lower than expected domestic CPI inflation for March-April and softening US yields. In June, yields hardened taking cues from rise in US yields. Overall, the 10-year benchmark yield fell by 21 bps in Q1 to close at 7.10 per cent. In Q2, yields firmed up in July on the back of hardening US yields and crude oil prices but remained steady thereafter in August and September. On balance, yields rose by 12 bps to 7.22 per cent in Q2.

Yields on T-bills softened across tenors between end-March and end-September 2023, with market expectations remaining anchored on unchanged policy rates (Chart IV.7).

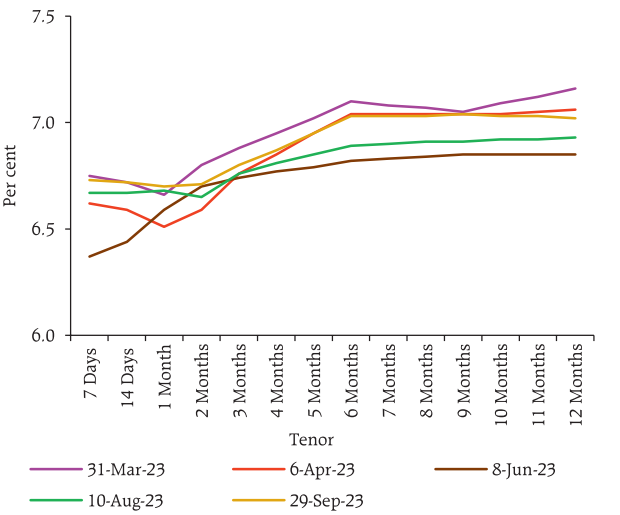
The trading volume in G-secs and T-bills increased in H1:2023-24 *vis-à-vis* H2:2022-23 (Chart IV.8). Over the same period, the weighted average yield on traded G-secs declined by 20 bps while it increased by 15 bps for T-bills.

Chart IV.6: 10-year Generic Yield, Repo Rate and Liquidity Conditions



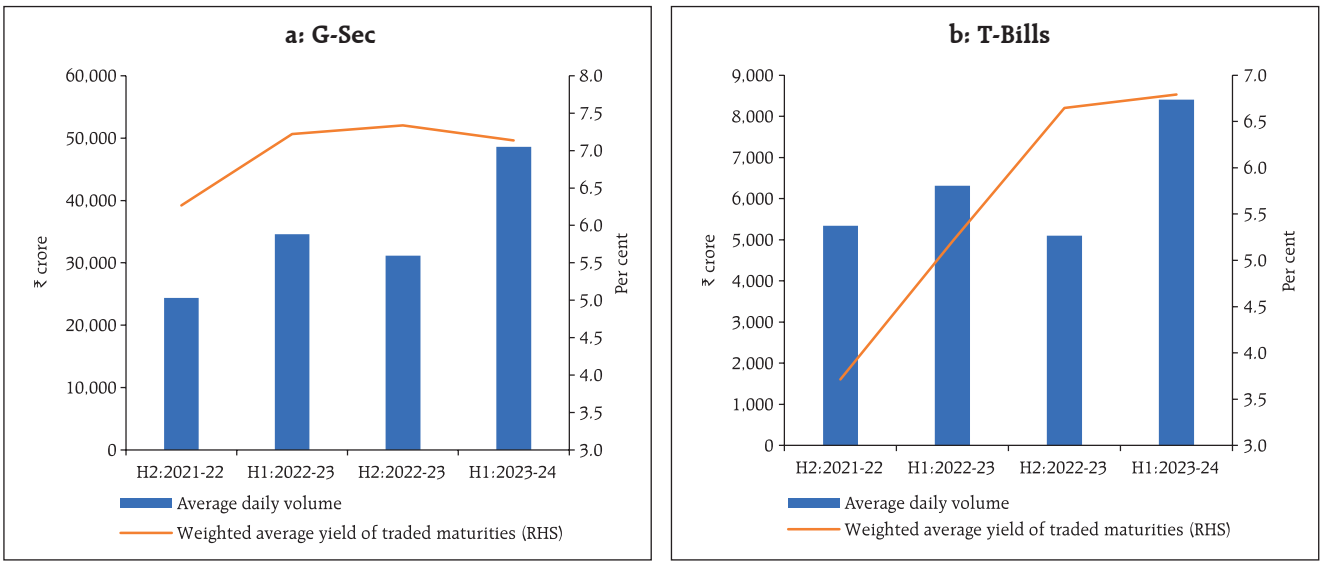
Sources: RBI and FBIL.

Chart IV.7: FBIL -T-Bill Benchmark
(Yield to Maturity)



Source: FBIL.

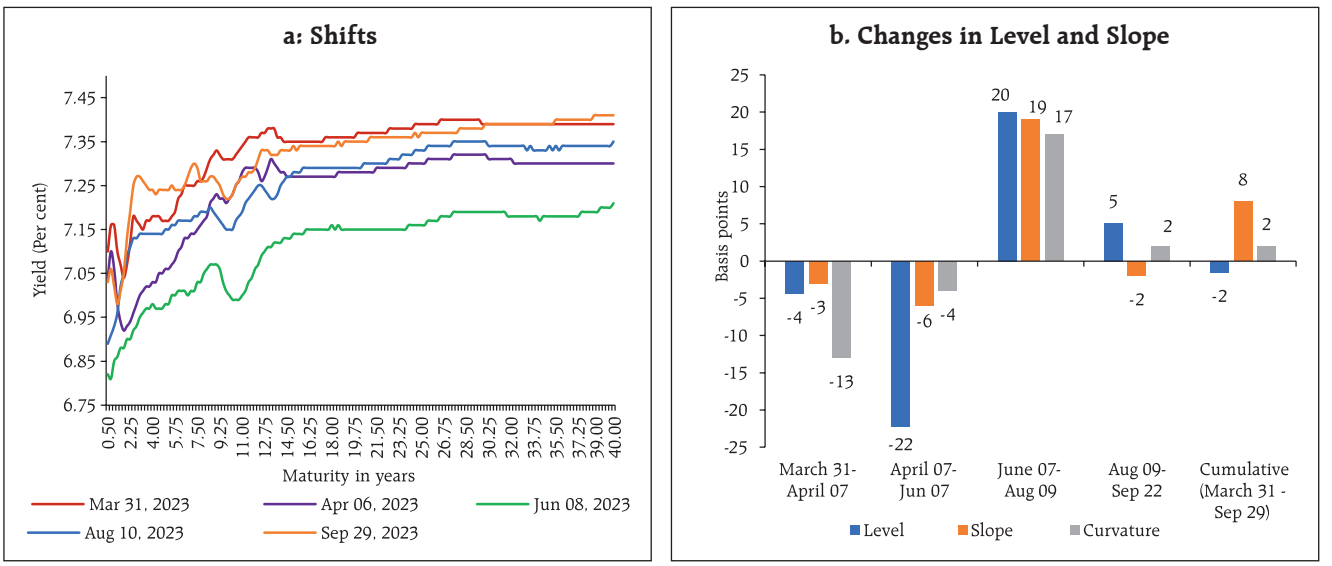
Chart IV.8: Trading Volumes and Yield



Sources: CCIL and RBI Staff Estimates.

The overall dynamics of the yield curve are captured by its level, slope, and curvature[2]. During H1, the average level of yields softened by 2 bps while, the slope steepened by 8 bps. The curvature rose by 2 bps as yields in the mid-segment of the curve increased more than in the short and long segments (Chart IV.9). 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 slope, unlike in AEs.[3]

Chart IV.9: G-Sec Yield Curve



Sources: FBIL and RBI Staff Estimates.

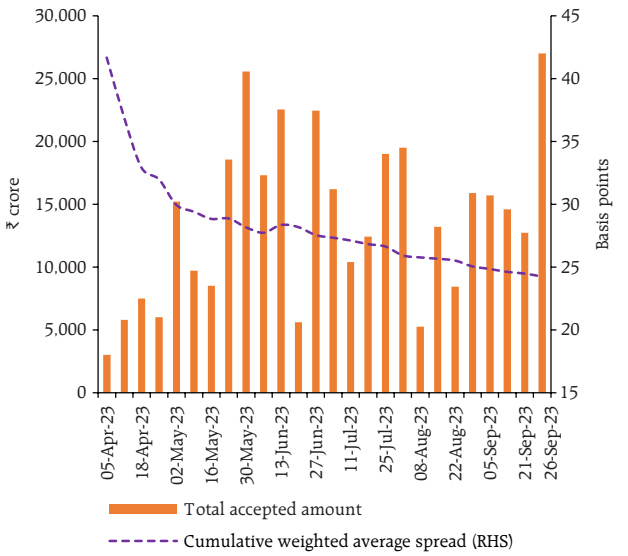
[2] The level is the average of par yields of all tenors up to 30-years published by FBIL and the slope (term spread) is the difference in par yields of 3-months and 30-year maturities. The curvature is calculated as twice the 14-year yield minus the sum of 30-year and 3-month yields.

[3] 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.

To facilitate debt consolidation, the Reserve Bank conducted six switch auctions on behalf of the Central Government amounting to ₹51,597 crore during H1. The weighted average maturity (WAM) of the outstanding stock of G-secs rose to 12.22 years at end-September 2023 from 11.94 years at end-March 2023. The weighted average coupon (WAC) at 7.28 per cent at end-September 2023 was marginally higher than 7.26 per cent as at end-March 2023.

The weighted average spread of cut-off yields on state government securities (SGS) over the G-sec yields of comparable maturities was 24 bps in H1 (Chart IV.10). The average inter-state spread on securities of 10-year tenor (fresh issuances) was 1 bp in H1:2023-24 as against 4 bps in H2:2022-23.

Chart IV.10: SGS - Amount Raised and Spread

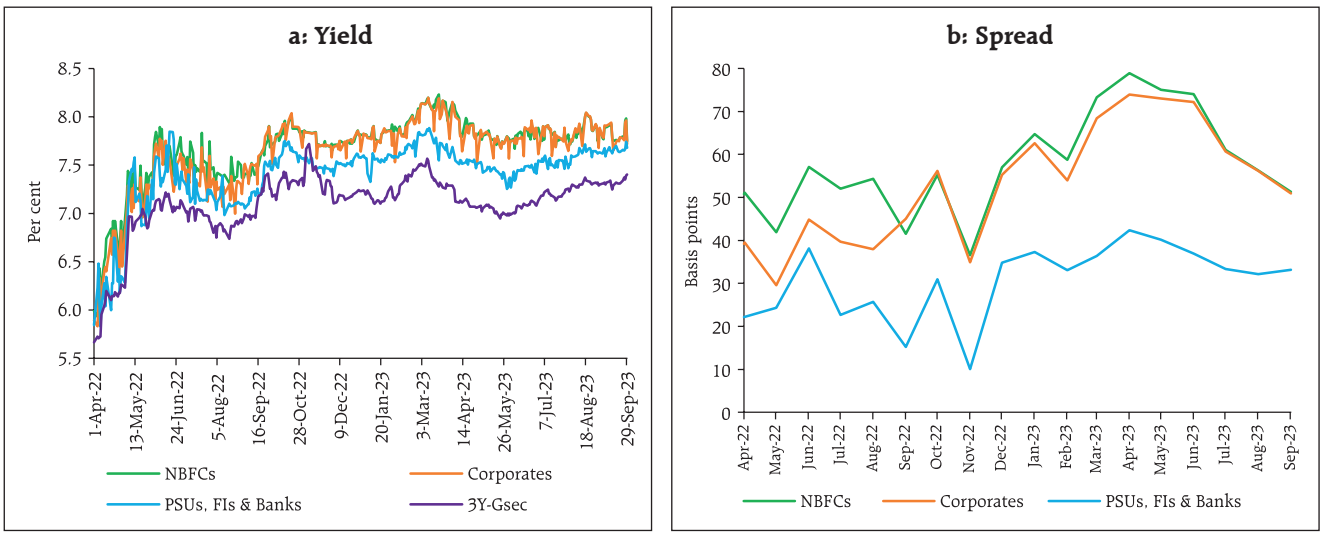


Source: RBI.

IV.1.3 Corporate Bond Market

Corporate bond yields softened and spreads narrowed during H1:2023-24, mirroring G-sec yields. The average yield on AAA-rated 3-year bonds issued by non-banking financial companies (NBFCs) and corporates declined by 29 bps (to 7.83 per cent) and 24 bps (to 7.83 per cent), respectively, in September over March 2023. The average yield on issuances by public sector undertakings (PSUs), financial institutions (FIs) and banks softened by 10 bps to 7.65 per cent (Chart IV.11a). The risk premium (the spread over 3-year G-sec yields) moderated from 73 bps to 51 bps for NBFCs, from 68 bps to 51 bps for corporates and from 36 bps to 33 bps for PSUs, FIs and banks (Chart IV.11b).

Chart IV.11: AAA-rated 3-Year Corporate Bond Yield and Spreads



Note: Data for spreads are monthly averages.
Source: Fixed Income Money Market and Derivatives Association of India (FIMMDA).

The reduction in risk premia was seen across tenors and the rating spectrum (Table IV.2). The average 3-year credit default swap (CDS) spreads for the State Bank of India's paper trading overseas reduced by 26 bps while that of ICICI Bank moderated by 25 bps in H1:2023-24 over H2:2022-23.

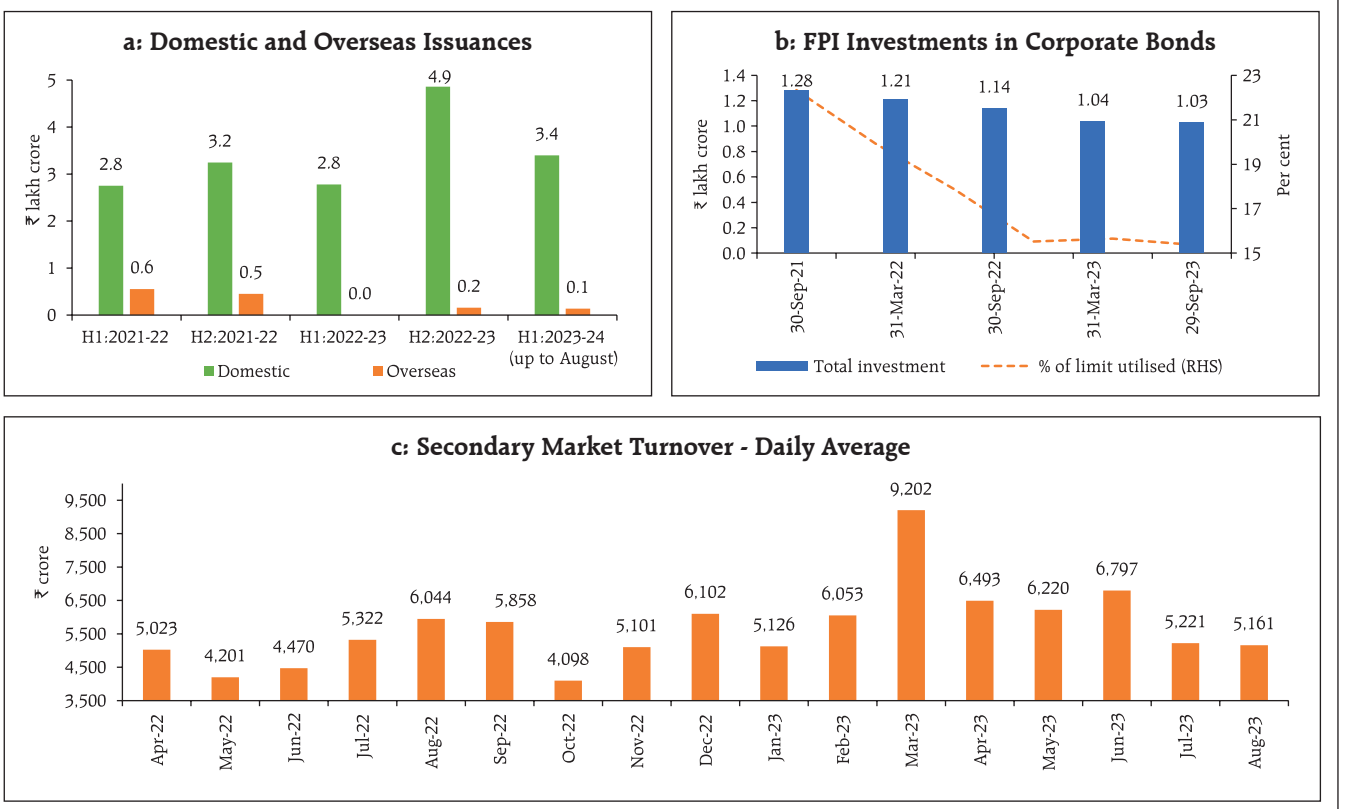
Primary issuances of corporate bonds rose during H1 (up to August 2023) to ₹3.4 lakh crore – substantially higher than ₹1.9 lakh crore during the corresponding period of 2022-23 – due to stable long term yields and cost advantage *vis-a-vis* bank loans (Chart IV.12a). Overseas issuances, however, remained muted. Almost the entire resource mobilisation in the corporate bond market (97.6 per cent) was through the private placement route (up to August 2023). Outstanding investments by foreign portfolio investors (FPIs) in corporate bonds decreased marginally to ₹1.03 lakh crore at end-September 2023 from ₹1.04 lakh crore at end-March

Table IV.2: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (bps) (over corresponding risk-free rate)		
	September 2022	March 2023	September 2023	September 2022	March 2023	September 2023
1	2	3	4	5	6	7
Corporate Bonds						
(i) AAA (1-yr)	6.87	8.08	7.68	12	66	53
(ii) AAA (3-yr)	7.58	8.07	7.83	45	68	51
(iii) AAA (5-yr)	7.54	8.00	7.69	23	57	37
(iv) AA (3-yr)	8.33	8.77	8.46	120	139	113
(v)BBB-minus (3-yr)	11.99	12.42	12.14	486	504	481

Note: Yields and spreads are computed as monthly averages.
Source: FIMMDA.

Chart IV.12: Corporate Bond Market Activity



Sources: SEBI, NSDL, and Prime database.

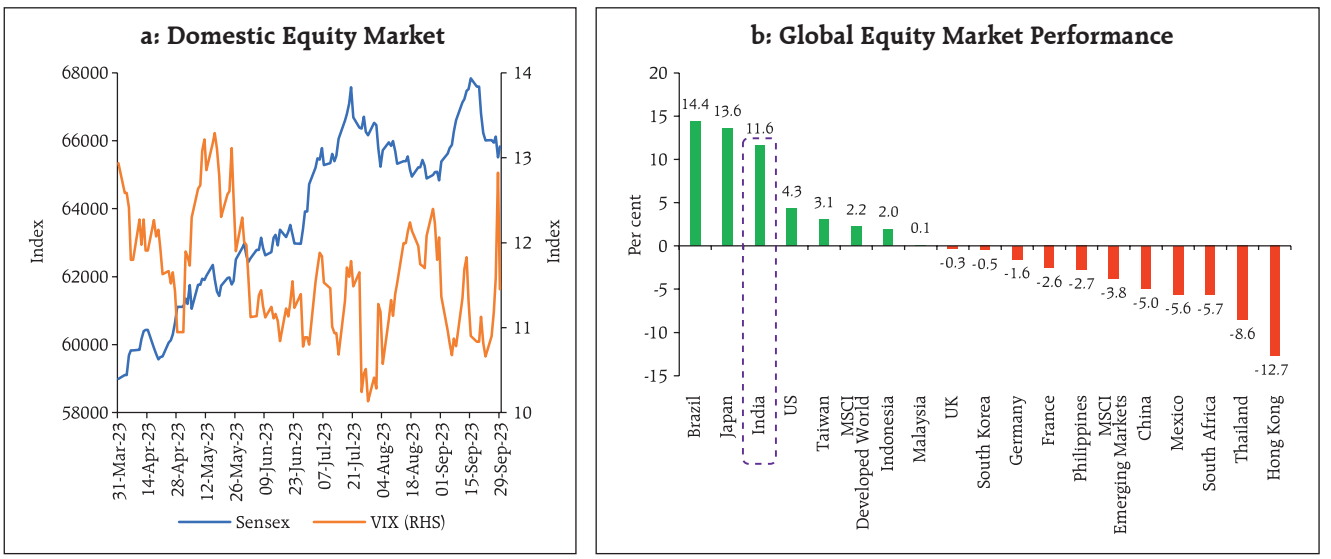
2023 with the utilisation of the approved limits declining from 15.5 per cent to 15.4 per cent (Chart IV.12b). Secondary market activity exhibited strong momentum, with daily average trading volume during H1 (up to August 2023) at ₹5,958 crore – 19.3 per cent higher than ₹4,994 crore in the corresponding period of the previous year (Chart IV.12c).

IV.1.4 Equity Market

Domestic equity markets remained buoyant in H1:2023-24 due to strong buying support from foreign portfolio investors (FPIs), positive Q1 corporate earnings and a stable domestic economic outlook. From late July, however, markets reversed some of the earlier gains amidst weak global cues following the US sovereign rating downgrade and hawkish Fed monetary policy messages. The markets resumed upward momentum in September amidst optimism over moderating domestic inflation and positive industrial production data with the benchmark BSE Sensex closing at an all-time high of 67,839 on September 15, 2023. Thereafter, the US Fed's hawkish interest rate projections prompted some correction in equity prices. Overall, the BSE Sensex gained 11.6 per cent during H1 to close at 65,828. Equity market volatility was low, with the India VIX – which captures the short-term expected volatility of Nifty 50 – averaging 11.6 during H1 as compared with 15.1 in H2:2022-23 (Chart IV.13a). The Indian equity markets outperformed most EMEs and advanced economies (AEs) in H1 (Chart IV.13b). The 12-month trailing price-earnings ratio for the BSE Sensex at 23.0 as at end-September 2023 was around its 10-year average. Broader market indices outperformed the benchmark Sensex with the BSE MidCap and BSE SmallCap indices rising by 34.4 per cent and 39.3 per cent, respectively, during H1:2023-24.

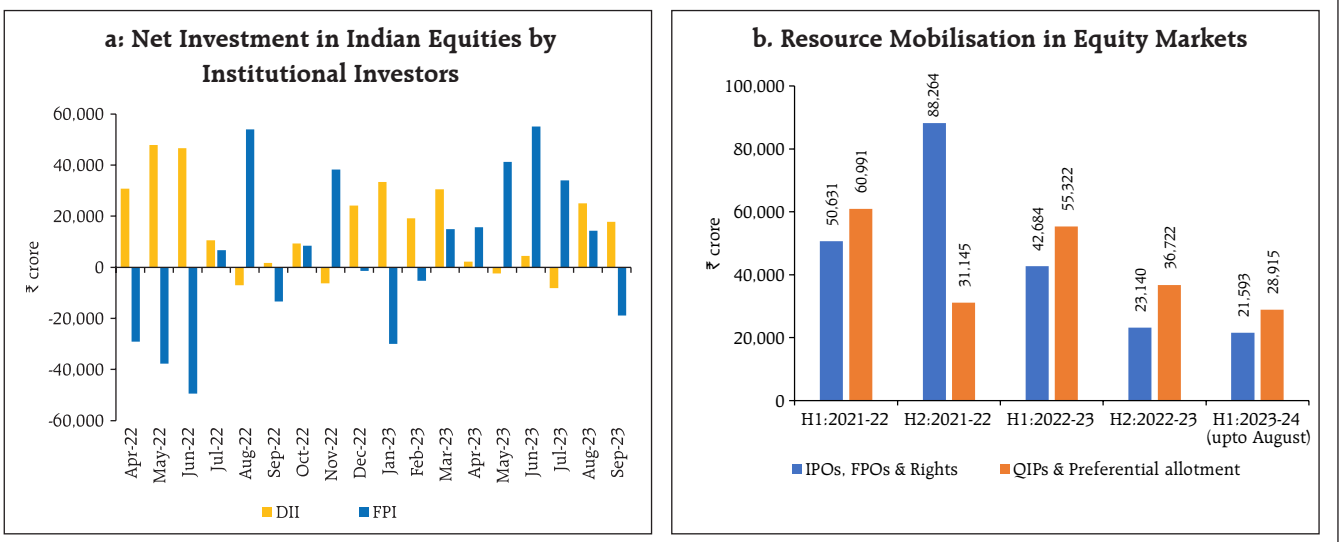
Foreign investors remained net buyers in equities in H1, with the flows touching a 10-month high in June 2023. In contrast, flows from domestic institutional investors (DIIs) were muted. Net purchases by DIIs and FPIs amounted to ₹0.39 lakh crore and ₹1.41 lakh crore, respectively in H1:2023-24 (Chart IV.14a). Despite an increase in the number of primary issuances, resource mobilisation in equity market declined to ₹0.51 lakh crore during H1 (up to August 2023) from ₹0.91 lakh

Chart IV.13: Stock Market Performance



Source: Bloomberg.

Chart IV.14: Institutional Investments and Resource Mobilisation



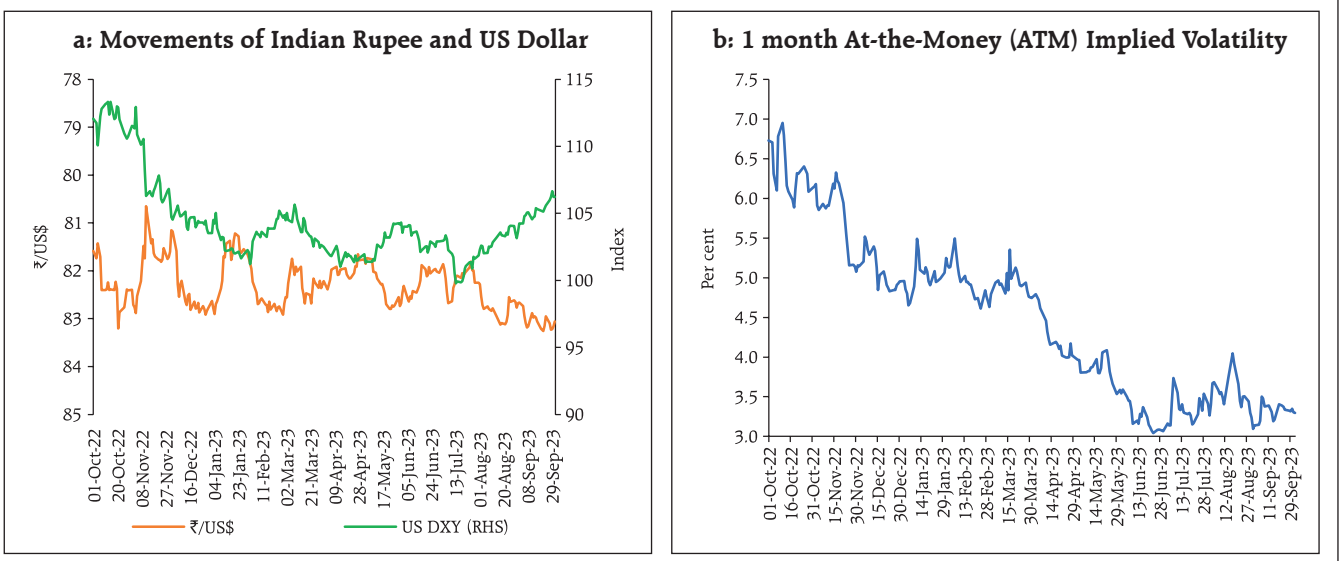
Note: IPO- Initial Public Offer, FPO- Follow on Public Offer, QIP- Qualified Institutional Placement
Sources: Capitaline, NSDL and SEBI.

crore in the corresponding period of the previous year (Chart IV.14b).

IV.1.5. Foreign Exchange Market

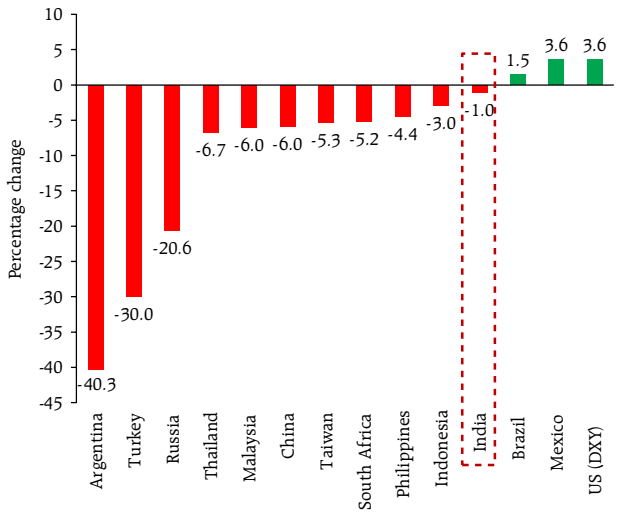
The Indian rupee largely remained range-bound in H1:2023-24 (Chart IV.15a). It traded with an appreciating bias during April-July 2023, mainly on the back of stable macroeconomic fundamentals and revival in FPI flows. From August, the INR exhibited a depreciation bias, with the US dollar strengthening on the back of expectations about the US policy rate remaining higher for longer. The INR volatility –

Chart IV.15: Indian Rupee and Volatility



Sources: FBIL; and Refinitiv Eikon.

Chart IV.16: Cross-Currency Movements against the US Dollar



Sources: FBIL; IMF; and Refinitiv Eikon.

measured by the 1-month at the money (ATM) option implied volatility[4] – exhibited a declining tendency, averaging 3.6 per cent during H1, down from 5.3 per cent during H2:2022-23 (Chart IV.15b).

Between end-March and end-September 2023, the INR depreciated by 1.0 per cent against the US dollar although it outperformed many EME currencies like the Argentina Peso, the Turkish Lira, the Russian Ruble, the Thai Baht and the Malaysian Ringgit (Chart IV.16).

In terms of the 40-currency real effective exchange rate, the INR appreciated by 5.4 per cent between March and end-September 2023 (Table IV.3).

Forward premia eased across tenors during H1:2023-24, driven by narrowing interest rate differentials. The 1-month forward premia declined to an average of 1.42 per cent in H1 from 2.38 per cent during H2:2022-23 while the 12-month premia fell to 1.87 per cent from 2.25 per cent over the same period (Chart IV.17).

[4] Implied volatility is derived from an option's price and depicts the markets' expectations about the future volatility of the currency.

Table IV.3: Nominal and Real Effective Exchange Rate Indices (Trade-weighted)
(Base: 2015-16 = 100)

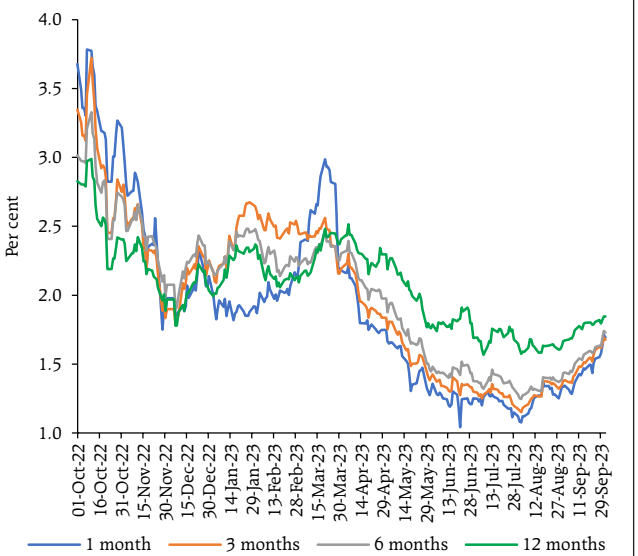
Item	Index: End-September 2023 (P)	Appreciation (+) / Depreciation (-) (Per cent)
		End-September 2023 over March (average) 2023
40-currency REER	105.7	5.4
40-currency NEER	91.7	2.4
6-currency REER	104.7	6.0
6-currency NEER	84.7	1.7
₹/US$	83.1	-0.9

P: Provisional.
Sources: RBI; and FBIL.

IV.1.6 Credit Market[5]

Bank credit[6] growth remained strong in H1:2023-24 in tandem with economic activity. Non-food bank credit extended by scheduled commercial banks (SCBs) rose by 15.3 per cent (y-o-y) as on September 22, 2023 over and above a growth of 16.9 per cent a year ago (Chart IV.18).

Chart IV.17: Movements in Forward Premia

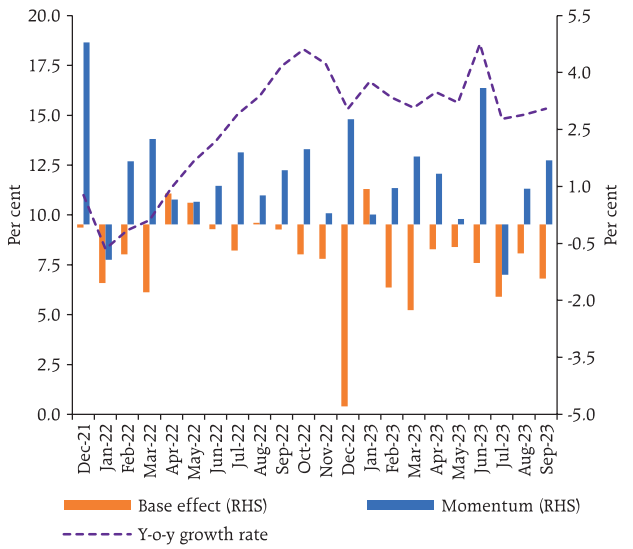


Source: Bloomberg.

[5] While overall bank credit and non-food credit data are based on Section-42 return (which covers all SCBs), sectoral non-food credit data are based on sector-wise and industry-wise bank credit (SIBC) return, which covers select banks accounting for about 93 per cent of total non-food credit extended by all SCBs.

[6] Data on banking and select monetary aggregates exclude the impact of merger of a bank with a non-bank.

Chart IV.18: Non-food Credit Growth of SCBs



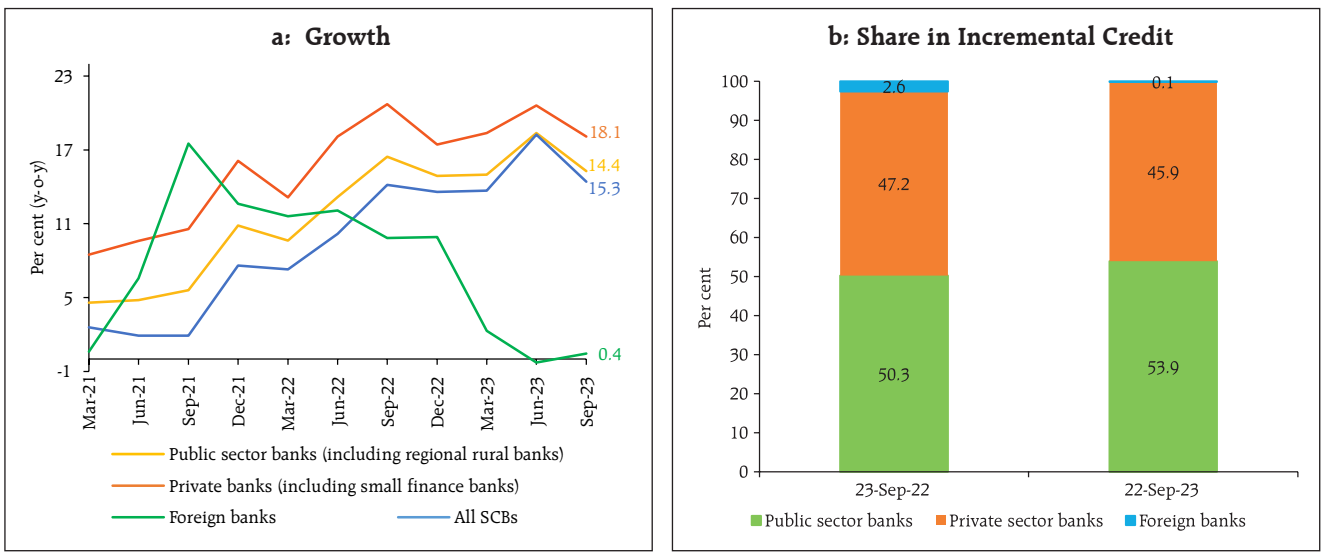
Source: RBI.

Credit growth remained higher for private sector banks (PVBs) (18.1 per cent as on September 22) *vis-à-vis* PSBs (14.4 per cent) (Chart IV.19a). PSBs were, however, the major driver of incremental bank credit (Chart IV.19b).

Sector-wise, services and personal loans were the key avenues of bank credit deployment and their share in total incremental credit offtake rose in H1:2023-24 *vis-à-vis* the same period of the previous year. Personal loans and services credit contributed 37.7 per cent and 36.9 per cent, respectively, of incremental bank credit (y-o-y) in August 2023 (Chart IV.20).

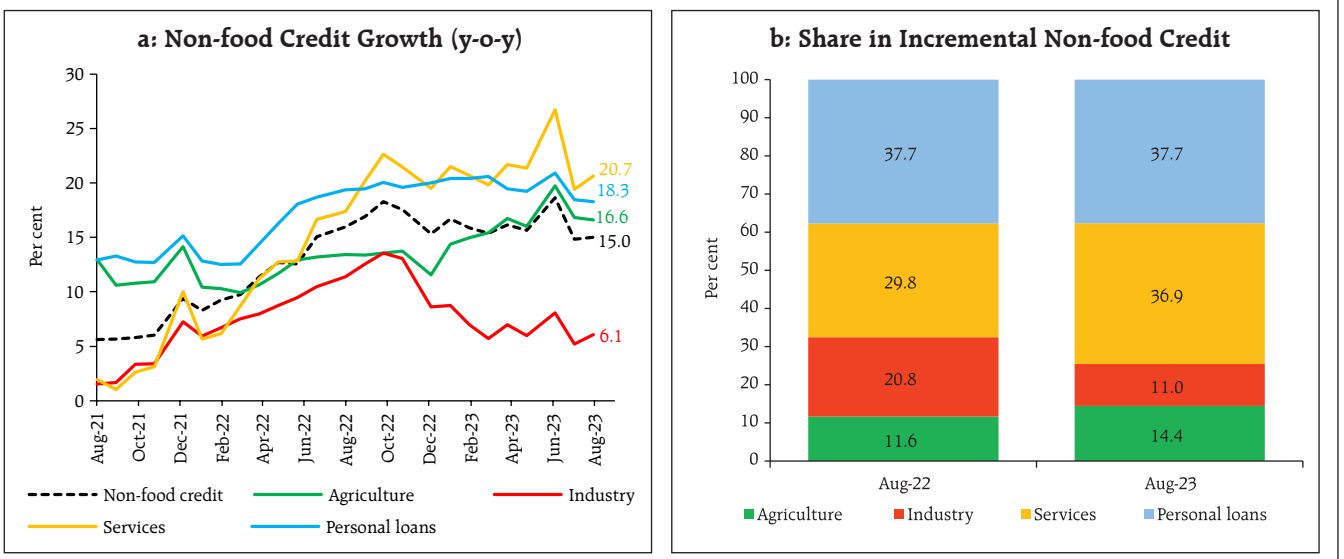
Bank lending to agriculture sector remained buoyant, with a growth of 16.6 per cent (y-o-y) in August 2023. Credit growth to industry decelerated to 6.1 per cent in August 2023, with flows to MSMEs (10.1 per cent) exceeding those to large industries (4.8 per cent). All the major industries, barring textiles and basic metals, experienced a slowdown in credit growth relative to August 2022. Credit growth to the infrastructure sector weakened, mainly due to

Chart IV.19: Credit Flow across Bank Groups



Source: RBI.

Chart IV.20: Sectoral Deployment of Bank Credit

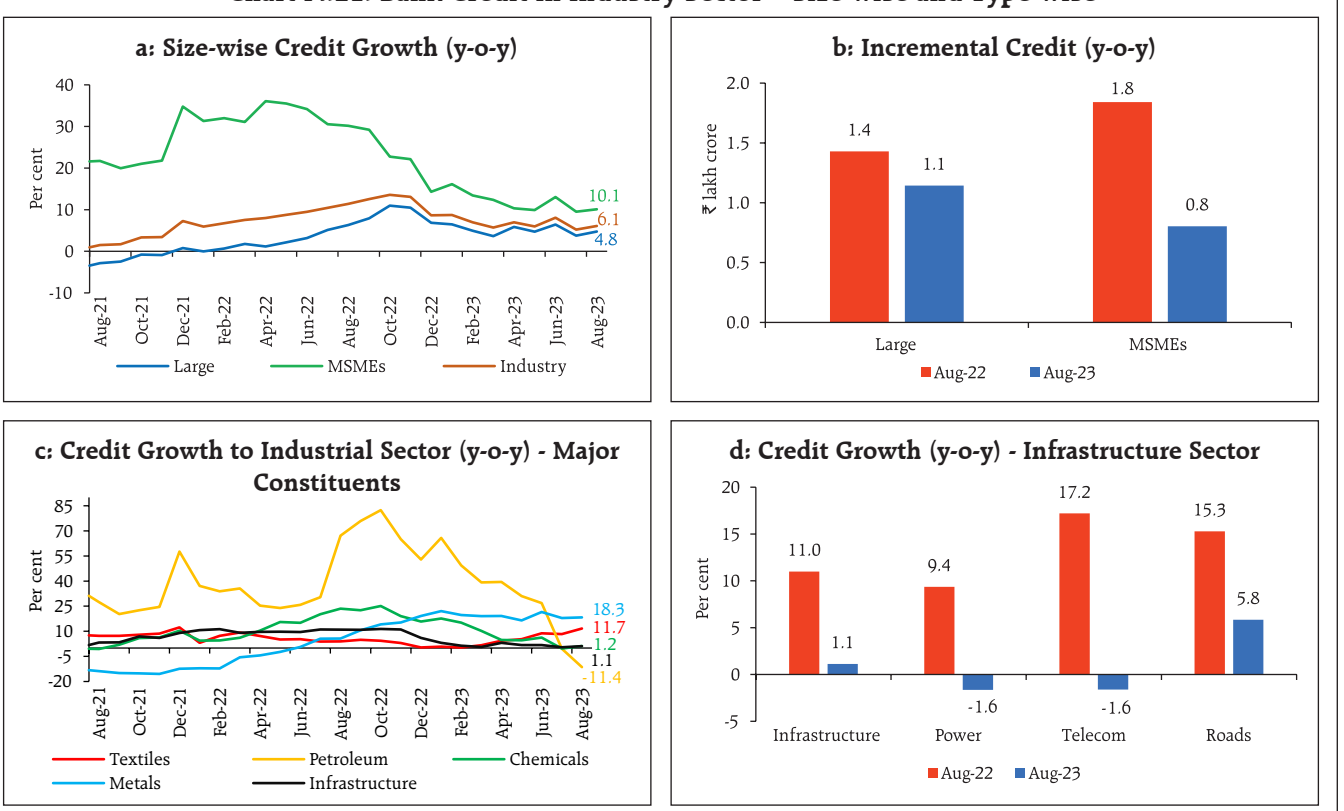


Source: RBI.

decline in credit to the power and telecom sectors (Chart IV.21).

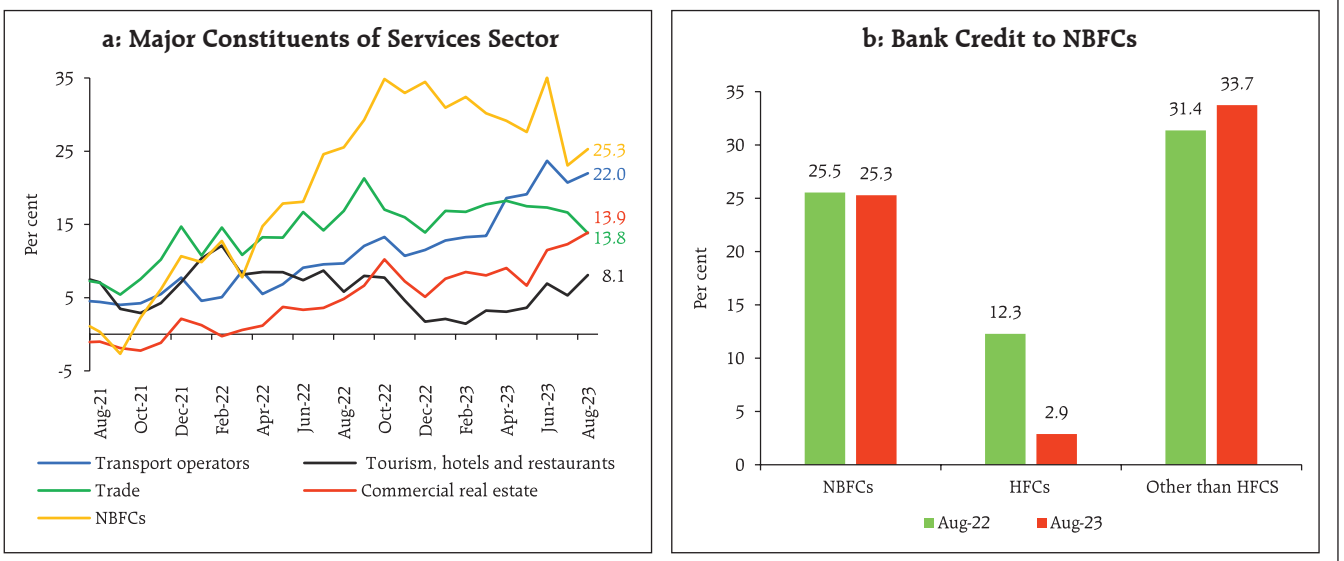
Services sector credit expanded by 20.7 per cent (y-o-y) in August, led by NBFCs. Within services,

Chart IV.21: Bank Credit in Industry Sector – Size-wise and Type-wise



Source: RBI.

Chart IV.22: Credit Growth in Services Sector (y-o-y)



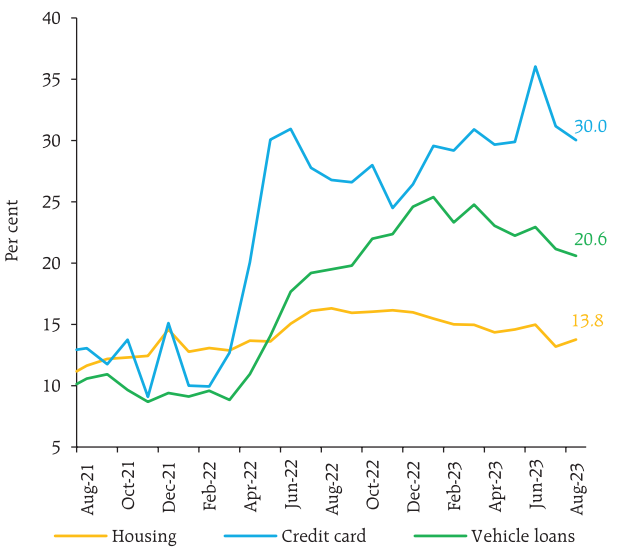
Source: RBI.

credit growth to commercial real estate and transport operators also improved (Chart IV.22).

Retail loans rose by 18.3 per cent (y-o-y) in August and remained the prime contributor of overall credit growth. Credit to the housing sector recorded consistent double-digit expansion (13.8 per cent in August) while vehicle loan growth strengthened to 20.6 per cent. Credit card loans maintained high growth (30.0 per cent in August) reflecting *inter alia* the buoyancy in demand from contact-intensive services (Chart IV.23).

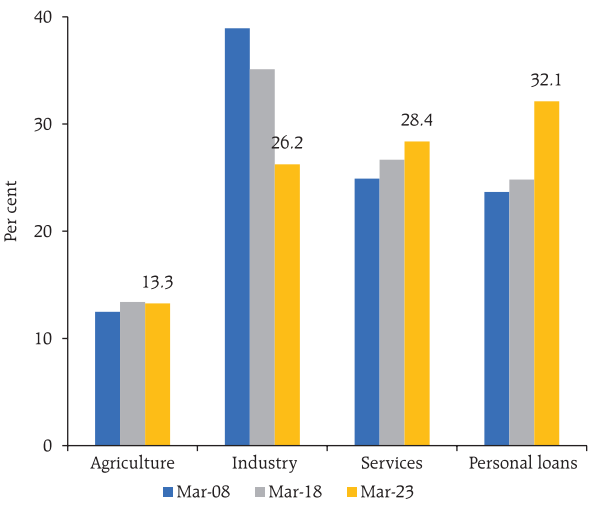
The composition of bank credit has witnessed substantial change over time, with an increasing proportion of credit now going to services and retail

Chart IV.23: Personal Loans Growth (y-o-y)



Source: RBI.

Chart IV.24: Sectoral Bank Credit - Compositional Change



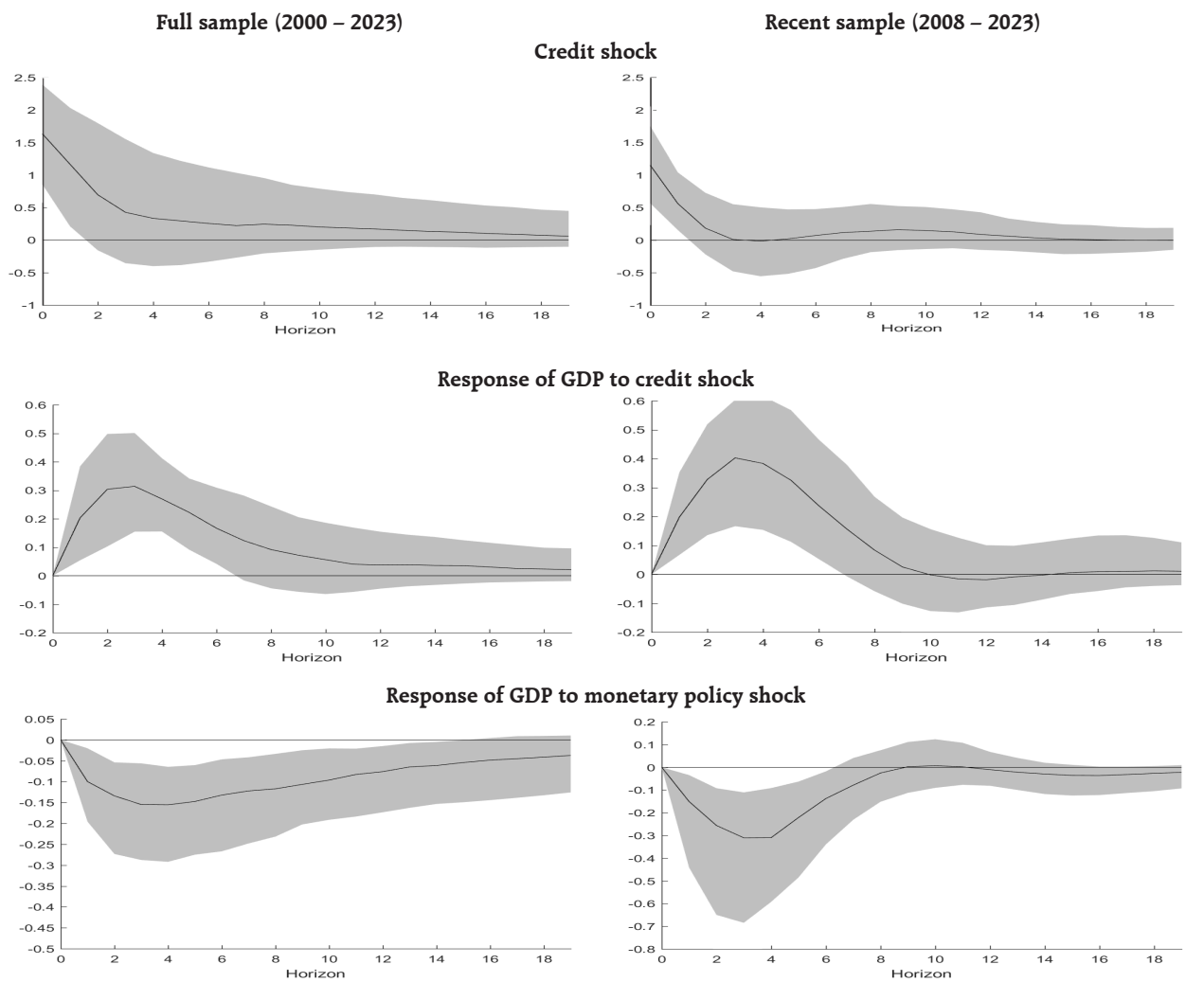
Source: RBI.

loans relative to industry (Chart IV.24). Amidst these structural changes, the impact of bank credit on GDP growth appears to have strengthened (Box IV.1).

Box IV.1: Bank Credit and Growth Dynamics

In a bank-based economy like India, bank credit serves as an important input in sustaining the growth momentum and is a key conduit for monetary policy transmission (Samargandi and Kutan, 2016). Impulse responses from a structural vector autoregression (SVAR) model – including the following variables: GDP growth; CPI inflation; weighted average call rate; real non-food credit growth; and bank capital growth – for the period 2000-2023 and for the sub-period 2008-2023 indicate that: (i) credit shocks appear to have turned less persistent in the latter period (*i.e.*, 2008-2023); (ii) bank credit continues to have a positive effect on growth and its impact has somewhat strengthened over time; and (iii) the effect of a monetary policy (interest rate) shock has become more pronounced, *albeit* less persistent (Chart IV.I.1).

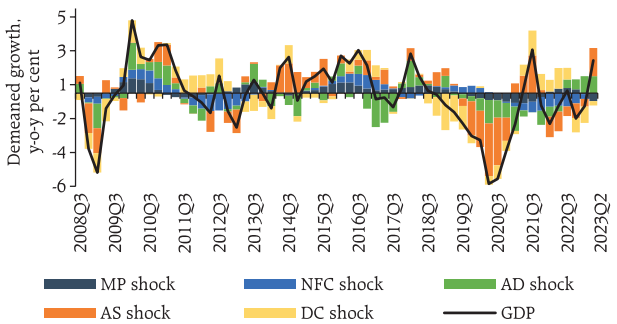
Chart IV.I.1: Bank Credit and Monetary Policy Shocks and GDP Growth: Impulse Responses



Note: The grey areas represent two-third of the identified posterior distribution. x-axis is horizon (quarters ahead) and y-axis is percentage points.
Sources: RBI staff estimates.

(Contd.)

Chart IV.I.2: Historical Decomposition of GDP Growth



Note: Shocks are defined as follows: AD shock increases output, inflation and credit; AS shock increases inflation but decreases GDP and credit; MP shock increases WACR but decreases inflation, GDP and credit; NFC shock captures exogenous increase in credit; DC shock moves GDP and credit in opposite direction and hence captures the decoupling between the two.
Source: RBI staff estimates.

A historical decomposition based on the SVAR indicates that the drag from the contraction in real credit on GDP growth is fast diminishing and the recent positive trajectory of real bank credit should provide tailwinds to domestic demand in the ensuing quarters (Chart IV.I.2).

References

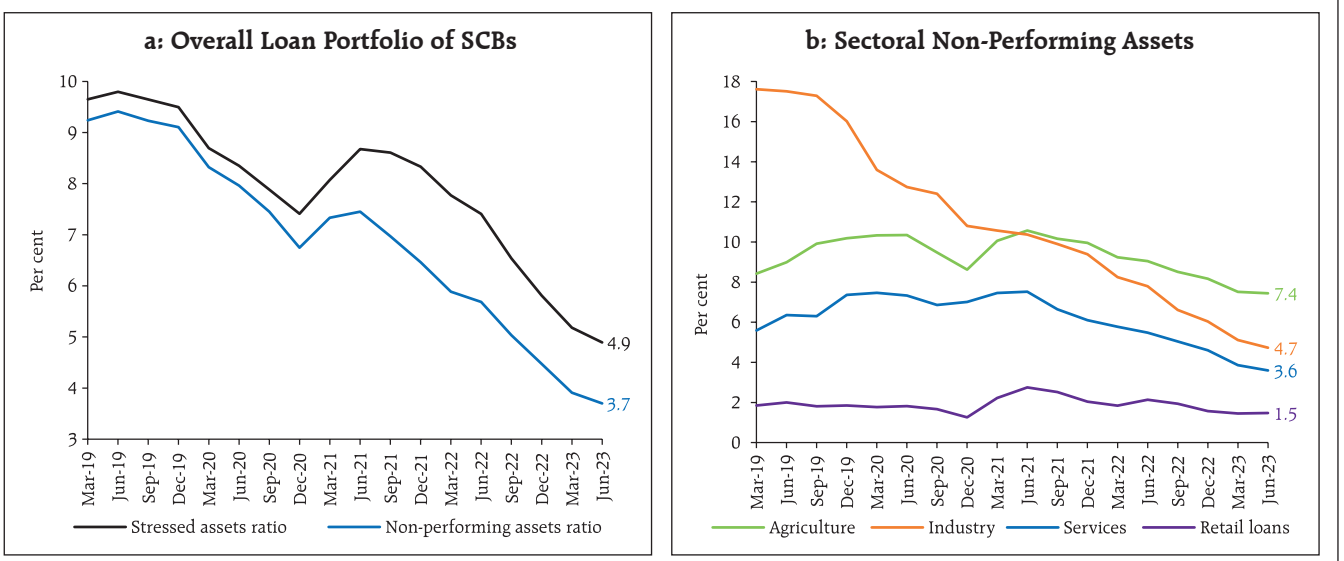
Samargandi, N., and A.M. Kutan (2016), "Private Credit Spillovers and Economic Growth: Evidence from BRICS Countries", *Journal of International Financial Markets, Institutions and Money*, 44, 56-84.

Uhlig, H., (2005), "What are the Effects of Monetary Policy on Output? Results from an Agnostic Identification Procedure", *Journal of Monetary Economics* 52 (2), pp. 381-419.

The asset quality of SCBs improved during H1:2023-24, with the overall non-performing assets (NPA) ratio declining to 3.7 per cent in June 2023 from 5.7 per cent a year ago (Chart IV.25a). Asset quality improved across all the major sectors over the same period (Chart IV.25b).

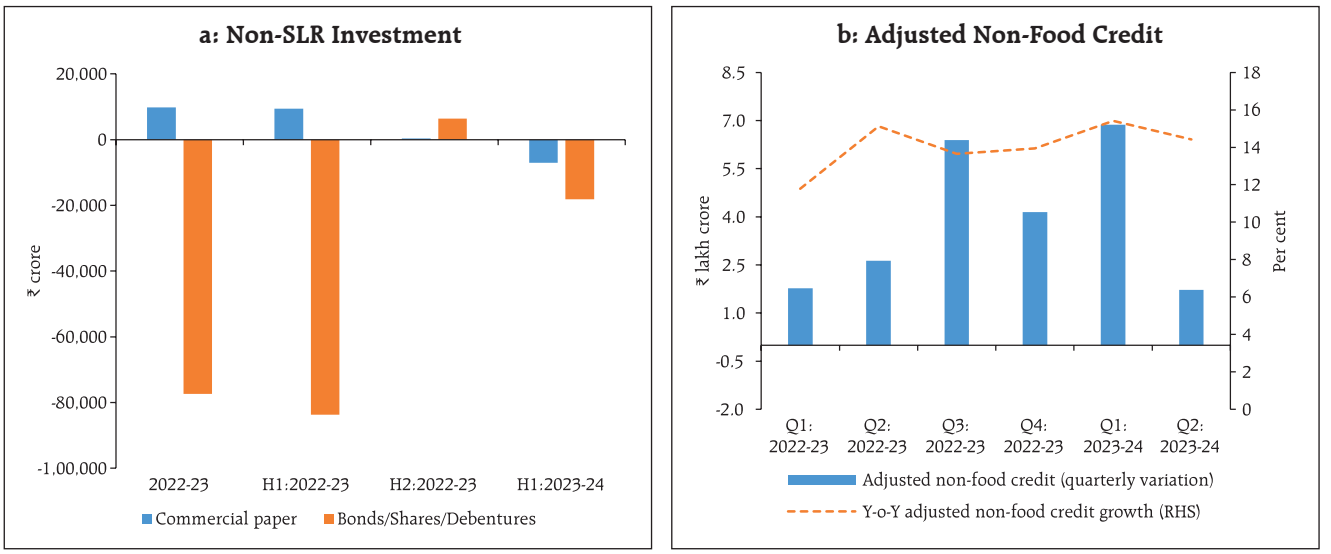
Amidst sustained growth in bank credit, banks' non-SLR investments (*i.e.*, investments in CPs, and bonds, debentures and shares of public and private corporates) declined in H1:2023-24 as against an increase in H1:2022-23. The growth in adjusted non-food credit (*i.e.*, non-food bank credit *plus*

Chart IV.25: Stressed Assets and Non-Performing Assets of SCBs



Source: RBI.

Chart IV.26: Non-SLR Investments and Adjusted Non-Food Credit

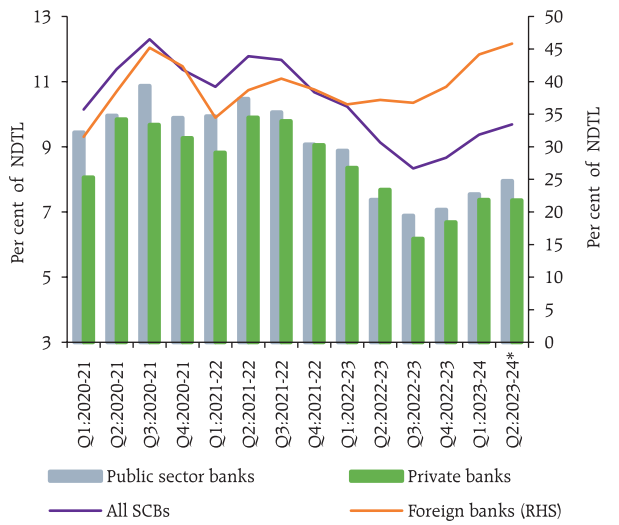


Source: RBI.

non-SLR investments) moderated to 14.4 per cent (y-o-y) as on September 22, 2023 from 15.1 per cent in the corresponding period of the previous year (Chart IV.26b).

The excess holdings of statutory liquidity ratio (SLR) securities by banks was 8.8 per cent of their net demand and time liabilities (NDTL) as on August 25, 2023 as compared with 8.7 per cent at end-March 2023 (Chart IV.27). Excess SLR holdings provide collateral buffers to banks for availing funds under the LAF and from collateralised markets. They are also a component of the liquidity coverage ratio.

Chart IV.27: Excess SLR of Banks



*up to August 25, 2023.
Source: RBI.

IV.2 Monetary Policy Transmission

Bank lending and deposit rates rose further in H1:2023-24, reflecting the lagged impact of the policy rate hikes during May 2022-February 2023, the external benchmark-based lending rate (EBLR) system of loans pricing and the moderation of surplus liquidity. In response to the 250 bps increase in the policy repo rate since May 2022, the weighted average lending rates (WALRs) on fresh and outstanding rupee loans increased by 196 bps and 112 bps, respectively, during May 2022-August 2023. On the deposit side, the weighted average domestic term deposit rates (WADTDRs) on fresh and outstanding term deposits rose by 233 bps and 157 bps, respectively, over the same period. The transmission to outstanding term deposits during H1:2023-24 (up to August) at 44 bps outpaced transmission on the lending side (12 bps), with the repricing of an increasing proportion of term deposits at higher rates (Table IV.4).

Table IV.4: Transmission from the Repo Rate to Banks' Deposit and Lending Rates

(Variation in basis points)

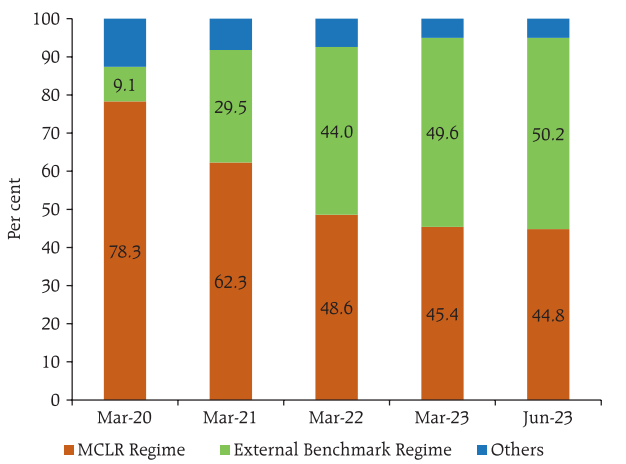
Period	Repo Rate	Term Deposit Rates			Lending Rates			
		WADTDR (Fresh Deposits)	WADTDR (Fresh Deposits)	WADTDR (Outstanding Deposits)	EBLR	1 - Year MCLR (Median)	WALR (Fresh Rupee Loans)	WALR (Outstanding Rupee Loans)
		Retail Deposits	Retail and Bulk Deposits					
February 2019 to March 2022	-250	-209	-259	-188	-250	-155	-232	-150
April 2022 to August/September 2023*	250	168	224	157	250	158	184	110
Of which,								
April 2022	0	0	-9	0	0	0	-12	-2
May 2022 to August/September 2023*	250	168	233	157	250	154	196	112
April 2023 to August/September 2023*	0	-6	-12	44	-	15	15	12

Notes: 1. WALR: Weighted average lending rate; WADTDR: Weighted average domestic term deposit rate; EBLR: External benchmark-based lending rate; MCLR: Marginal cost of funds-based lending rate.
2. Data on EBLR pertain to 32 domestic banks.
* : Latest data on WALRs and WADTDRs pertain to August 2023.
Source: RBI.

EBLR loans now dominate the floating rate loans. Their share increased from 44.0 per cent in March 2022 to 50.2 per cent in June 2023, while that of MCLR-linked loans declined from 48.6 per cent to 44.8 per cent during the same period (Chart IV.28). The increasing share of EBLR-linked loans with shorter reset periods and the increase in the MCLRs aided transmission to WALR on outstanding loans of SCBs. Bank-group wise, the proportion of EBLR-linked loans was the highest in the case of foreign banks (87.6 per cent), followed by PVBs (73.2 per cent) and PSBs (36.1 per cent).

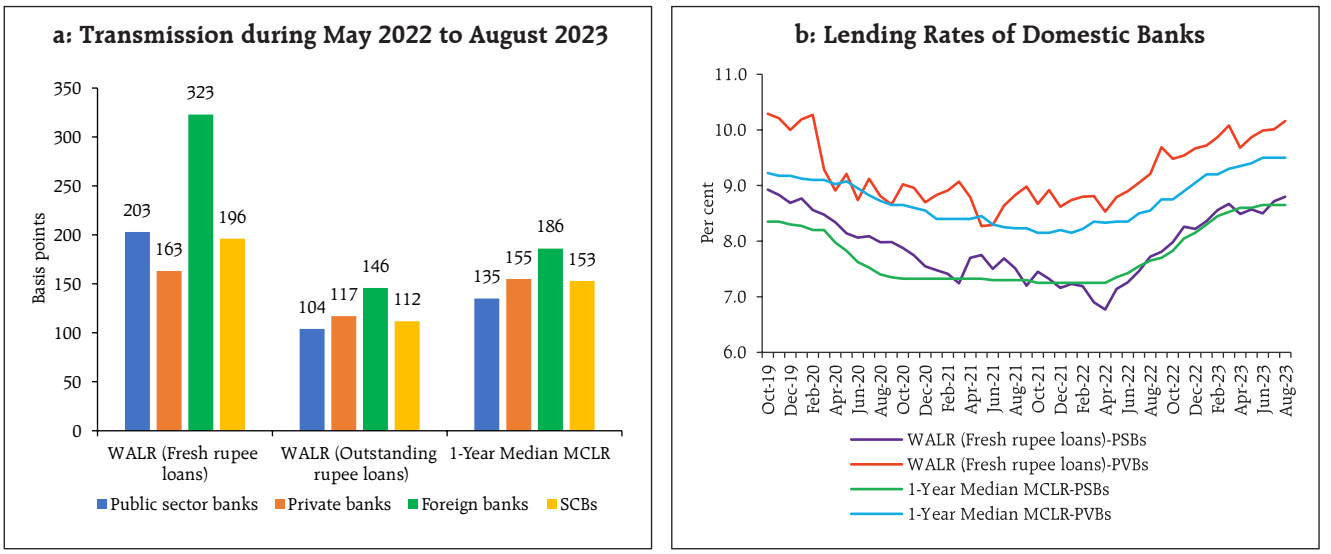
The transmission to WALR on fresh rupee loans during May 2022 to August 2023 was higher in the case of PSBs relative to PVBs, while transmission to lending rates on outstanding rupee loans was higher for PVBs (Chart IV.29a). The lending rates of PVBs remained above those of PSBs (Chart IV.29b). The maximum transmission to lending and deposit rates was in the case of foreign banks, reflecting a higher share of low-cost and lower duration wholesale deposits in their total liabilities and a high share of EBLR-linked loans.

Chart IV.28: Outstanding Floating Rate Rupee Loans of SCBs across Interest Rate Benchmarks



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

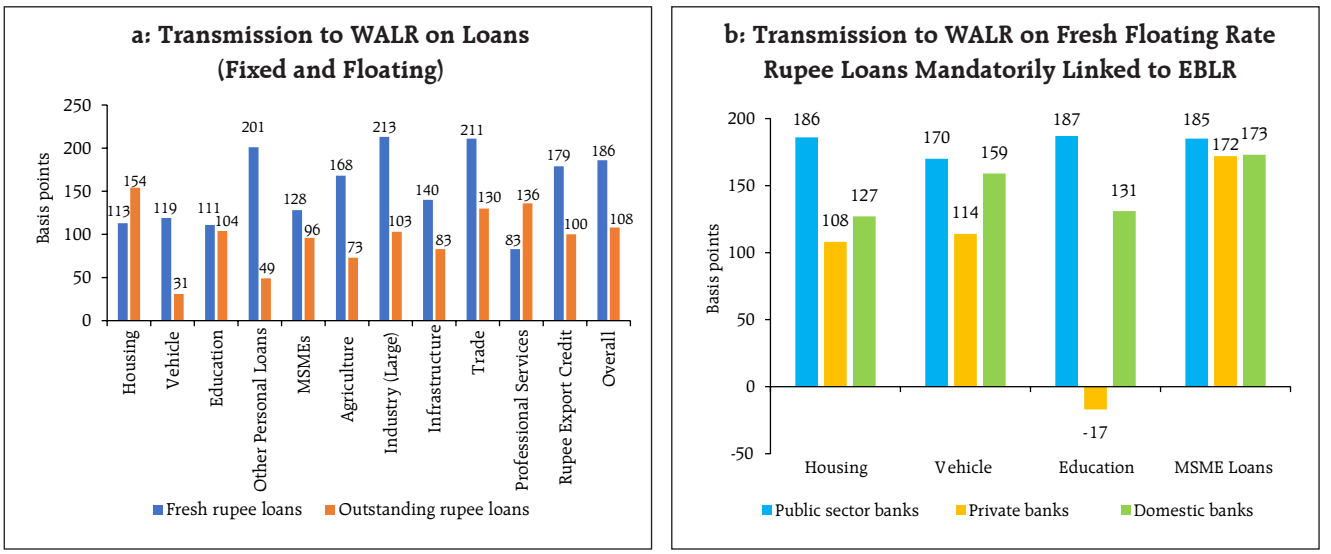
Chart IV.29: Bank Group wise Transmission to Lending Rates



Source: RBI.

Sector-wise, the WALR on fresh rupee loans rose by 213 bps for large industry, 128 bps for MSMEs and 113 bps for housing loans (Chart IV.30a). For floating rate loans mandatorily linked to EBLR, the WALR on fresh loans rose by 173 bps for MSMEs loans, by 159 bps for vehicle loans, and by 127 bps for housing loans (Chart IV.30b).

Chart IV.30: Sector-wise Transmission to WALRs of Domestic Banks (May 2022 to August 2023)



Source: RBI.

Table IV.5: Loans linked to External Benchmark – Spread of WALR (Fresh Loans) over the Repo Rate

(Per cent)

Sectors	April-2022			August-2023		
	Public sector banks	Private banks	Domestic banks	Public sector banks	Private banks	Domestic banks
MSME loans	4.27	3.93	4.04	3.62	3.15	3.27
Personal loans						
Housing	2.91	3.32	3.21	2.27	1.90	1.98
Vehicle	3.37	4.39	3.55	2.57	3.03	2.64
Education	4.42	5.71	4.71	3.79	3.04	3.52
Other personal loans	3.54	7.35	4.01	3.43	3.26	3.41

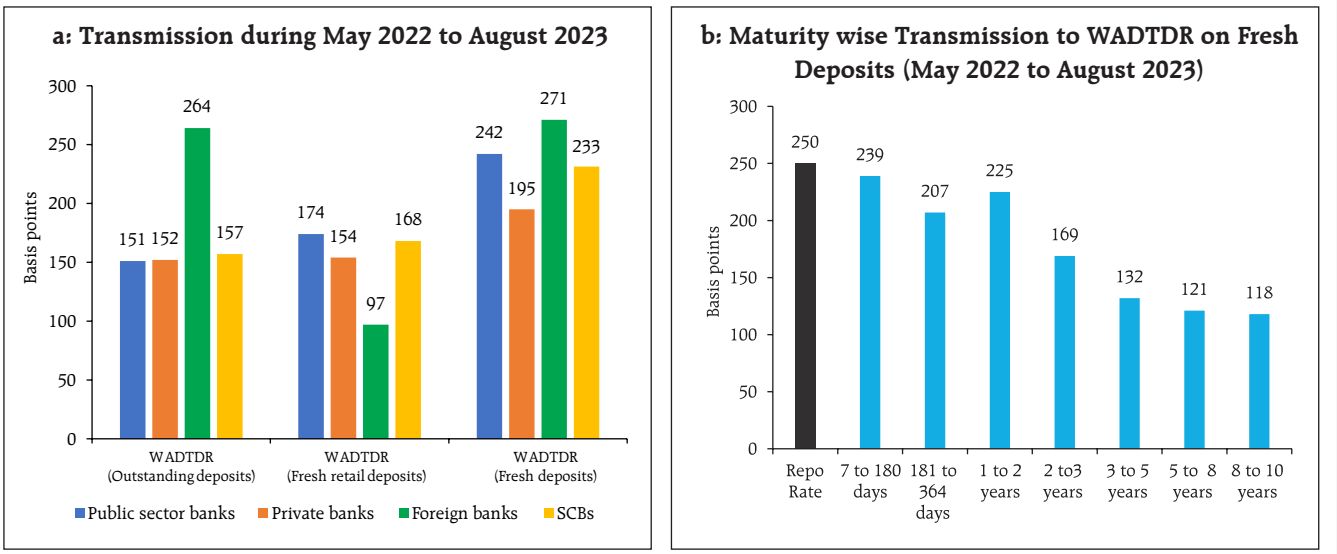
Sources: RBI; and RBI staff estimates.

In the case of repo rate-linked loans, the spreads of WALR (fresh loans) over the policy repo rate narrowed, thereby moderating the transmission to actual lending rates on new loans (Table IV.5).

The WADTDR on fresh term deposits declined during H1:2023-24 while that on outstanding deposits rose with an increasing proportion of deposits getting renewed at higher deposit rates. Across bank groups, the transmission to WADTDR on fresh deposits was higher for PSBs as compared with PVBs. Across tenors, the maximum increase was observed for shorter maturities (up to 180 days) (Chart IV.31).

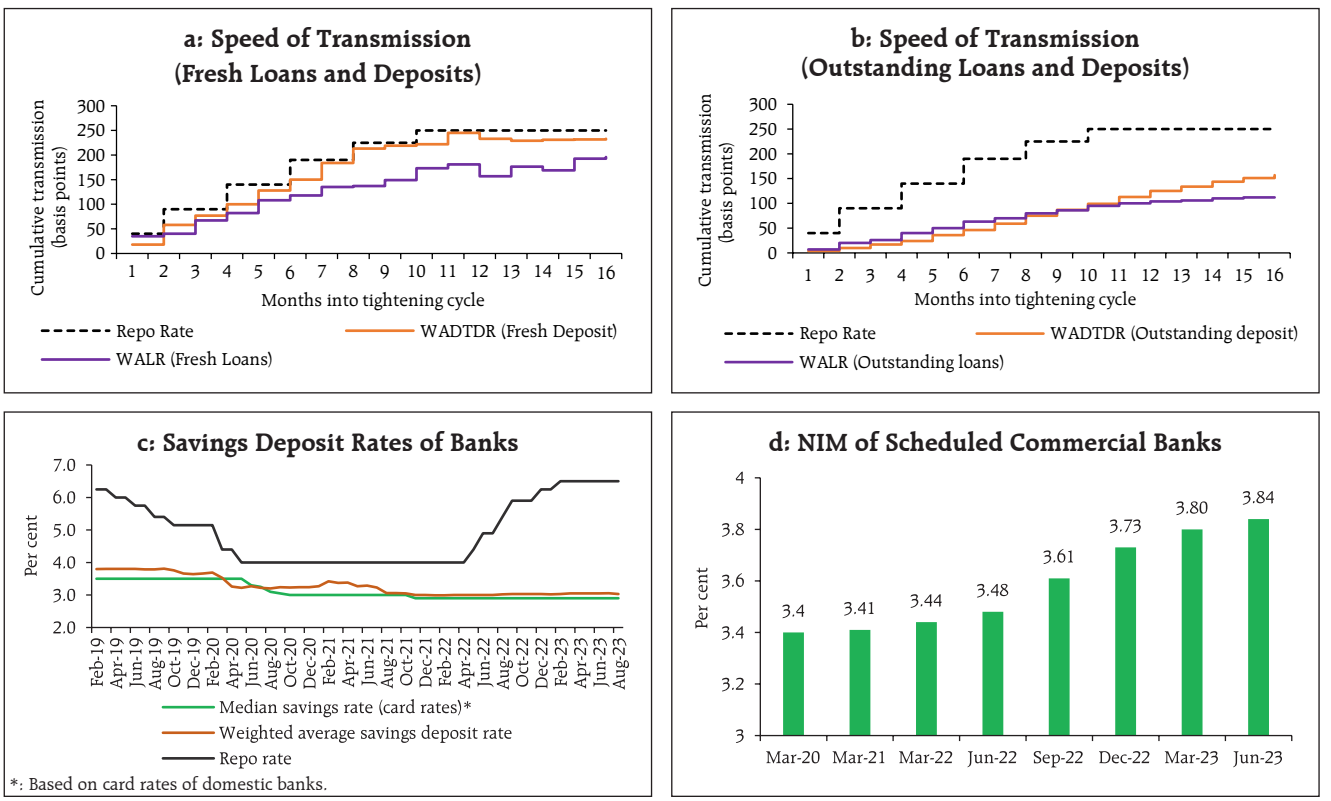
While the increase in term deposit rates in the current tightening cycle has exceeded that in lending rates (both in terms of fresh and outstanding deposits/ loans), the savings deposit rates of banks – which are a third of total deposits – have remained almost unchanged, while current account balances (share of 9.6 per cent in total deposits) earn no interest. This has moderated the increase in the banks' overall cost of funds and is mirrored in higher net interest margins (Chart IV.32).

Chart IV.31: Transmission to Deposit Rates



Source: RBI.

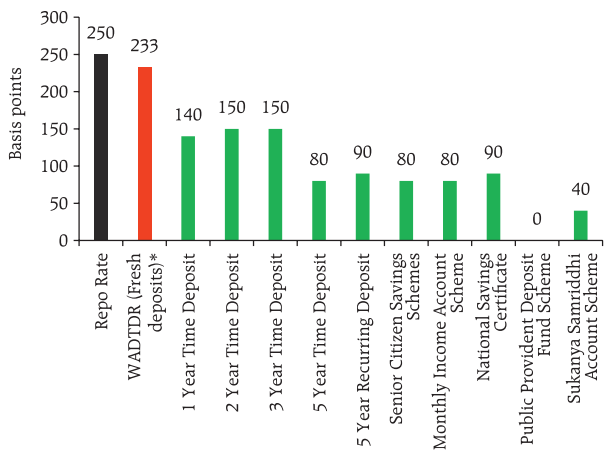
Chart IV.32: Speed of Transmission to Lending and Deposit Rates and Rigidities in Savings Deposit Rate



Source: RBI.

The Government of India (GOI) raised the interest rates on small savings instruments (SSIs), which are linked to secondary market yields on G-secs of comparable maturities, by 40-150 bps in five successive quarters beginning Q3:2022-23 (Chart IV.33). With these revisions, the actual interest rates on most SSIs are now better aligned with the formula-based rates (Table IV.6).

Chart IV.33: Increase in Interest Rates on Bank Deposits and Small Savings Schemes (May 2022-September 2023)



*: Pertains to May 2022 to August 2023.
Sources: Government of India; and RBI staff estimates.

IV.3 Liquidity Conditions and the Operating Procedure

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. During H1:2023-24, 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 (see Chapter I). In consonance with the monetary policy stance, the increase in surplus liquidity (as discussed below) and

Table IV.6: Interest Rates on Small Savings Instruments – Q3:2023-24

Small Savings Scheme	Maturity (years)	Spread (Percentage point) $	Average G-sec Yield (%) of Corresponding Maturity (Jun to Aug 2023)	Formula based Rate of Interest (%) (applicable for Q3:2023-24)	Government Announced Rate of Interest (%) in Q3:2023-24	Difference (basis points)
(1)	(2)	(3)	(4)	(5) = (3) + (4)	(6)	(7) = (6) - (5)
Savings Deposit	-				4.0	-
Public Provident Fund	15	0.25	7.26	7.51	7.1	-0.41
Term Deposits						
1 Year	1	0	6.76	6.76	6.9	0.14
2 Year	2	0	6.84	6.84	7.0	0.16
3 Year	3	0	6.91	6.91	7.0	0.09
5 Year	5	0.25	7.07	7.32	7.5	0.18
Recurring Deposit Account	5	0	6.91	6.91	6.7	-0.21
Monthly Income Scheme	5	0.25	7.03	7.28	7.4	0.12
Kisan Vikas Patra	115 Months#	0	7.26	7.26	7.5	0.24
NSC VIII issue	5	0.25	7.26	7.51	7.7	0.19
Senior Citizens Saving Scheme	5	1	7.07	8.07	8.2	0.13
Sukanya Samriddhi Account Scheme	21	0.75	7.26	8.01	8.0	-0.01

$: 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.

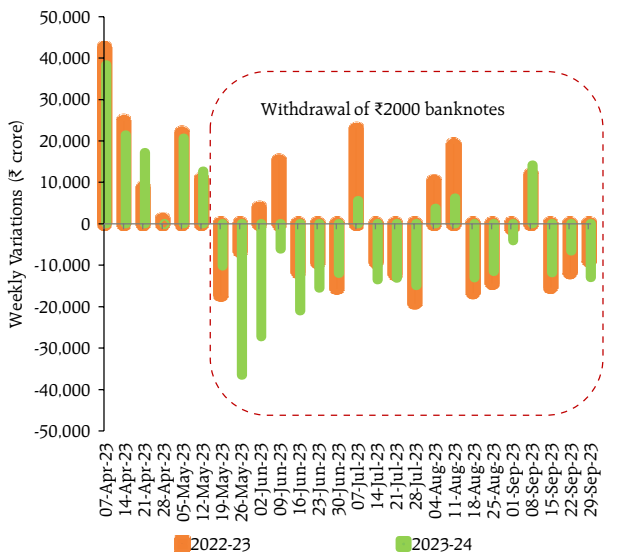
the risks to price and financial stability from excess liquidity, the Reserve Bank imposed an incremental cash reserve ratio (I-CRR) of 10 per cent, effective from the fortnight beginning August 12, 2023, on the increase in NDTL of all scheduled banks between May 19 and July 28, 2023[7]. It was indicated that the I-CRR would be reviewed on or before September 8, 2023 with a view to return the impounded funds to the banking system ahead of the festival season. On a review on September 8, the I-CRR was discontinued in a phased manner so that system liquidity is not subjected to sudden shocks and money markets function in an orderly manner: 25 per cent of the impounded I-CRR funds was released on September 9 and another 25 per cent on September 23 and the remaining 50 per cent are to be released on October 7.

Drivers and Management of Liquidity

During H1, liquidity conditions were impacted substantially by the return of currency to the banking system following the Reserve Bank's decision on May 19 to withdraw ₹2,000 banknotes from circulation. In Q1, surplus liquidity shrank between April and mid-May with the seasonal expansion in currency in circulation (CiC) and the build-up of government cash balances. Between the third week of May and up to mid-June, liquidity conditions improved due to the (i) the return of ₹2,000 banknotes from circulation (Chart IV.34), (ii) an accelerated pace of Government spending before the onset of the monsoon season; and (iii) the Reserve Bank's market operations. Advance tax payments and GST related outflows moderated surplus liquidity in the second half of June 2023. In

[7] The existing cash reserve ratio (CRR), however, remained unchanged at 4.5 per cent.

Chart IV.34: Currency in Circulation (CiC)



Source: RBI.

Q2, liquidity surplus rose amidst the continued return of ₹2,000 banknotes, with the net average absorption under the LAF increasing from ₹0.8 lakh crore in May 2023 to ₹1.6 lakh crore in July. With the I-CRR coming into effect from August 12, system liquidity, although somewhat moderating, remained in surplus barring a few days. Thereafter, build-up of government cash balances due to advance tax collections and GST payments tightened liquidity conditions, particularly in the second half of September. Overall, net average absorption under the LAF at ₹1.1 lakh crore in H1 was higher than ₹0.4 lakh crore in H2:2022-23. Of the average total absorption of about ₹1.6 lakh crore in H1, ₹1.1 lakh crore (about 72 per cent) was through the standing deposit facility (SDF) while the remaining was mopped up through variable rate reverse repo (VRRR) operations – both main and fine-tuning – of various tenors.

Overall, the build-up of government cash balances moderated surplus liquidity in H1 which was largely replenished by the return of currency to the banking system and the RBI's market operations (Table IV.7). In terms of liquidity management, absorptions under the LAF and increase in reserve requirements (through I-CRR) were the main instruments for mopping up the liquidity surplus.

Borrowings under the MSF averaged ₹29,287 crore in H1, higher than ₹8,438 crore in H2:2022-23, peaking at ₹1.99 lakh crore on September 21. Net LAF (inclusive of MSF) slipped into deficit (injection

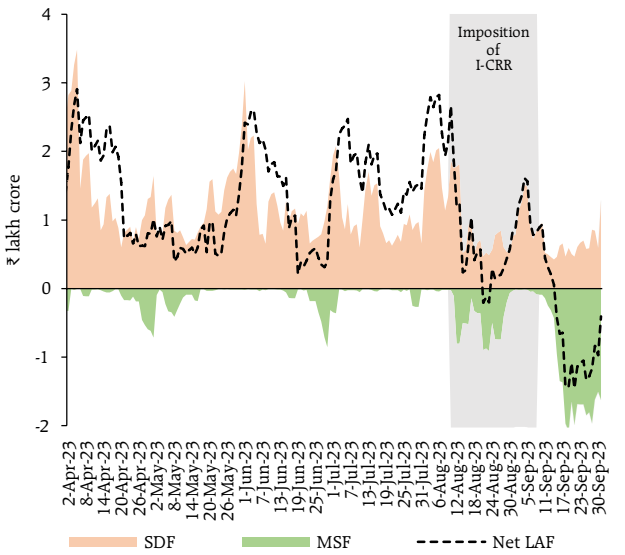
Table IV.7: Liquidity – Key Drivers and Management

(₹ crore)

Drivers	2022-23			2023-24*	
	Q1	Q2	H1	Q1	Q2*
Drivers					
(i) CiC [withdrawal (-) /return (+)]	-83,887	59,283	-24,604	18,103	71,501
(ii) Net Forex Purchases (+)/ Sales (-)	16,159	-2,89,713	-2,73,554	1,60,738	16,352#
(iii) GoI Cash Balances [build-up (-) / drawdown (+)]	-2,64,512	64,651	-1,99,861	-2,37,937	-23,616#
(iii) Excess Reserves [build-up (-) / drawdown (+)]	1,50,165	-54,446	95,719	-31,485	6,520#
Management					
(i) Net OMO Purchases (+)/ Sales (-)	-6,620	-14,460	-21,080	0	-8,480
(ii) Required Reserves [including both change in NDTL and I-CRR]	-1,03,054	-13,946	-1,17,000	-33,712	-1,01,508
Memo Item					
(iii) Outstanding Net LAF as at the end of period [absorption (+)/injection (-)]	3,34,814	54,110	54,110	1,62,906	-97,015

*: Data are up to September 29, 2023 #: Data up to July 28, 2023.
Note: (+) / (-) sign suggests accretion/depletion in banking system liquidity.
Data on drivers and management pertain to the last Friday of the respective period.
Source: RBI.

Chart IV.35: Standing Facilities- SDF and MSF



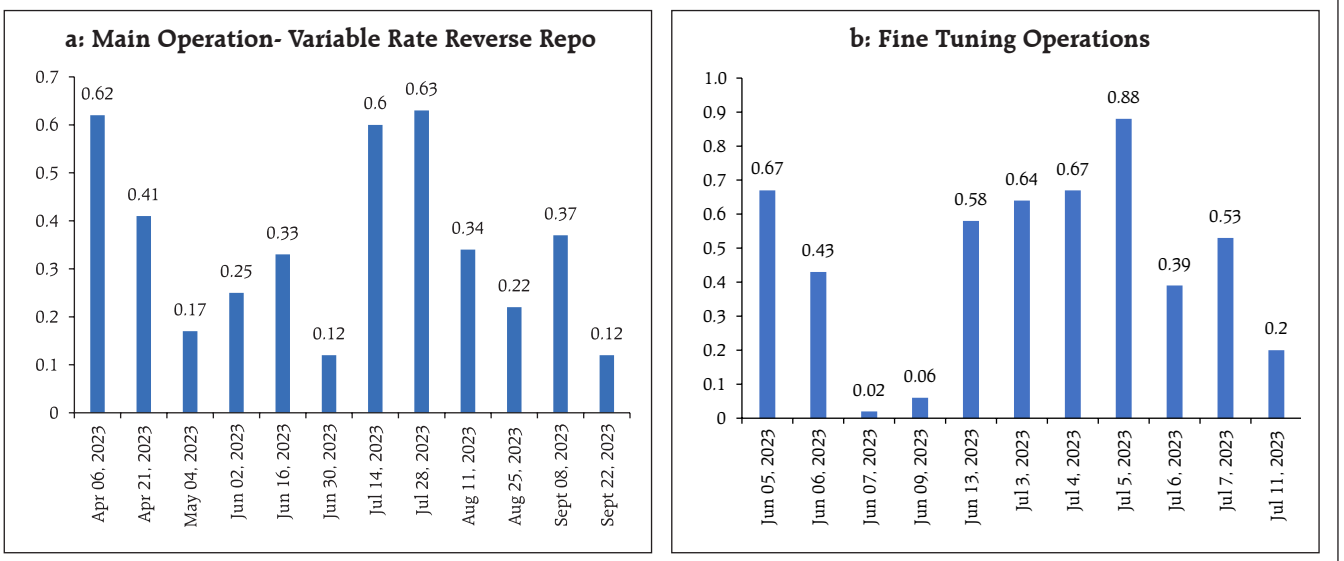
Source: RBI.

mode) on August 21 for the first time in 2023-24 and remained so till August 23; therafter, it again turned into deficit mode from the second half of September. On a monthly basis, net LAF slipped into deficit in September 2023 - the first time since May 2019 - with an average daily net injection of ₹0.15 lakh crore. At the overall level, the deployment of large surplus funds under the SDF and simultaneous recourse to the MSF was symptomatic of skewed liquidity distribution within the banking system (Chart IV.35). The frictional liquidity conditions led to the WACR breaching the MSF rate on 18 occassions in H1:2023-24 – six in May; three in June; five in August; and four in September with the average spread (over the MSF) on these days at 3 bps.

During H1:2023-24, the Reserve Bank's liquidity management involved two-way operations. To assuage the liquidity tightness in the middle of May, a 14-day variable rate repo (VRR) auction (main operation) was conducted to inject liquidity amounting to ₹50,000 crore on May 19, 2023. Subsequently, however, with an improvement in liquidity conditions, a 14-day variable rate reverse repo (VRRR) auction (main operation) of ₹2.0 lakh crore was conducted on June 2 to absorb liquidity, followed by five fine tuning operations during June 5-13 of varying sizes – between ₹0.50 lakh crore to ₹1.0 lakh crore – with maturities between 2-4 days. To alleviate the liquidity stress caused by advance tax payments and GST outflows in the second half of June, a VRR fine tuning operation was conducted on June 19 injecting ₹75,004 crore into the banking system. With increased aversion among banks to park surplus funds for longer tenors, the Reserve Bank conducted six-fine tuning VRRR operations of 1-4 days maturity in July of size ₹1.0-2.0 lakh crore. Overall, 12 VRRR main operations and 11 VRRR fine tuning operations along with one VRR main operation and one VRR fine tuning operation were conducted in H1. The fine-tuning operations, on average, elicited better response from banks relative to the fortnightly 14-day main operations, with average bid-cover ratios of 0.46 and 0.35, respectively, in H1 (Chart IV.36). Banks need to hone their liquidity forecasting skills to efficiently assess liquidity requirements over the reserve maintenance cycle and bid accordingly in the main operation auctions, since fine tuning operations are neither a substitute of the main operation nor are they standing facilities – they are conducted at the discretion of the central bank as per operational requirements.

Reserve money (RM) expanded by 6.4 per cent (y-o-y) as on September 29, 2023 as compared with 12.9 per cent a year ago (5.0 per cent adjusted for the first-round impact of the change in the CRR as against 10.3 per cent a year ago). Money supply (M3) increased by 10.8 per cent (y-o-y) as on September 22, 2023 as compared with 8.6 per cent in the corresponding period of the previous year (Table IV.8).

Chart IV.36: Bid-Cover Ratio of Variable Rate Reverse Repo Operations



Source: RBI.

Table IV.8: Banking and Monetary Aggregates

(Y-o-y growth, per cent)

Indicator	March 2022	March 2023	June 2023	September 2023
Reserve money* (Adjusted for CRR changes)	13.0 (10.3)	10.0 (7.6)	6.3 (6.3)	6.4 (5.0)
Broad money (M3)	8.8	9.0	11.3	10.8
Currency in circulation*	9.8	7.8	4.9	4.1
Aggregate deposits	8.9	9.6	13.0	12.3
Demand deposits	11.4	5.2	19.4	11.0
Time deposits	8.6	10.2	12.1	13.5
Bank credit	9.6	15.0	16.2	15.3

*: As on September 29, 2023.
Note: Data on broad money, deposit and credit growth exclude the impact of merger of a bank with a non-bank.
Source: RBI.

IV.4 Conclusion

Domestic financial market conditions evolved in an orderly manner in H1:2023-24. Market rates, notwithstanding intermittent bouts of volatility, remained range-bound across segments, instruments, and the maturity spectrum. Bank credit offtake was sustained, supporting resilient economic activity. Bank lending and deposit rates exhibited a staggered but still incomplete adjustment to the past rate hikes. The INR remained broadly stable and outperformed several of its EME peers. The large liquidity accretion following the withdrawal of ₹2,000 banknotes from circulation was proactively managed by the Reserve Bank through multiple instruments. 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 is slowing. Headline inflation remains above target in major economies, prompting central banks to persist with monetary tightening. Uncertainty about the monetary policy trajectory is imparting volatility to global financial markets. Stubborn core inflation, tightening financial conditions, high public debt, geopolitical tensions, geoeconomic fragmentation and extreme weather events pose downside risks to the global growth outlook.

The global economy is slowing, with divergent growth trajectories across countries and sectors. Headline inflation is easing unevenly but it remains above targets in major economies, while core inflation (headline excluding food and energy) remains elevated. Major central banks have accordingly persisted with monetary tightening during April-September, *albeit* with some moderation in the pace. Financial markets remain unsettled, anticipating 'higher for longer' stances in the future conduct of monetary policy. Sovereign bond yields have firmed up while the US dollar is exhibiting sharp two-way movements since the April 2023 MPR. Global equity markets gained during April-July 2023 on optimism about an early end to monetary tightening but have corrected recently on expectations of more monetary policy actions. Risks to global growth prospects are tilted to the downside.

V.1 Global Economic Conditions

Global growth appears to have lost pace in the third quarter of 2023, dragged down by tight financial conditions, high inflation weighing on consumer spending, slowdown in the Chinese economy and renewed geopolitical hostilities. Lacklustre manufacturing and trade is holding back the revival, offsetting relatively robust services expansion. The International Monetary Fund (IMF) in its World Economic Outlook (WEO) update of July 2023 revised up the global growth projection for 2023 by 20 basis points (bps) to 3.0 per cent from its April projection of 2.8 per cent, with the projection for 2024 retained at 3.0 per cent. The global growth in 2023-2024 is expected to be sizeably below the 2022 outturn (3.5 per cent) and the historical average (2000 to 2019) of 3.8 per cent[1].

Amongst the advanced economies (AEs), the US economy grew by 2.1 per cent (quarter-on-quarter, seasonally adjusted annualised rates (q-o-q, saar)) in Q2:2023, similar to its Q1 outturn (2.2 per cent) (Table V.1). This growth was driven by non-residential fixed investment, consumer spending, and government spending, though exports and residential fixed investment contracted. Tightness in the labour market persisted, with the unemployment rate at 3.8 per cent in August. The US composite S&P global purchasing managers' index (PMI[2]) at 50.2 in September 2023 signalled its weakest performance since February 2023.

In the euro area, real GDP growth remained subdued at 0.5 per cent (q-o-q, saar) in Q2 (0.2 per cent in Q1) due to flat household consumption demand and contraction in exports. Services exhibited resilience, benefitting from strong demand for tourism and other leisure-related activities. The Eurozone composite PMI remained in contraction for the fourth consecutive month at 47.2 in September due to deteriorating demand and a sharp drop in new orders. The unemployment rate was 6.4 per cent in August 2023, broadly comparable with 6.5 per cent in March.

---

[1] The OECD in its *Interim Economic Outlook* (September 2023) revised up global growth forecast for 2023 to 3.0 per cent and revised it down to 2.7 per cent for 2024 from June 2023 projections of 2.7 per cent and 2.9 per cent, respectively.

[2] The references to PMIs are to S&P Global indices, unless specified otherwise.

Table V.1: Real GDP Growth

(Per cent)

Country	Q3-2022	Q4-2022	Q1-2023	Q2-2023	2022	2023 (P)	2024 (P)
Quarter-on-quarter, seasonally adjusted, annualised rate (q-o-q, saar)							
Canada	2.2	-0.1	2.6	-0.2	-	-	-
Euro area	1.3	-0.2	0.2	0.5	-	-	-
Japan	-1.2	0.2	3.2	4.8	-	-	-
South Korea	0.9	-1.2	1.3	2.5	-	-	-
UK	-0.3	0.5	1.3	0.8	-	-	-
US	2.7	2.6	2.2	2.1	-	-	-
Year-on-year							
Advanced Economies							
Canada	3.8	2.1	2.1	1.1	3.5	1.7	1.4
Euro area	2.3	1.7	1.1	0.5	3.3	0.9	1.5
Japan	1.5	0.4	2.0	1.6	1.1	1.4	1.0
South Korea	3.2	1.4	0.9	0.9	2.6	1.4	2.4
UK	2.1	0.7	0.5	0.6	4.3	0.4	1.0
US	1.7	0.7	1.7	2.4	1.9	1.8	1.0
Emerging Market Economies							
Brazil	3.6	1.9	4.0	3.4	2.9	2.1	1.2
China	3.9	2.9	4.5	6.3	3.0	5.2	4.5
India	6.2	4.5	6.1	7.8	7.2	6.1	6.3
Indonesia	5.7	5.0	5.0	5.2	5.3	5.0	5.0
Philippines	7.7	7.1	6.4	4.3	7.6	6.2	5.5
Russia	-3.5	-2.7	-1.8	4.9	-2.1	1.5	1.3
South Africa	4.1	0.8	0.2	1.6	1.9	0.3	1.7
Thailand	4.6	1.4	2.6	1.8	2.6	3.4	3.6

Memo:

World	2022	2023 (P)	2024 (P)
Year-on-year			
Output	3.5	3.0	3.0
Trade Volume	5.2	2.0	3.7

P: Projection.
Note: India's data correspond to fiscal year (April-March); e.g., 2023 pertains to April 2023-March 2024.
Sources: Official statistical agencies; Bloomberg; IMF WEO Update, July 2023.

The UK's GDP grew by 0.8 per cent in Q2:2023 (q-o-q, saar) (1.3 per cent in Q1), supported by the extension of an energy price guarantee by the government to ease the cost of living, as well as fall in energy and commodity prices. The labour market remains tight, notwithstanding an increase in the unemployment rate to 4.3 per cent in May-July 2023, the highest since late-2021. The UK composite PMI at 48.5 in September was the weakest since January 2023 and signalled a reduction in private sector output amidst weak manufacturing activity. Japan's GDP growth accelerated from 3.2 per cent in Q1:2023 (q-o-q, saar) to 4.8 per cent in Q2, led by car exports and inbound tourism benefiting from a weaker yen. The composite PMI (*au Jibun* Bank) remains in expansion since the beginning of 2023, though it declined from 52.9 in April 2023 to 52.1 in September.

Amongst emerging market economies (EMEs), China's real GDP moderated to 3.2 per cent (q-o-q, saar) in Q2 from 9.1 per cent in Q1. The upturn in economic activity following the reopening of the economy waned amidst weakened consumer spending, lower exports and the beleaguered real estate sector. The composite PMI (Caixin) slowed to a 9-month low at 50.9 in September, as both manufacturing and services PMIs moderated despite remaining in expansionary territory, with the latter falling more sharply. Chinese economy is projected by the IMF to grow by 5.2 per cent in 2023 and 4.5 per cent in 2024 (Table V.2). 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 decelerated from 4.0 per cent (y-o-y) in Q1:2023 to 3.4 per cent in Q2. The labour market remained resilient *albeit* with some moderation. The composite PMI fell to a 29-month low of 49.0 in September from 50.6 in August amid contraction in both manufacturing and services sectors. The South African economy grew by 1.6 per cent (y-o-y) in Q2:2023 from 0.2 per cent in the previous quarter, with a rise in investment demand and government expenditure. The composite PMI for South Africa fell to 49.9 in September, indicating stagnation after expanding for the first time in six months in August. The Russian economy grew by 4.9 per cent (y-o-y) in Q2:2023 after four consecutive

quarters of contraction, with a recovery in domestic demand. The composite PMI posted 54.7 in September, with upturns in manufacturing and services output.

In ASEAN[3] economies, GDP growth was steady in Q2:2023, buoyed by tourism as inflation moderated. The ASEAN manufacturing PMI slipped into contraction territory for the first time in 25-months to 49.6 in September from 51.0 in August, driven by the downturn in factory orders and decline in new export business.

Amongst high frequency indicators, the OECD composite leading indicators (CLIs) for September 2023 remained near its trend for several economies (Chart V.1a). The global composite PMI fell to 50.5 in September, its lowest reading since January as the services PMI moderated sequentially. The manufacturing PMI downturn continued, despite a marginal pick-up in September, as output, new orders and employment contracted (Chart V.1b).

Global merchandise trade volume declined by 1.7 per cent (y-o-y) in Q2:2023 due to a slowdown in global economic activity, geopolitical tensions and geoeconomic fragmentation (Chart V.2a). It fell by 3.2 per cent in July, marking its steepest contraction since August 2020. According to the WTO goods trade

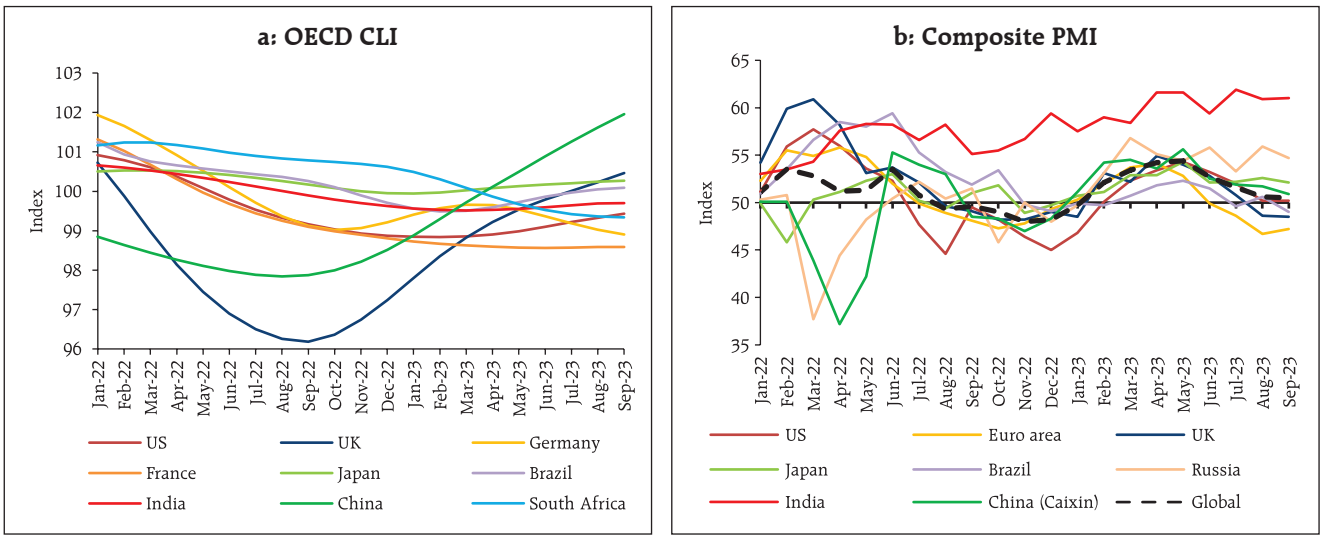
Table V.2: Select Macroeconomic Indicators for BRICS

Real GDP growth rate (Y-o-Y, per cent)	**Country**	**2022**	**2023(P)**	**2024(P)**	**General Govt. gross debt (Per cent of GDP)**	**Country**	**2022**	**2023(P)**	**2024(P)**
	Brazil	2.9	2.1	1.2		Brazil#	85.9	88.4	91.5
	Russia	-2.1	1.5	1.3		Russia	19.6	24.9	25.3
	India	7.2	6.1	6.3		India	83.1	83.2	83.7
	China	3.0	5.2	4.5		China	77.1	82.4	87.2
	South Africa	1.9	0.3	1.7		South Africa	71.0	72.3	74.0
CPI inflation rate (Y-o-Y, per cent)	**Country**	**2022**	**2023(P)**	**2024(P)**	**Current account balance (Per cent of GDP)**	**Country**	**2022**	**2023(P)**	**2024(P)**
	Brazil	9.3	5.0	4.8		Brazil	-2.9	-2.7	-2.7
	Russia	13.8	7.0	4.6		Russia	10.3	3.6	3.2
	India	6.7	4.9	4.4		India	-2.0	-2.2	-2.2
	China	2.0	2.0	2.2		China	2.3	1.4	1.1
	South Africa	6.9	5.8	4.8		South Africa	-0.5	-2.3	-2.6
General Govt. net lending/borrowing (Per cent of GDP)	**Country**	**2022**	**2023(P)**	**2024(P)**	**Forex reserves* (in US$ billion)**	**Country**	**2021**	**2022**	**2023**
	Brazil	-4.6	-8.8	-8.2		Brazil	362.2	324.7	344.2
	Russia	-2.2	-6.2	-2.8		Russia	630.6	582.0	581.7
	India	-9.6	-8.9	-8.3		India	633.6	562.7	590.7
	China	-7.5	-6.9	-6.4		China	3426.9	3306.5	3400.7
	South Africa	-4.5	-5.9	-6.1		South Africa	57.6	60.6	62.0

P: Projection.
*: Forex reserves for 2023 pertain to August 2023 for all countries except for China (July 2023) and India (September 2023).
#: 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.
Sources: Official statistical agencies; WEO April 2023 database and July 2023 Update, IMF; Fiscal Monitor, April 2023, IMF; and International Reserve and Foreign Currency Liquidity (IRFCL), IMF, and RBI.

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

Chart V.1: Survey Indicators



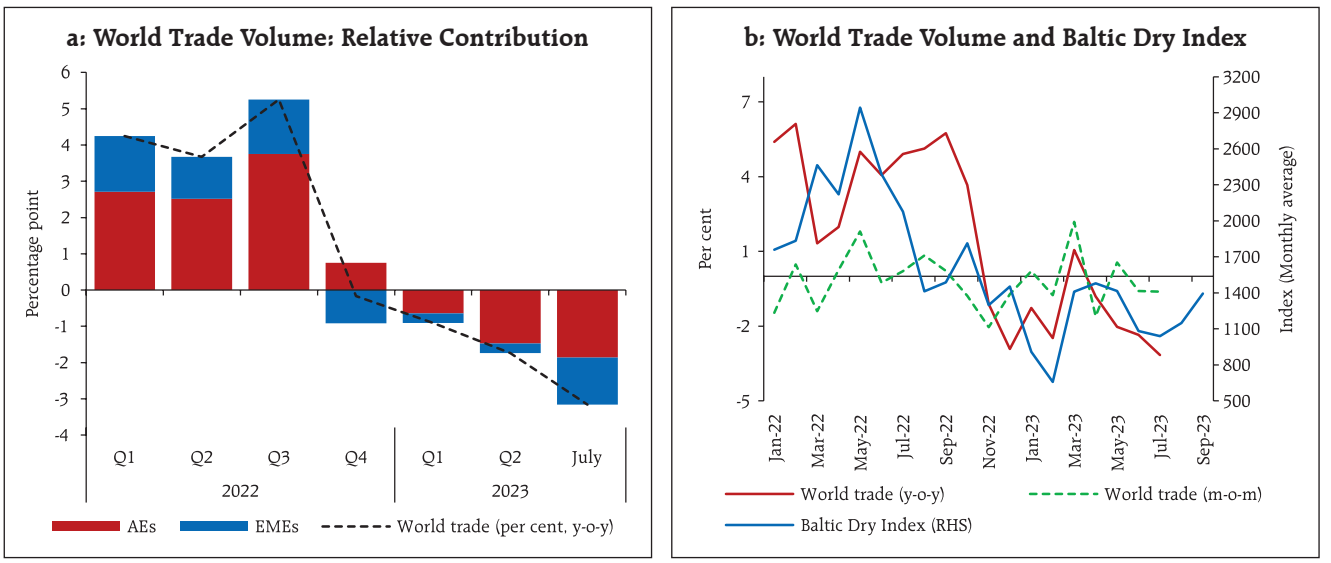
Note: For PMI indices a reading above 50 indicates an overall increase compared to the previous month, and below 50 an overall decrease. The indices are seasonally adjusted.
Sources: OECD; and Bloomberg.

barometer, the export orders component remains weak. In its July 2023 WEO update, the IMF projected world trade (goods and services) growth to decelerate from 5.2 per cent in 2022 to 2.0 per cent in 2023. Reflecting the subdued global trade outlook, the Baltic Dry Index (BDI), a benchmark of shipping costs of dry bulk, trailed its 2022 average (Chart V.2b).

V.2 Commodity Prices and Inflation

Global commodity prices declined by 4.2 per cent (q-o-q) in Q2:2023 in terms of the Bloomberg commodity price index before rising from July 2023 onwards on higher energy prices and the collapse of the Black Sea grain deal (Chart 3a). Global food prices,

Chart V.2: World Trade Volume



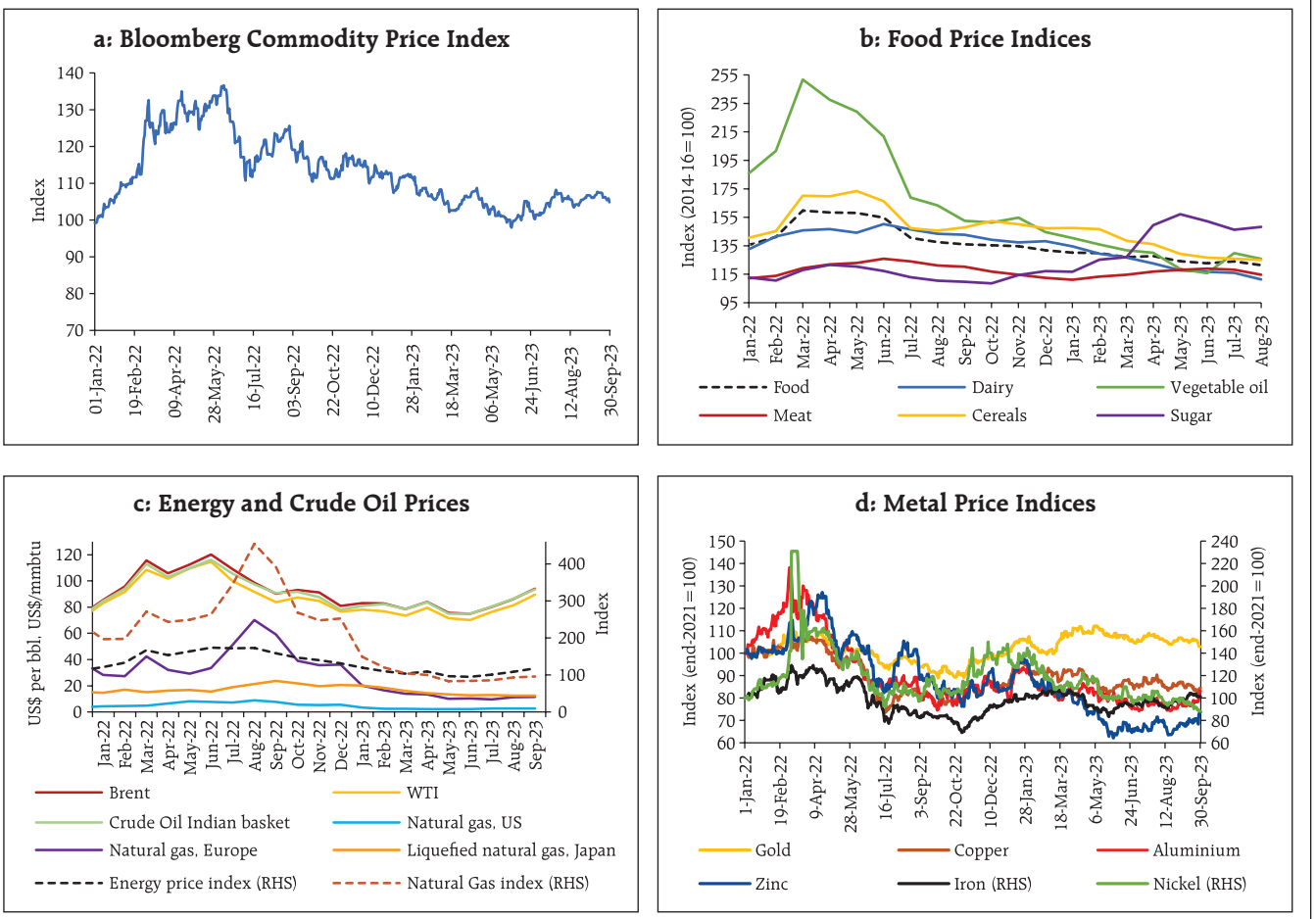
Sources: CPB Netherlands; Refinitiv Eikon; and RBI staff estimates.

according to the Food and Agriculture Organization (FAO), eased by 3.2 per cent (q-o-q) in Q2:2023 and a further 1.7 per cent in Q3 (up to August), primarily driven by a correction in the prices of cereals and dairy products. Meat and sugar prices, which had hardened in Q2, softened in Q3, while vegetable oil prices reversed the easing in Q2 and rose in Q3 (Chart V.3b).

Crude oil prices have firmed up since the last MPR. They initially softened during Q2, largely reflecting weak global economic demand (Chart V.3c). Crude oil prices rose sharply in Q3 in response to cuts in oil supplies by Saudi Arabia and Russia that were extended through the rest of 2023. Brent crude prices crossed US$ 90 per barrel in September, touching their highest level since November 2022. According to the World Bank, natural gas prices softened by 28.4 per cent in Q2 because of high inventories as heating demand declined owing to a mild winter. The softening continued till July before prospects of a strike at a liquefied natural gas producer in Australia intensified fears of disruption to global supplies in August. Overall, natural gas prices edged up by 2.2 per cent in Q3 (Chart V.3c).

Base metal prices have generally remained stable since April 2023 in view of weak economic activity in China and sustained monetary tightening worldwide. Gold price rebounded in the first half of Q2 on safe haven demand amidst bank failures in the US and Europe. It fell in June as central banks' purchases slowed down and retail demand for gold moderated.

Chart V.3: Commodity Prices



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

Gold price declined further in August as the US dollar strengthened. In September, most base metals prices hardened on Chinese stimulus measures to support the housing market through relaxation in requirements for mortgage down payments and interest rates (Chart V.3d).

Consumer Price Inflation

Consumer price inflation is easing, reflecting softening energy and food prices, improving supply chains and tighter monetary policy. It is, however, ruling well above targets, especially in AEs (Table V.3). Core inflation is relatively sticky, and the pace of moderation is tardy (Box V.1). Core goods inflation eased as demand and supply for consumer goods moved into better balance. Services price inflation remains strong, contributing to wage pressures. According to the IMF's WEO July 2023 update, global inflation is projected to moderate from an annual average of 8.7 per cent in 2022 to 6.8 per cent in 2023 and further to 5.2 per cent in 2024 but would remain above the pre-pandemic (2017-19) level of 3.5 per cent.

In the US, headline CPI inflation decelerated from 5.0 per cent (y-o-y) in March 2023 to 3.0 per cent in

Table V.3: Consumer Price Inflation

(Y-o-y, per cent)

Country	Inflation Target	Q3:2022	Q4:2022	Q1:2023	Q2:2023	Jul-23	Aug-23	Sep-23
Advanced Economies								
Canada	2.0 ± 1.0	7.2	6.7	5.1	3.5	3.3	4.0	
Euro area	2.0	9.3	10.0	8.0	6.2	5.3	5.2	4.3
Japan	2.0	2.7	3.8	3.5	3.3	3.1	3.1	
South Korea	2.0	5.9	5.2	4.7	3.2	2.3	3.4	3.7
UK	2.0	10.0	10.8	10.2	8.4	6.8	6.7	
US	2.0	8.3	7.1	5.8	4.0	3.2	3.7	
		(6.6)	(5.9)	(5.0)	(3.9)	(3.4)	(3.5)	
Emerging Market Economies								
Brazil	3.25 ± 1.5	8.7	6.1	5.3	3.8	4.0	4.6	
Russia	4.0	14.4	12.2	8.8	2.7	4.3	5.2	
India	4.0 ± 2.0	7.0	6.1	6.2	4.6	7.4	6.8	
China		2.7	1.8	1.3	0.1	-0.3	0.1	
South Africa	3.0-6.0	7.6	7.4	7.0	6.2	4.7	4.8	
Mexico	3.0 ± 1.0	8.5	8.0	7.5	5.7	4.8	4.6	
Indonesia	3.0 ± 1.0	5.2	5.5	5.2	4.0	3.1	3.3	2.3
Philippines	3.0 ± 1.0	6.5	7.9	8.3	6.0	4.7	5.3	6.1
Thailand	1.0-3.0	7.3	5.8	3.9	1.1	0.4	0.9	0.3
Turkey	5.0 ± 2.0	81.1	78.1	54.5	40.5	47.8	58.9	61.5

Memo:

	2021	2022	2023 (P)	2024 (P)
World consumer price inflation	4.7	8.7	6.8	5.2

P: Projection.

Notes: (1) Japan's inflation pertains to CPI inflation in all items less fresh food – the Bank of Japan's target measure.

(2) Figures in the parentheses for US are year-on-year change in personal consumption expenditure (PCE) price index.

Sources: Central bank websites; IMF, and Bloomberg.

Box V.1: Global Core and Headline Inflation Dynamics

The combination of the surge in demand fuelled by unprecedented monetary and fiscal stimulus and sustained supply distortions and commodity price shocks caused by the pandemic and accentuated by the war in Ukraine triggered a flaring up of inflation, both headline and core, across the world in 2021-2022 to multi-decade high levels. While more recently inflation is easing, a sticky core and its potential spillovers to headline inflation have emerged as the key policy concern. If headline inflation converges to core inflation, then increases in food and energy inflation may not lead to a persistent rise in headline. By contrast, if core inflation converges to headline, this would indicate second-round effects that can cause inflation expectations to rise, triggering appropriate responses from monetary policy makers (Cecchetti and Moessner, 2008).

To explore these feedback mechanisms, a panel regression for 26 economies (comprising both AEs and EMEs) for January 2012 to July 2023 is undertaken which indicates cointegration between core and headline inflation. Accordingly, a vector error correction model (VECM) is estimated by using the pooled mean group (PMG) approach (Pesaran et al., 1999). The short-run dynamics indicate that the coefficients of the error correction terms in both the equations are negative and statistically significant. Thus, in the case of a shock, both core and headline inflation adjust, and the speed of adjustment in headline inflation towards core is somewhat higher than in the core inflation equation[4] (Table V.1.1). The potential two-way spillovers and the generalisation of inflation risks can warrant priority in policy settings to contain them quickly, which vindicates the 'higher for longer' stance going forward.

Table V.1.1: Headline and Core Inflation: Co-integration and Error Correction Estimates

Variables	Advanced economies (AEs)	Emerging Market Economies (EMEs)	Combined
Pre-COVID (January 2012- February 2020)			
ΔHeadline inflation			
Long run equation: Headline inflation= β. Core inflation + error correction			
Core	0.99*** (21.45)	0.93*** (25.87)	0.94*** (31.83)
Short run			
Error correction	-0.12*** (-4.43)	-0.10*** (-6.29)	-0.11*** (-7.40)
ΔCore inflation			
Long run equation: Core inflation= β. Headline inflation + error correction			
Headline	0.56*** (15.66)	0.49*** (12.01)	0.54*** (19.43)
Short run			
Error correction	-0.10*** (-4.24)	-0.06*** (-4.78)	-0.08*** (-5.80)
Full Sample (January 2012- July 2023)			
ΔHeadline inflation			
Long run equation: Headline inflation= β. Core inflation + error correction			
Core	1.01*** (35.12)	0.81*** (29.59)	0.86*** (39.90)
Short run			
Error correction	-0.10*** (-3.53)	-0.12*** (-3.77)	-0.10*** (-5.61)
ΔCore inflation			
Long run equation: Core inflation= β. Headline inflation + error correction			
Headline	0.69*** (36.16)	0.98*** (25.18)	0.96*** (41.59)
Short run			
Error correction	-0.09*** (-7.49)	-0.08** (-2.91)	-0.08*** (-4.48)

Note: Figure in parentheses are t-statistics. * $p<0.05$, ** $p<0.01$, *** $p<0.001$.
Sources: RBI staff estimates.

References:

Cecchetti, Stephen G, and Richhild Moessner (2008), "Commodity Prices and Inflation Dynamics", *BIS Quarterly Review*, pp. 55-66.

Gamber, E. N., Smith, J. K., and Eftimoiu, R. (2015), "The Dynamic Relationship between Core and Headline inflation", *Journal of Economics and Business*, Vol. 81, pp. 38-53.

Liu, Z., and Weidner, J. (2011), "Does Headline Inflation Converge to Core?" FRBSF Economic Letter.

Pesaran, M. Hashem, Yongcheol Shin, and Ron Smith (1999), "Pooled Mean Group Estimation of Dynamic Heterogeneous Panels", *Journal of the American Statistical Association*, Vol. 94, pp. 621-634.

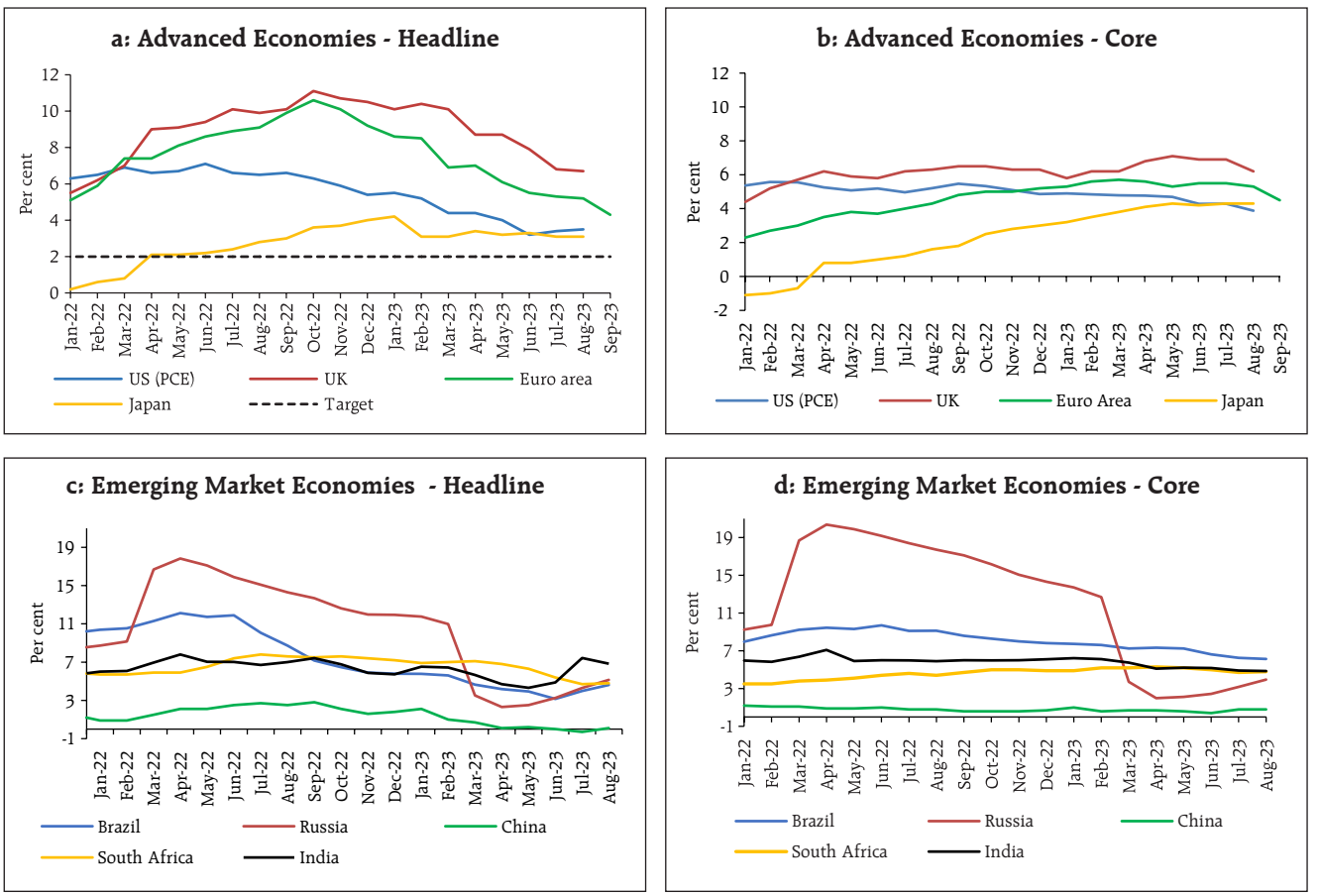
[4] The results are broadly similar for the full sample and the pre-COVID sample.

June but then hardened to 3.7 per cent in August. Core CPI inflation eased from 5.6 per cent to 4.3 per cent during the same period. Inflation in terms of the personal consumption expenditure (PCE) price index – the US Federal Reserve (Fed)'s preferred measure of inflation – moderated from 4.4 per cent in March to 3.5 per cent in August (Chart V.4a), while core PCE inflation fell from 4.8 per cent to 3.9 per cent (Chart V.4b).

In the Euro area, CPI inflation eased by 260 bps to 4.3 per cent in September 2023 from 6.9 per cent in March. Core inflation (inflation excluding energy, food, alcohol and tobacco) moderated by only 120 bps to 4.5 per cent in September. In the UK, CPI inflation eased to 6.7 per cent in August 2023 from 10.1 per cent in March 2023 while core inflation at 6.2 per cent in August was unchanged from its level in March. In Japan, CPI inflation (all items less fresh food) was 3.1 per cent in August 2023, the same level as in March, though core inflation (inflation excluding fresh food and energy) edged up to 4.3 per cent in August from 3.8 per cent in March 2023.

Amongst major EMEs, CPI inflation in Brazil moderated during March-June 2023 but then edged up to 4.6 per cent in August 2023 (Chart V.4c). In Russia, it rose to 5.2 per cent in August 2023 from 3.5 per

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 refer to CPI inflation in all items less fresh food – the Bank of Japan's target measure, while data in Chart V.4b refer to CPI inflation in all items less fresh food and energy.

Sources: Official statistical agencies; and Bloomberg.

cent in March, partly due to currency depreciation. In South Africa, CPI inflation softened to 4.8 per cent in August 2023 from 7.1 per cent in March. In China, headline inflation remained subdued during 2023 – it moderated from 0.7 per cent in March 2023 to 0.1 per cent in August (with a temporary descent into deflation of 0.3 per cent in July), reflecting weak demand. Core inflation across EMEs has generally remained stickier than headline inflation (Chart V.4d).

V.3 Monetary Policy Stance

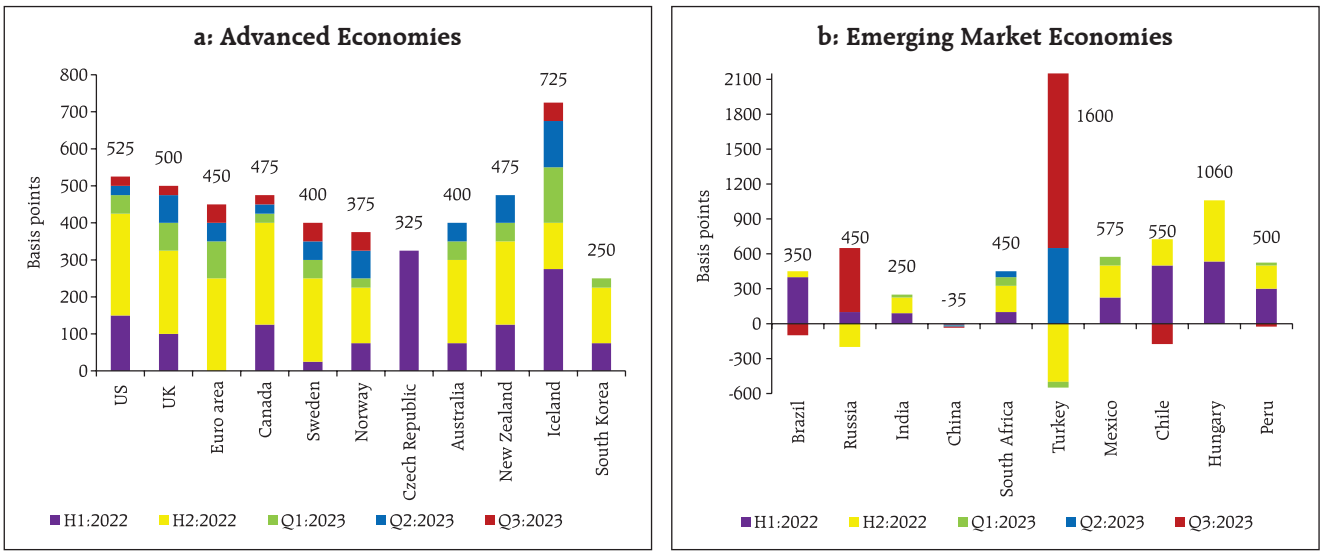
During Q2 and Q3 of 2023, major central banks across AEs and EMEs hiked their benchmark rates in steps of 25 bps or retained their policy rates at restrictive levels. A few central banks especially among EMEs initiated an easing cycle in response to a softening inflation trajectory.

After initiating the tightening cycle in March 2022, the US Fed raised the target range for the federal funds rate in all its subsequent policy meetings till May 2023 although it reduced the size of rate increase to 25 bps from hikes of 50 and 75 bps in 2022. In its June 2023 meeting, the Federal Open Market Committee (FOMC) decided to pause for the first time in over a year following a cumulative increase of 500 bps. In its July meeting, the Fed raised the target range of the federal funds rate by 25 bps to 5.25-5.50 per cent, taking it to its highest level in 22 years and maintained the level in its September meeting (Chart V.5a). As per the Summary of Economic Projections released in September 2023, the majority of FOMC participants expected the federal funds rate to be in the range of 5.5-5.75 per cent by end 2023 and 5.0-5.25 per cent by end 2024, indicating further monetary tightening this year and fewer rate cuts next year as compared to June projections. The US Fed also continued with its balance sheet reduction policy.

The ECB increased its policy rate by 25 bps in each of its May-September 2023 meetings, cumulatively increasing the benchmark rate by 450 bps. In its May 2023 meeting, it decided to discontinue reinvestments under the Asset Purchase Programme (APP) from July 2023 while continuing to reinvest the principal payments from maturing securities purchased under the Pandemic Emergency Purchase Programme (PEPP) until at least the end of 2024. In its July meeting, the ECB reduced the remuneration of minimum reserves to zero per cent (the remuneration was at the deposit facility rate earlier). The Bank of England (BoE) raised its policy rate in its May 2023 meeting by 25 bps, followed by 50 bps in June and 25 bps in August, taking the cumulative increase to 515 bps in the current tightening cycle that started in December 2021. The BoE maintained its policy rate at 5.25 per cent in its September meeting while announcing an enhanced reduction of £100 billion in the stock of UK government bonds.

Amongst other major AEs, the Bank of Canada raised its policy rate by 25 bps each in its June and July 2023 meetings after a pause in the previous two meetings (March and April 2023) – a cumulative hike of 475 bps in the current tightening cycle. It kept the rate unchanged in its September 2023 meeting. The Reserve Bank of Australia raised its cash rate target by 25 bps each in its May and June meetings while pausing in the July-September meetings. It has cumulatively increased its policy rate by 400 bps since May 2022. The Norges Bank and the Bank of Korea have raised their policy rates by 375 bps and 250 bps, respectively, since 2022 while the Central Bank of Iceland and the Czech National Bank effected cumulative hikes of 725 bps and 325 bps, respectively (Chart V.5a). On the other hand, the Bank of Japan (BoJ) remained an outlier, maintaining an accommodative stance with the overnight interest rate on hold at *minus* 0.1 per cent. The BoJ in its July 2023 meeting, however, amended the conduct of yield curve control (YCC) to incorporate greater flexibility regarding the upper and lower bounds as references. It offered to purchase 10-

Chart V.5: Policy Rate Changes – Select Major Economies



Source: Bloomberg.

year Japanese government bonds at 1.0 per cent every business day through fixed-rate purchase operations, instead of the previous 0.5 per cent.

Amongst the BRICS, the *Banco Central do Brasil* started a rate cut cycle in August 2023 with a reduction of 50 bps after raising rates cumulatively by 1175 bps between March 2021 and August 2022. It was followed by another 50 bps cut in September 2023. The South African Reserve Bank continued with the tightening cycle and increased its policy rate by 50 bps in its May 2023 meeting, cumulatively increasing its benchmark rate by 475 bps before pausing in its July and September meetings. The People's Bank of China (PBoC) adopted an accommodative monetary policy stance, effecting its first cut in 10 months in the policy rates in June 2023. In August, it further reduced its 1-year Loan Prime Rate (LPR) and 7-day reverse repurchase agreements rate by 10 bps each and the 1-year medium-term lending facility loans rate by 15 bps while maintaining the 5-year LPR at 4.20 per cent. In September it reduced its reserve requirement ratio by 25 bps for all banks except those that have implemented a 5 per cent reserve ratio. The Bank of Russia (BoR) switched gears by commencing a tightening cycle in July 2023, increasing the policy rate by 100 bps to contain price stability risks, following it by increases of 350 bps in an off-cycle meeting in August and 100 bps in the September meeting, taking the policy rate to 13.0 per cent. Earlier, it had cumulatively cut the policy rate by 1250 bps between April-September 2022 and held it steady for the next 6 meetings until June 2023 (Chart V.5b).

Amongst Asian EMEs, the Bank of Thailand, which embarked on the tightening cycle in August 2022, raised the rate by 25 bps in all its subsequent meetings. The Bank Indonesia maintained its policy rate at 5.75 per cent in all its meetings since February 2023. In Latin America, central banks of Mexico and Colombia held their policy rates constant in all meetings since May 2023. On the other hand, Chile lowered its policy rate by 175 bps to 9.5 per cent during July-September 2023, after hiking it by 1075 bps between July 2021 and October 2022. Peru cut its policy rate by 25 bps in its September meeting after holding it steady for seven months. Among European EMEs, Poland embarked on a rate cutting cycle, lowering its policy

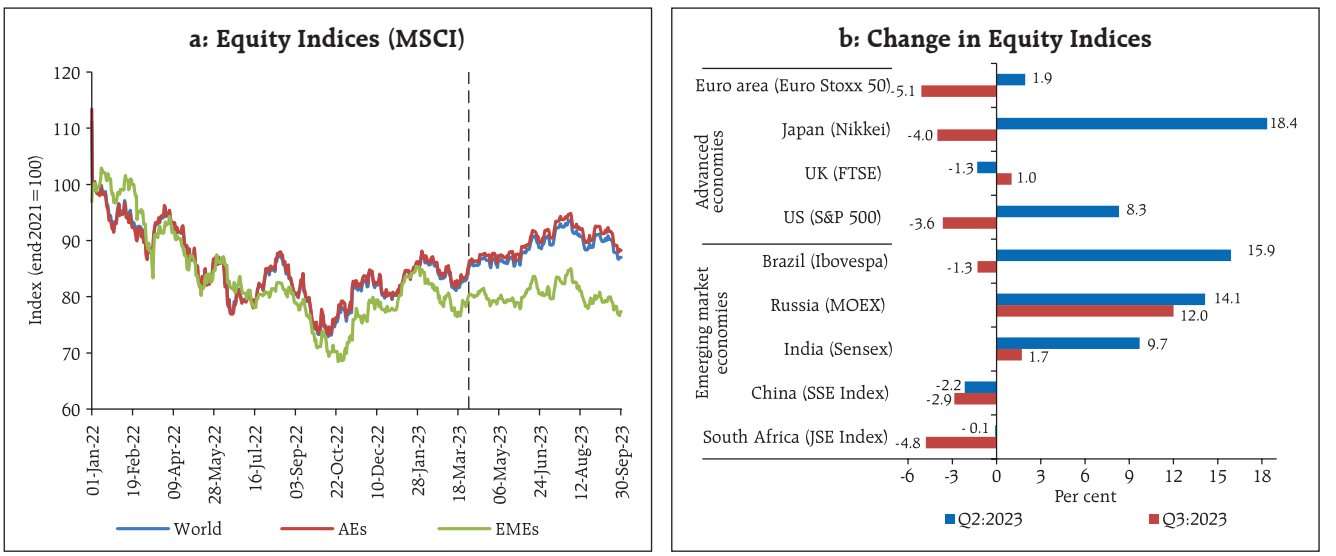
rate by 75 bps in its September meeting after keeping it on hold since October 2022. The central bank of Turkey raised its policy rate by 2150 bps between June and September 2023, after cutting it cumulatively by 550 bps between August 2022 and February 2023.

V.4 Global Financial Markets

Global financial markets exhibited high flux during Q2 and Q3, responding to changing expectations on the monetary policy trajectory. Markets turned buoyant during April-July 2023 as prospects of hard landing receded and hopes of an end to the monetary tightening cycle in the US, earlier than expected, gained ground. Financial markets corrected in Q3 on stronger data and 'higher for longer' monetary policy stances. Overall, bond yields have firmed up since the last MPR. The US dollar has remained volatile with a strengthening bias since August. The EME currencies broadly weakened since Q2:2023.

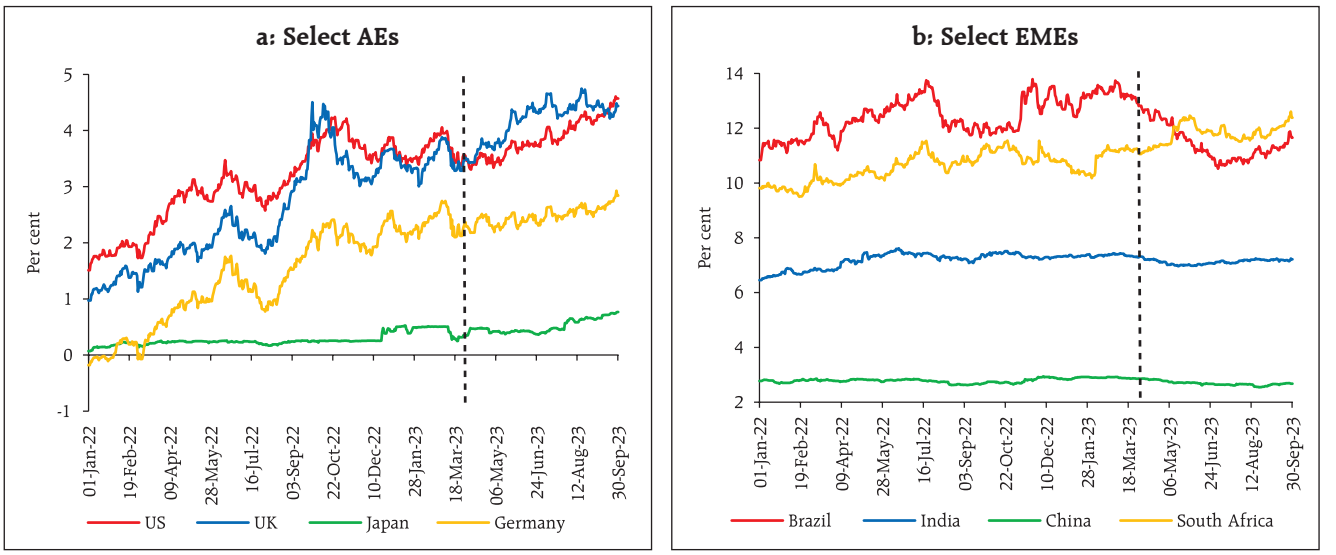
Equity markets, in terms of MSCI world index, gained 1.6 per cent since end March reflecting gains in AEs equity markets (Chart V.6a). Among AEs, US S&P 500 gained about 8 per cent in Q2:2023 supported by better economic data, optimism over the peaking of policy rates and a rally in technology stocks. In August and September, however, sentiment took a blow from the rise in long-term bond yields and the hawkish tone in minutes of the FOMC's July meeting and FOMC's statement of September. Overall, the US S&P index rose by 4.3 per cent during April-September 2023. The European stock market underperformed, given relatively weak economic data. The UK's stock indices declined in Q2 as consumer price inflation slowed less than anticipated, but reversed the trend in Q3 with lower than expected inflation print. The Japanese market outperformed its peers on continuation of ultra-accommodative monetary policy by the BoJ. EME equities, barring China and South Africa in Q2, gained, tracking global cues and reaping benefits of an early commencement of the tightening cycle leading to lower inflation prints (Chart V.6b). In Q3, however, EME equities barring Russia and India corrected on tighter financial conditions globally and volatile capital flows. Chinese stocks lost ground amidst the flagging economic recovery. Portfolio outflows exerted downward pressures on equities.

Chart V.6: Equity Markets



Sources: Bloomberg; and RBI staff estimates.

Chart V.7: 10-Year Sovereign Bond Yields



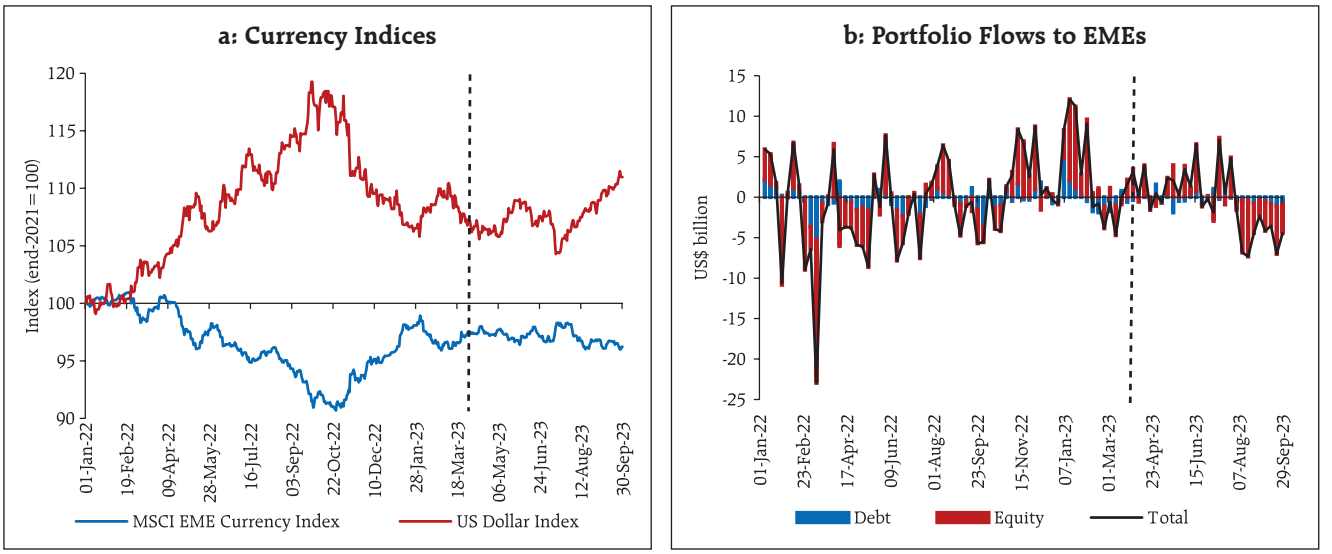
Source: Bloomberg.

Sovereign bond yields across major AEs hardened in Q2:2023 and Q3, reflecting ongoing monetary tightening and the slow pace of disinflation. The US 10-year treasury yield rose by 37 bps during Q2 and rose further in Q3 to its highest level since 2007 following a hawkish policy stance, announcement of larger debt issuance by the US Treasury and the sovereign rating downgrade by Fitch Ratings. The German 10-year bond yield broadly tracked the US market while the UK 10-year yield hardened before moderating on a benign inflation print for July. The 10-year Japanese Government bond yield hardened by 36 bps during Q3 pushed up by the BoJ's incorporation of greater flexibility in its conduct of yield curve control (Chart V.7a).

Bond yields in several EMEs exhibited a hardening bias, driven by domestic monetary tightening as well as global cues (Chart V.7b). Brazilian 10-year bond yield softened in the second quarter of 2023 by 219 bps following modest inflation prints. In Q3:2023, Brazilian yield edged up marginally as investors reassessed the outlook on the *Selic* rate after July's CPI print exceeded the central bank's target of 3.25 per cent.

In the currency markets, the US dollar weakened in April 2023 but strengthened in May on increased safe haven demand amidst debt ceiling concerns and uncertain global economic prospects (Chart V.8a). It reversed the uptrend in June and July, falling to a 15-month low on optimism about a policy pivot by the Fed. Resilient US economic data and expectations of rates staying higher for longer led to a stronger dollar in August-September. The US dollar's volatility was mirrored in the EME currencies, exacerbated by swings in capital flows (Chart V.8b). The MSCI Emerging Market Currency Index declined by around 1 per cent in Q2:2023 and by 0.4 per cent in Q3.

Chart V.8: Currency Movements and Capital Flows



Sources: Bloomberg; and IIF.

V.5 Conclusion

Global growth is losing momentum, with downside risks to the outlook from stubborn core inflation, tight financial conditions, high public debt, weak recovery in China, geopolitical tensions, geoeconomic fragmentation and extreme weather events. Inflation is easing unevenly across countries but rules above the target, especially in advanced economies. Core inflation is softening at a more moderate pace than the headline amidst strong labour markets. The uncertainty about the monetary policy trajectory is imparting volatility to global financial markets. Swings in capital flows, volatile currency movements, elevated debt burden and tight financial conditions pose sizeable downside risks to the outlook for EMEs, especially those with large external financing needs in an environment in which financial conditions are tightening.

SPEECHES

India's Financial Sector - From Exuberance to Resilience
Michael Debabrata Patra

A Customer Centric Approach - Navigating the Path to Excellence in Customer Service
Swaminathan J

*India's Financial Sector - From Exuberance to Resilience**

Michael Debabrata Patra

Good afternoon and Namaskar.

Thank you Alfred for those insightful opening remarks. I must mention that Alfred led the IMF's Article IV India mission for the 2021 consultations. The sheer weight of that experience and deep understanding of Indian conditions is reflected in his views. I would also like to commend Alfred and his co-editors for a comprehensive evaluation of India's financial system and very valuable recommendations on the way forward in a recent book evocatively titled "*India's Financial System: Building the Foundation for Strong and Sustainable Growth*".

I am glad to see Mr Thomas Helbling from the Asia and Pacific Department of the IMF in this session, and I look forward to hearing from him.

I thank our host and SEACEN EXCO Chair, the National Bank of Cambodia, the SEACEN Centre and Dr. Mangal Goswami, Executive Director, and the BIS for inviting me to speak in this distinguished forum. In particular, I am grateful to Deputy Governor Sum Sannisith for so graciously writing to me to participate in this 16th SEACEN-BIS High Level Seminar.

The Backdrop

It is widely believed that during the next two decades – if not for longer – the centre of gravity of the global economy will shift eastwards to Asia. The IMF's Regional Economic Outlook for Asia and the Pacific indicates that this region will contribute about two-thirds of global growth in 2023 itself. India will account for a sixth of world output growth in 2023 and 2024. In terms of market exchange rates, India is the fifth largest economy of the world and the third largest economy on the basis of purchasing power parity. Our assessment is that by 2027, India will be a US$ 5 trillion economy and the third largest in the world even by market exchange rates. A key driver in this transformation is likely to be the window of a demographic dividend that opened up in 2018 and will probably last till the 2040s, going by fertility and mortality rates. Already, we are the most populous country in the world at 1.4 billion and the youngest at an average age of 28 years. The other major catalyst of India's progress will be the pace and quality of financial sector development, which is the theme of my address today. It is anchored by a few slides (Annex I).

For a high saving rate economy, like the rest of Asia, a modern, efficient, and soundly functioning financial sector is essential for mobilising the resource requirements of India's developmental aspirations. A broad strand in the literature has established that financial sector development has positive multiplier effects on the real economy, including by conferring productivity and allocational efficiency gains. While the jury is still out on whether economic progress is finance-led or demand-following in its sequence, a wealth of empirical evidence points to Asia's growth trajectory being that of the real economy leading financial development, and India is no exception. There is also stylized evidence that the composition of the financial sector across Asia is changing, with hitherto bank-dominated systems giving space to alternative financial intermediaries such as non-banks and capital markets. These developments, in turn, generate impulses of growth for the rest of the economy. In India, additional dimensions have opened up exciting possibilities for leveraging our growth potential – the digital revolution; transformation of the payment and settlement

* Speech delivered by Michael Debabrata Patra, Deputy Governor, Reserve Bank of India (RBI) at the 16th SEACEN-BIS High Level Seminar hosted by the National Bank of Cambodia, on September 18, 2023 at Siem Reap, Cambodia. Valuable comments received from Snehal S Herwadkar, Sonali Goel, Asish Thomas George, and editorial help from Vineet Kumar Srivastava are gratefully acknowledged.

ecosystem; and innovations in financial inclusion. More recently, India's exponential expansion of the usage of space technology is reshaping every aspect of our lives, including the financial sector. Against this backdrop, I thought that I would present some aspects of India's financial sector as its poised today, the quiet metamorphosis that has been taking place over the years, and the main challenges and opportunities on the way forward.

Composition of India's Financial sector

In its broadest form, the financial system comprises of banks that account for about 60 per cent of the total flow of credit to the non-financial sector, non-banking finance companies (NBFCs) that provide 8 per cent, financial markets and others that account for 20 per cent and foreign sources that constitute 12 per cent. The Reserve Bank of India (RBI) is responsible for the regulation, supervision and development of banks, NBFCs (including long-term refinancing institutions, primary dealers and housing finance companies) and the money, gilt, foreign exchange and credit segments of the financial market spectrum. In the rest of my remarks, I shall focus on these parts of the financial sector. There is an inter-regulatory Financial Stability and Development Council (FSDC) which has oversight over the entire financial system and coordination is secured by a sub-committee of the FSDC headed by the Governor of the RBI.

Banking Sector

First, let me turn to the banking system. Typically, India's banking system is summarily described as preponderantly publicly owned and heavily public policy intervened. In practice, it is more vibrant, with 12 public sector banks facing keen competition from 21 private banks, 45 foreign banks, and 63 niche banks[1] catering to specific needs and clientele. It is important to note that all constituents of the banking system are subjected to the same regulatory regime, with specific modulations for the niche and local banks in terms of sources and uses of funds.

It is noteworthy that India has not faced a financial crisis of the scale and severity of the Asian crisis of 1997-98 or the Latin American crisis of 1980s and 2002 or the global financial crisis (GFC) of 2007-08 although its suffered knock-on effects from each of them. Financial perturbations have happened in India though, but they were more local in character and essentially a manifestation of pro-cyclical exuberance.

As the Indian economy emerged out of recessionary conditions in 2001-02 and an economic upswing took hold, it spurred a credit boom to fund infrastructure expansion. Masked by lax credit standards and opaque asset quality recognition, it was punctured by the onset of the GFC. India was among the earliest countries to bounce out of the GFC, and aspirations of double-digit growth fuelled another burst of bank credit-led infrastructure and heavy industry investment. On the premise that infrastructure involves long gestations, bank loans were allowed to be restructured while treating them as standard advances in banks' books with insufficient provisioning.

In 2015-16, deep surgery in the form of asset quality review (AQR) was undertaken and the true quality of banks' assets began to emerge. With the proper recognition of restructured loans, provisioning requirements, especially of public sector banks, surged. A revised prompt corrective action (PCA) framework involving thresholds on capital, asset quality, profitability and leverage was imposed from 2017 in the form of restrictions on lending, dividend-distribution, and branch expansion, apart from requirement of higher provisions. At the peak, 12 banks were placed under the framework. A massive recapitalisation of US$ 42 billion[2] was undertaken by the government. during 2017-22. The pain was severe,

[1] This includes 12 small finance banks, 6 payment banks, 2 local area banks and 43 regional rural banks.

[2] 2.9 lakh crore in Indian Rupees.

but beneficial effects started to show up from 2018, resulting in improved asset quality – the gross non-performing assets ratio fell from a peak of 11.5 per cent in March 2018 to 3.9 per cent by March 2023. By 2022, all troubled banks had exited the PCA.

In recent years, several regulatory and supervisory initiatives have strengthened the banking sector. An Insolvency and Bankruptcy code (IBC) and the establishment of a National Asset Reconstruction Company Limited (NARCL) have created the institutional environment for addressing stress in banks' balance sheets on an enduring basis. Off-site surveillance systems have been made sharper and more comprehensive by harnessing SupTech – a web-based end-to-end workflow application called DAKSH and an automatic data reporting platform called the Centralised Information and Management System (CIMS). Big data techniques are being leveraged to supplement supervisory initiatives while Cyber Range — a virtual controlled environment and tool — helps in cyber security drills. Mergers have brought in efficiency gains while a regulatory sandbox propels innovation. Extension of depositor protection cover, upfront payment of deposit insurance and the integration of various ombudsman schemes under one umbrella has made the dispute redressal mechanism simpler and more responsive, all boosting public confidence in the banking system.

This unencumbering of banks' balance sheets stood them in good stead through the ravages of the pandemic, and more recently, a virtuous credit upswing has taken root. Singed by the earlier experiences, we remain on high alert, however, and continuously monitor sectoral and institution-specific credit expansion and underwriting standards for any sign of excessive risk-taking.

From 2013, India had started the process of aligning with Basel III norms. Capital requirements were set one per cent higher than the Basel III minimum, including for common equity tier 1 (CET1). In 2015, the capital conservation buffer (CCB) was introduced; the last tranche of 0.625 per cent was temporarily delayed during the pandemic but it was reinstated in October 2021. Guidelines for the counter-cyclical capital buffer have been issued to banks in 2015, but it has not been triggered yet as the credit gap remains negative. The requirement of 100 per cent liquidity coverage ratio (LCR) was implemented in 2019 and banks have consistently maintained it at above the minimum requirement, which is also the Basel III norm. Since 2021, the net stable funding ratio has also been implemented. The provision coverage ratio (PCR) has been steadily improving and as a result, the net non-performing assets ratio has declined to 1 per cent by March 2023.

The confluence of balance sheet repair and the rebuilding of capital and liquidity buffers is reflected in a strong improvement in profitability from negative levels during 2018 and 2019 in terms of both return on assets and return on equity. With the turning of the monetary policy cycle into tightening mode to fight inflation since May 2022, banks' net interest margins (NIMs) have expanded due to fuller transmission to lending rates than to Current Account Savings Account (CASA) deposit rates, a phenomenon that has been observed in many advanced economy (AE) banks during the period of synchronized monetary policy actions. The widening of the NIMs has also been facilitated by the suffusion of liquidity from pandemic-related measures which obviated the need for banks to garner deposits by offering attractive rates.

As I mentioned earlier, bank credit is monitored as a lead indicator of overheating. Our assessment, based on a menu of approaches, indicates that current rates of credit expansion are not pointing to systemic stress building up – warning lights flash in the Indian context at growth rates of 16-18 per cent. Illustratively, the credit gap – the difference between the credit to GDP ratio and its trend – is currently negative. Furthermore, NIMs in the banking system

are averaging around 3.8 per cent, which is ruling below the estimated threshold of 5 per cent beyond which it may have implications for financial stability due to loosening of leverage constraints and adverse selection. Nonetheless, eternal vigilance is the price of financial stability.

The current episode of bank credit expansion is led by retail loans. Conventional wisdom suggests that these types of loans being diffused across a wide borrower base mitigate the accumulation of systemic risk – all borrowers may not default together. We are, however, watchful as herding by banks in the retail loan space might lead to potential cascades across the system if defaults do occur.

Macro stress tests for credit risk reveal that all banks in India would be able to comply with the minimum capital requirements even under severe stress scenarios. The system-level capital ratio under the baseline, medium and severe stress scenarios is projected at 16.1 per cent, 14.7 per cent and 13.3 per cent, respectively, by March 2024, well above the regulatory minimum of 9 per cent. Liquidity risk analysis conducted to capture the impact of any possible run-on deposits shows that in an extreme scenario of sudden and unexpected withdrawals of around 15 per cent of un-insured deposits along with the utilisation of 75 per cent of unutilised portion of committed credit lines, would reduce liquid assets at the system level from 21.1 per cent of total assets to 11.4 per cent, but it would not turn negative. Furthermore, stress tests on banks' credit concentration – considering top individual borrowers according to their standard exposures – show that even in the extreme scenario of the top three individual borrowers failing to repay, no bank would face a drop in the capital ratio below the regulatory requirement of 9 per cent, although two banks would see a decline in the capital ratio below the regulatory minimum inclusive of the CCB requirement (11.5 per cent).

The recent failure of few banks in some AEs jurisdictions showed how unprepared they were to manage the transition to rapid increases in interest rates by central banks, which exposed fault lines in their balance sheets. As interest rates rose, unrealised valuation losses spiked in their held-to-maturity (HTM) portfolios, which are not marked-to-market. The aggregate valuation losses in the U.S. banking system grew from US$ 8 billion at the end of 2021 to more than US$ 620 billion at the end of 2022. Sizable portfolios of uninsured deposits exacerbated the impact of unrealised valuation losses, leading on bank runs. Inadequate capital positions worsened their risk profiles (in the chart, the distance between blue and red dots shows the erosion of common equity tier 1 capital).

In the Indian context, if a shock in the form of a 250 basis points parallel upward shift in the yield curve is applied, the mark-to-market impact on the HTM portfolio of banks (excluding unrealised losses) would reduce the system level capital ratio from 17.1 per cent in March 2023 to 13.7 per cent, which is still above the regulatory requirement.

Digital Transformation

The financial sector in India is on the cusp of a transformative change leveraged on technology. The trinity of JAM – *Jan Dhan* (basic no-frills accounts); *Aadhaar* (universal unique identification); and Mobile connections – is bringing the hitherto excluded into the ambit of formal finance and is enabling the targeting of direct benefit transfers from the government to the beneficiaries. Currently, there are a record 500 million *Jan Dhan* beneficiaries, out of which more than half are women. Mobile internet subscription has increased sharply, opening up avenues for innovative e-business models to augment access to financial services in the hinterland through efficient disbursal of e-government services. It is also boosting entrepreneurship by stimulating tech start-

ups. India's Unified Payment 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. This payment revolution is attracting wide international interest. In August 2023, the UPI crossed the milestone of recording more than 10 billion transactions a month. In addition, both large value and small value payment systems[3] in India operate on a 24 by 7 by 365 basis.

Non-Banking Financial Companies – Connecting the Last Mile

Another important segment of India's financial system, the non-banking financial companies (NBFCs) have emerged as important intermediaries in India's financial landscape because they connect the last mile and also provide an alternative to banks. Unlike in other jurisdictions, NBFCs are regulated by the RBI in a scale-based framework with bank-like regulatory interventions. Their widening presence is reflected in a rising credit to GDP ratio - from 8.6 per cent to 12.3 per cent between 2012-13 and 2021-22. The sector has gone through periods of liquidity stress such as evaporation of market confidence in 2018-19 and again during the pandemic, but it has emerged stronger and sounder. Credit growth is in double digits and is supported by strong capital buffers and healthy balance sheets.

NBFCs rely heavily on borrowings to fund their activities, with banks constituting around 41 per cent of their borrowings at end-March 2023. Importantly, around ninety per cent of bank lending is to NBFCs that are A-rated and above. Therefore, contagion risk is limited. System level stress tests for assessing the resilience of the NBFC sector to credit risk shocks under a baseline and two stress scenarios – medium and high risk – show that under the medium risk shock of a one standard deviation (SD) increase in the slippage ratio, the GNPA ratio increases to 5.5 per cent. The resulting income loss and additional provisional requirements reduce the CRAR by 60 basis points relative to the baseline. Under the high risk shock of 2 SDs, the capital adequacy ratio of the sector declines by 90 bps relative to the baseline to 23.5 per cent.

Financial Markets

Just as NBFCs complement banks as a source of finance, financial markets are another important source of resource mobilisation. Led by banking and financial sector stocks, India's equity markets are outperforming the MSCI Emerging Market index. India's share in the MSCI has increased from 6.5 per cent in 2012 to 14.9 per cent by August 2023, reflecting the brightening economic outlook, and raising expectations of attracting higher passive investments. India's 12-months forward price to earnings (PE) ratio is the highest in the world, reflecting the premium on India's growth story. Equity market volatility (VIX) in India has remained largely stable and lower in comparison to peers. India is the largest recipient of Foreign Portfolio investments (FPI) inflows among the comparable EMEs during April-July 2023.

In the bond markets, the yield curve is flattening but has not inverted as in other countries, reflecting anchored expectations on India's growth prospects as well as a certain degree of insulation from global spillovers. The Indian rupee is among the most stable currencies in the world - during 2023 (up to September 11), the 1-month implied volatility of the INR decreased to 4.08 per cent from 5.22 per cent during the same period in 2022. INR volatility, measured by the coefficient of variation, has remained the lowest among major AEs and EMEs. Exchange rate stability is regarded as an important element of financial stability.

[3] National Electronic Fund Transfer and Real Time Gross Settlement.

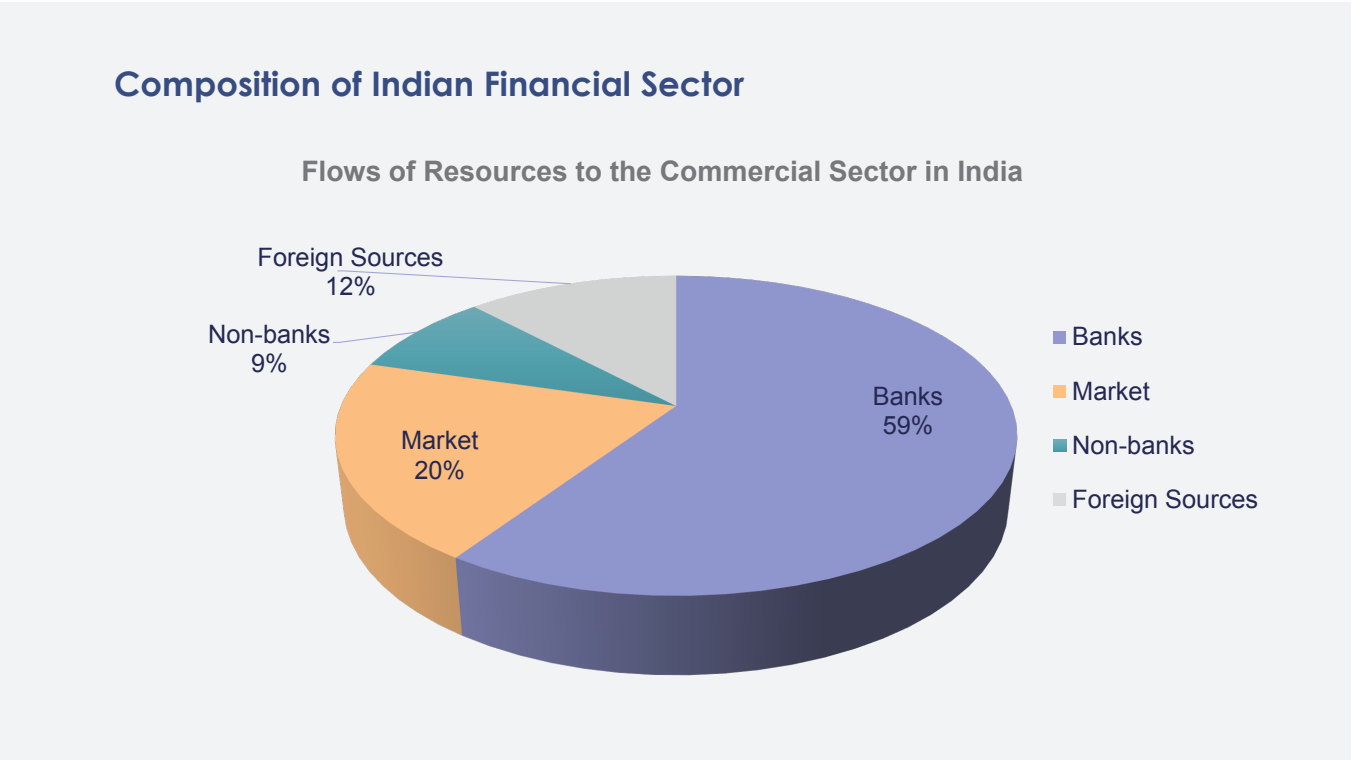
Conclusion

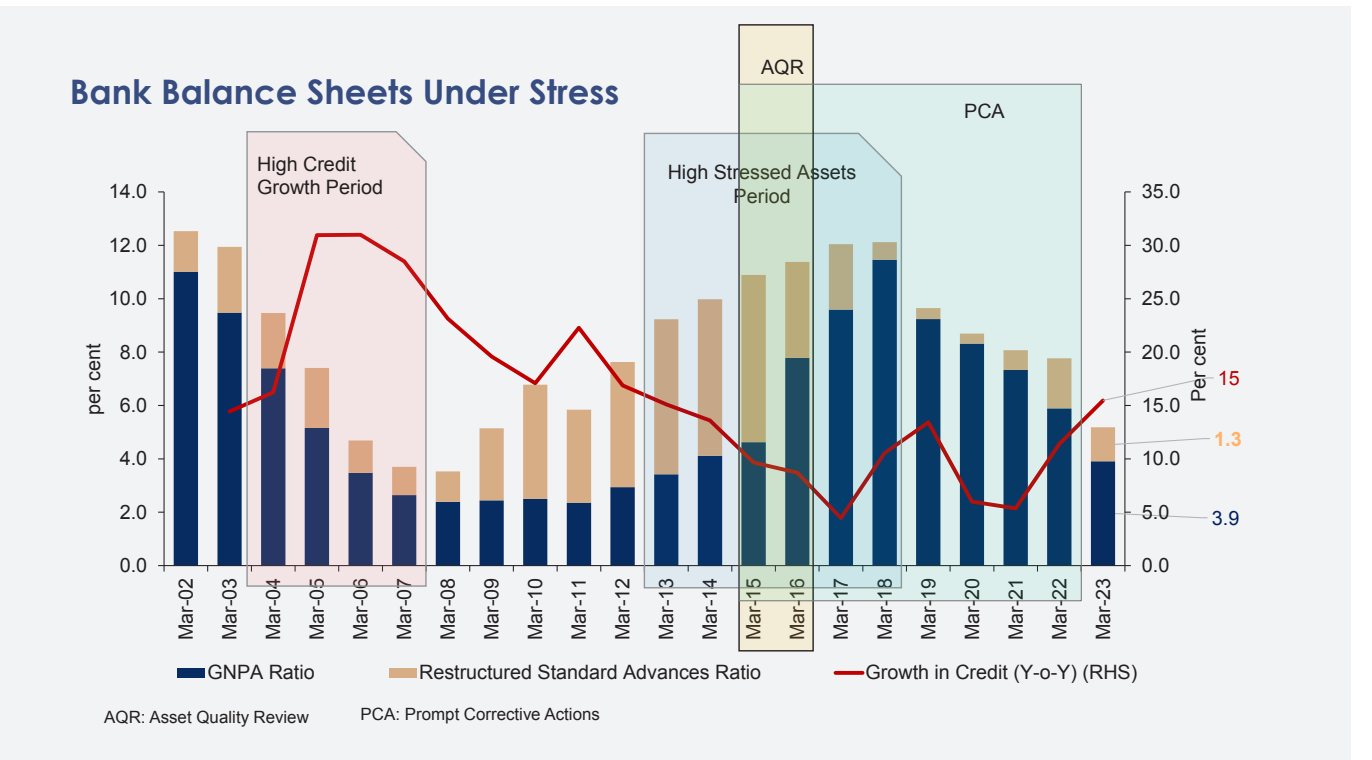
In conclusion, the approach to the financial sector in India is reflecting a new paradigm in which macroeconomic and financial stability are seen as strongly complementary and providing the foundation for medium-term growth prospects. Prudence is taking precedence over exuberance, and this is reflected in the steady build-up of all types of buffers. In an overarching sense, this approach is reflected in the accumulation of foreign exchange reserves which, as our experience has shown, has become our national safety net in the absence of a truly global financial shield. Besides providing the wherewithal to protect our financial markets and institutions from being overwhelmed by global spillovers, the reserves have helped to build bulwarks of external strength, as reflected in modest external debt servicing and debt to GDP ratios. We believe that this is strengthening our capability to manage new challenges such as climate change and cyber threats while maintaining public confidence and ensuring the financing requirements of India's development strategy.

Thank you.

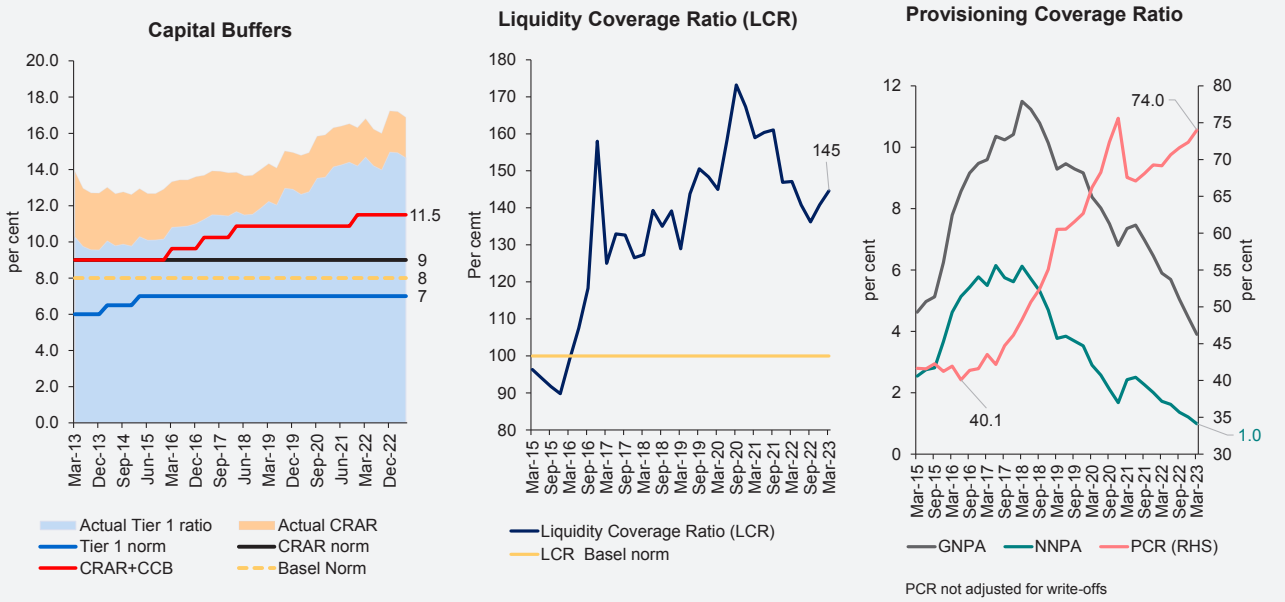
Annex 1

India's Financial Sector - From Exuberance to Resilience

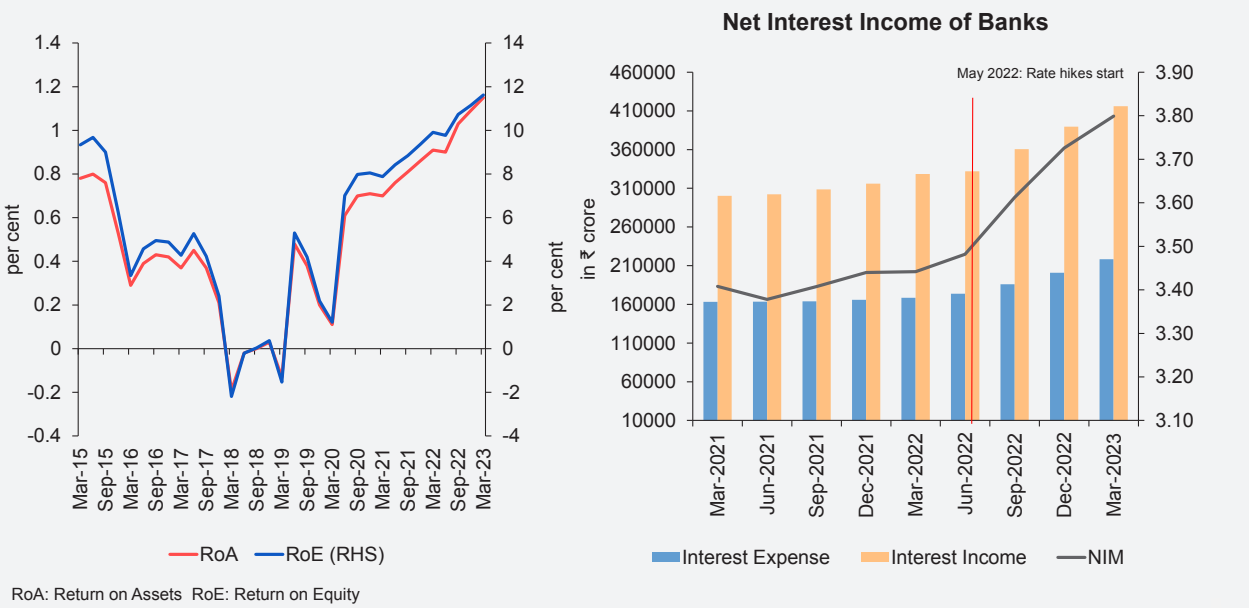




Rebuilding Buffers



Return to Profitability



Transmission to Banks' Deposit and Lending Rates

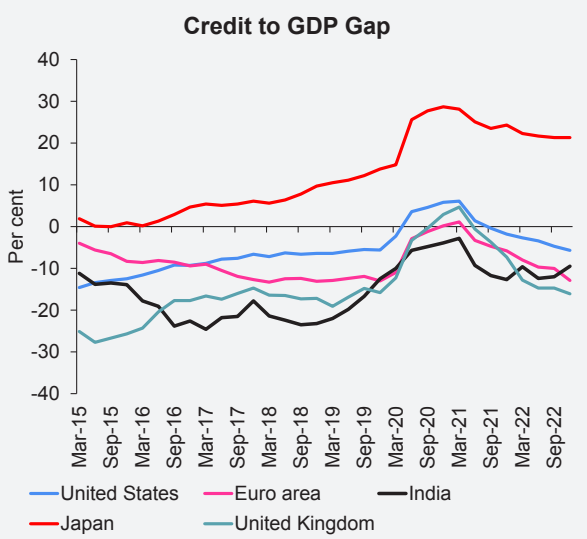
Period	Repo Rate (bps)	Term Deposit Rates (bps)			Lending Rates (bps)			
		WADTDR - Fresh Deposits		WADTDR- Outstanding Deposits	EBLR	1-Yr. MCLR (Median)	WALR - Fresh Rupee Loans	WALR- Outstanding Rupee Loans
		Retail Deposits	Retail and Bulk Deposits	Retail and Bulk Deposits				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Easing Phase Feb 2019 to Mar 2022	-250	-209	-259	-188	-250	-155	-232	-150
Tightening Period May 2022 to July 2023	**+250**	**173**	**232**	**152 (151)**	**250**	**155@**	**193**	**110 (112)**
Memo								
April to July 2023	0	-1	-13	39 (38)	-	0	12	10 (12)
April- 2023	0	0	-12	12	-	0	-24	4
May- 2023	0	-3	-4	9	-	0	19	2
June- 2023	0	3	2	10	-	0	-7	4
July- 2023	0	-1	1	8 (7)	-	0	24	0 (2)

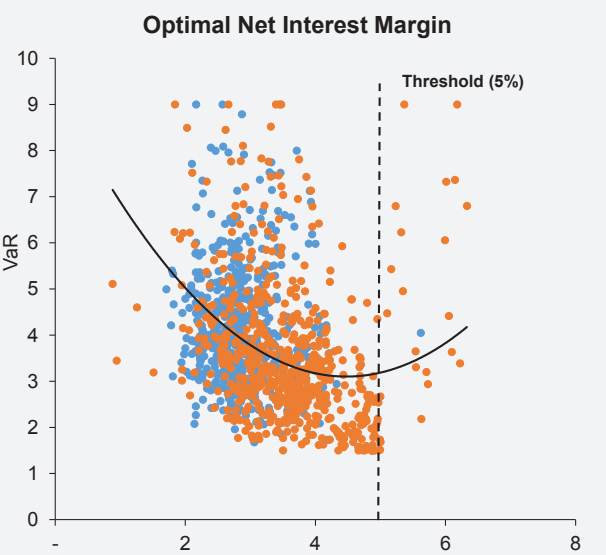
WALR: Weighted Average Lending Rate. WADTDR: Weighted Average Domestic Term Deposit Rate; MCLR: Marginal Cost of Funds-based Lending Rate; EBLR: External Benchmark-based Lending Rate. Data on EBLR pertain to 32 domestic banks. @: Data are for May 2022 to August 2023.

Notes: (i) Data in parentheses exclude the impact of the merger of a non-bank with a bank. (ii) The share of current and savings deposits in total deposits was 41.4 per cent (current account deposits: 9.6 per cent and savings deposit: 31.8 per cent) as at end-June 2023. The transmission to savings deposit has been very muted (5 bps in the current tightening cycle), which dampens the transmission to banks' overall deposit cost.

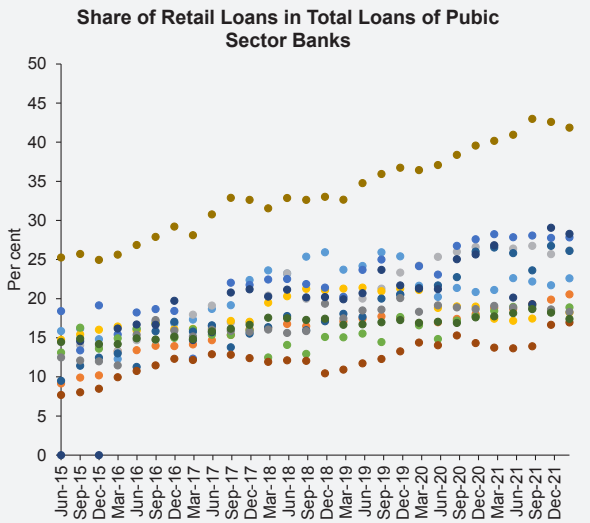
Source: RBI.

Checking for Overheating

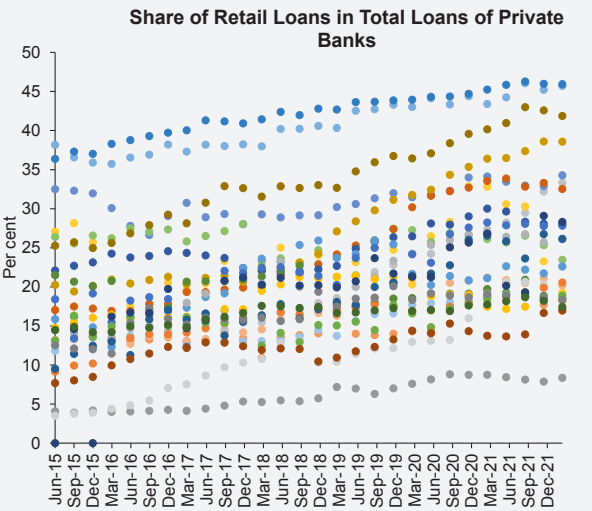




Share of Retail Loans in Total loans

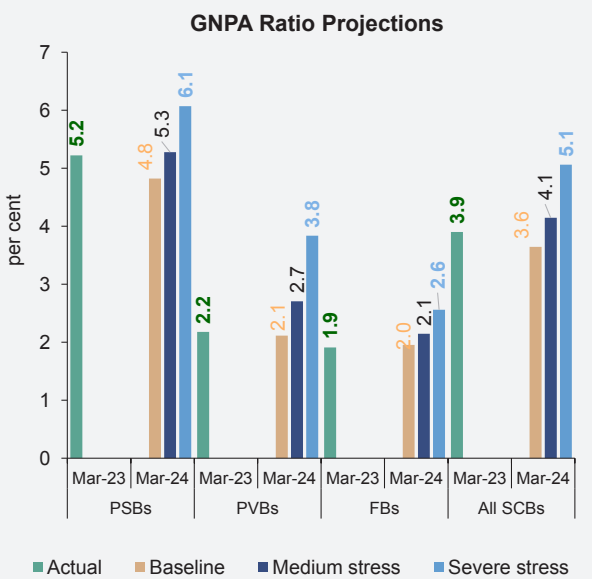


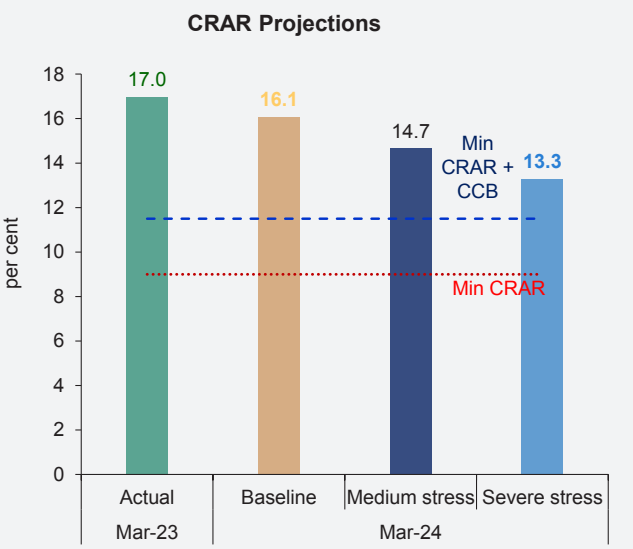
Note: Each dot represents a PSB's share of retail loans in total loans at the end of the said quarter.



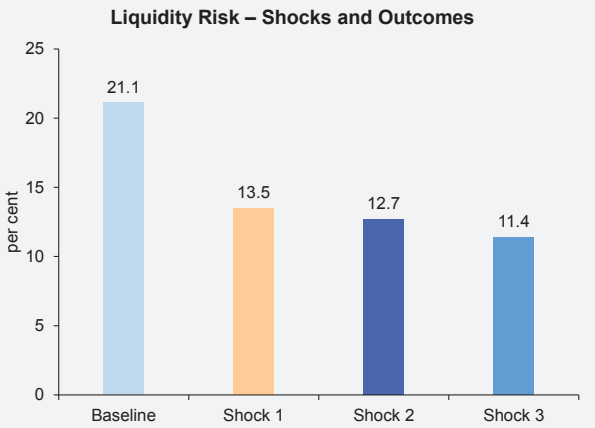
Note: Each dot represents a PVB's share of retail loans in total loans at the end of the said quarter.

Macro Stress Tests (1/2)



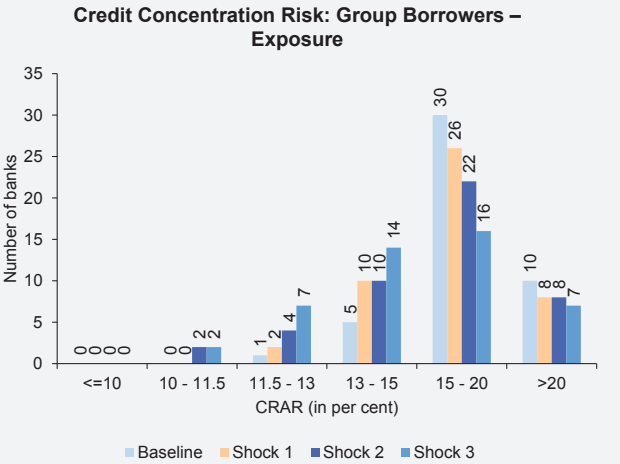


Macro Stress Tests (2/2)



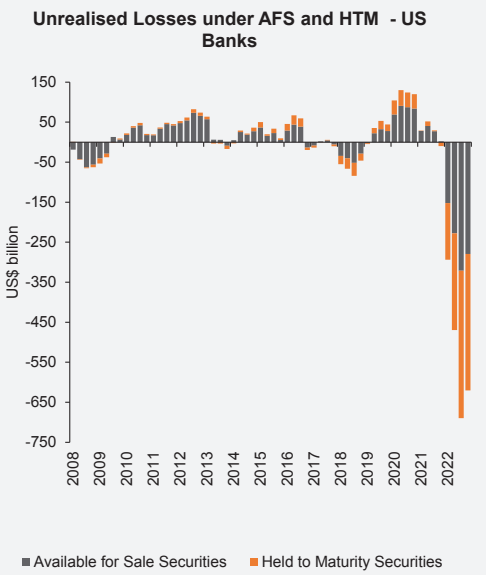
Note: Liquidity shocks include a demand for 75 per cent of the committed credit lines (comprising unutilised portions of sanctioned working capital limits as well as credit commitments) and withdrawal of a portion of un-insured deposits as given below:

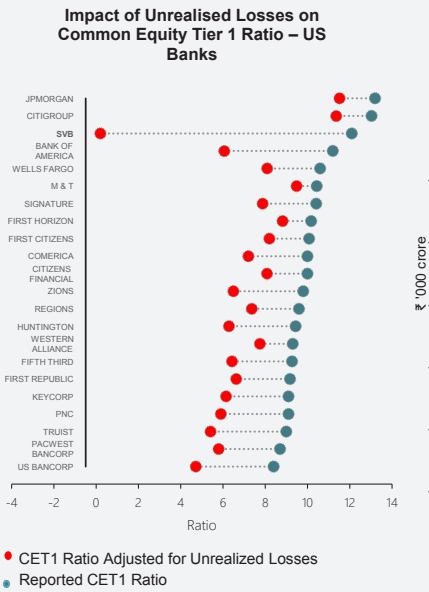
Shock	Shock 1	Shock 2	Shock 3
Per cent withdrawal of un-insured deposits	10	12	15

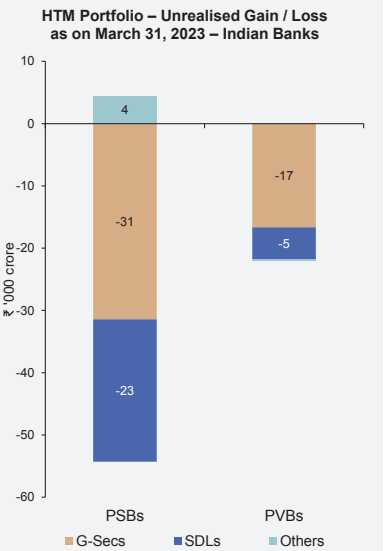


Note: For a system of select 46 SCBs.
Shock 1: The top 1 group borrower fails to meet payment commitments.
Shock 2: The top 2 group borrowers fail to meet payment commitments.
Shock 3: The top 3 group borrowers fail to meet payment commitments.

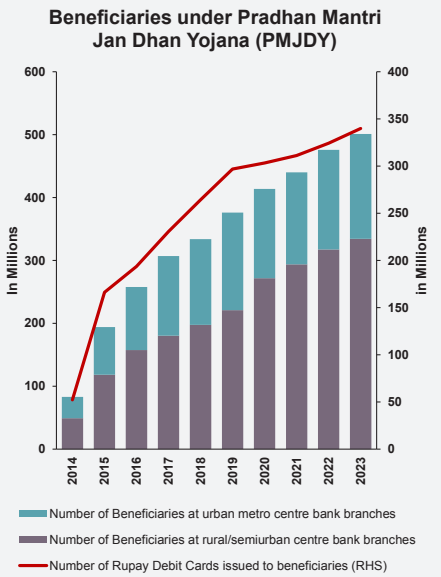
Unrealised Losses

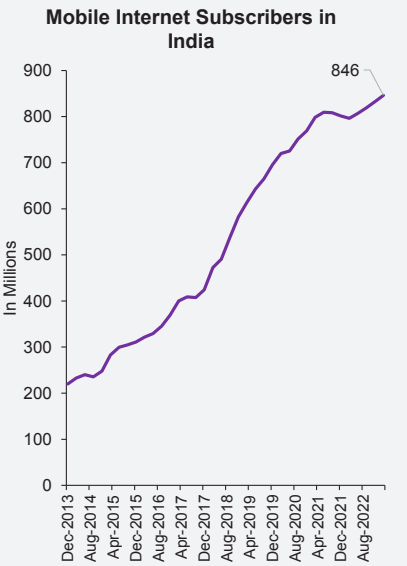


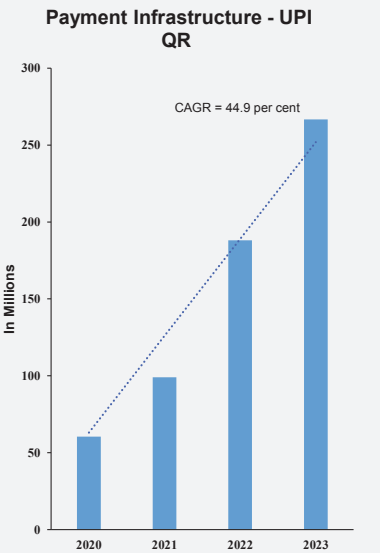




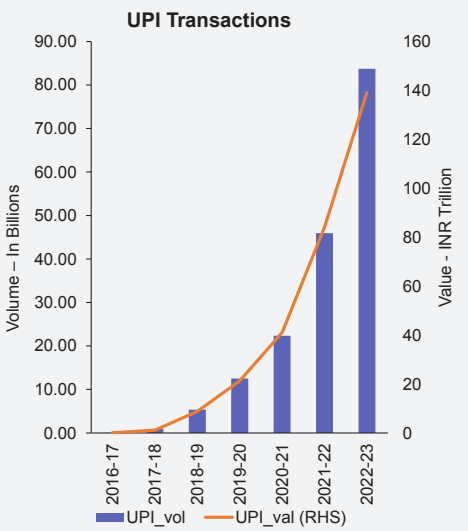
Enablers of Digital Revolution – JAM Trinity

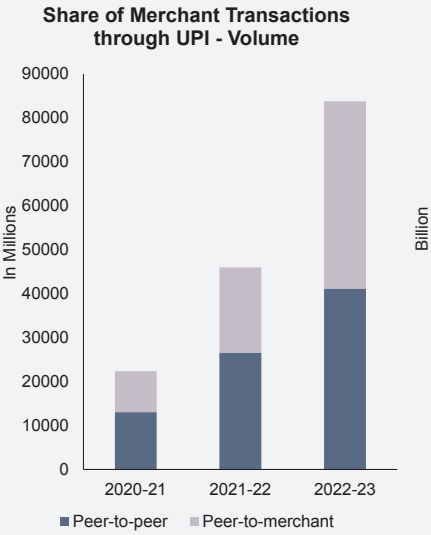


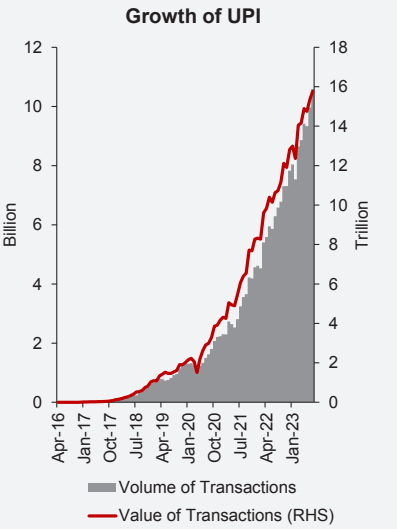




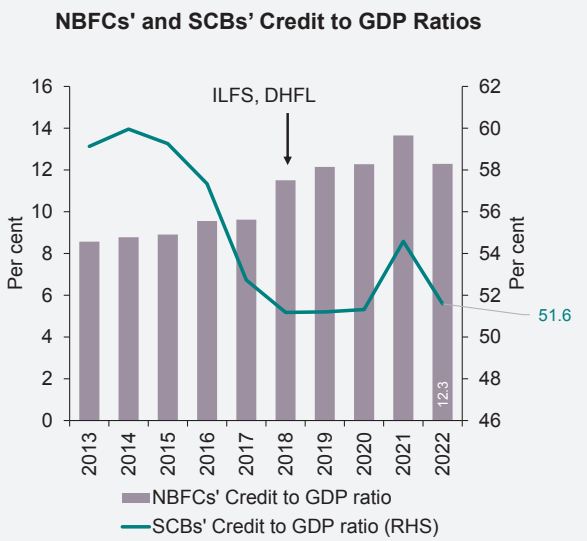
Unified Payments Interface (UPI)

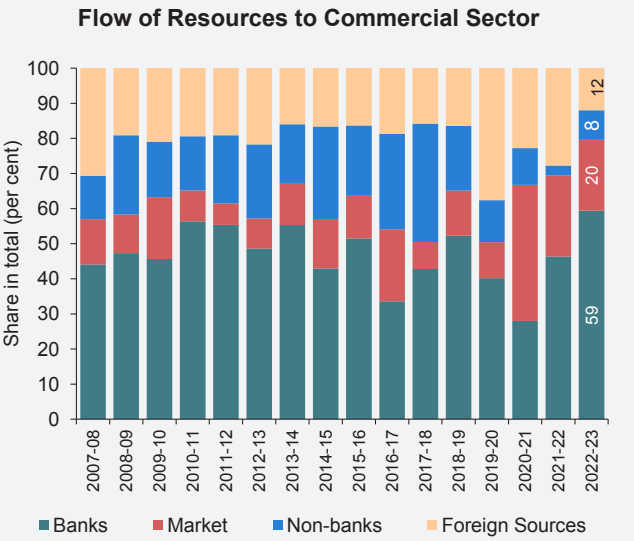






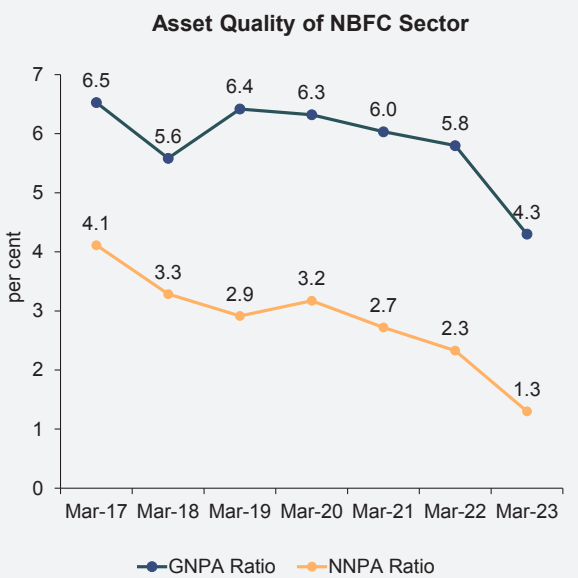
The NBFC Sector (1/2)

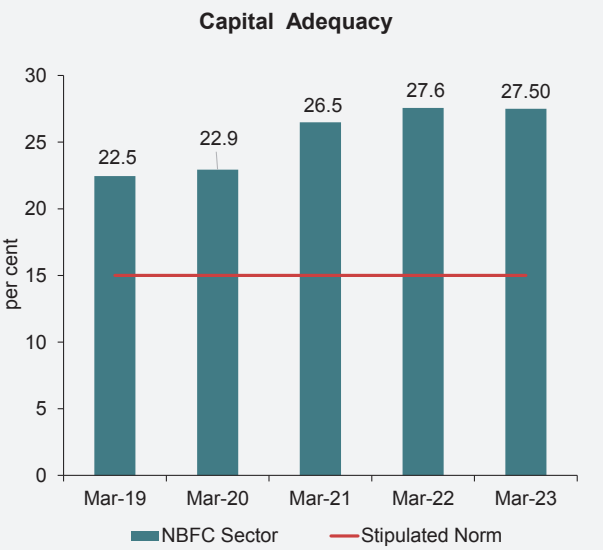




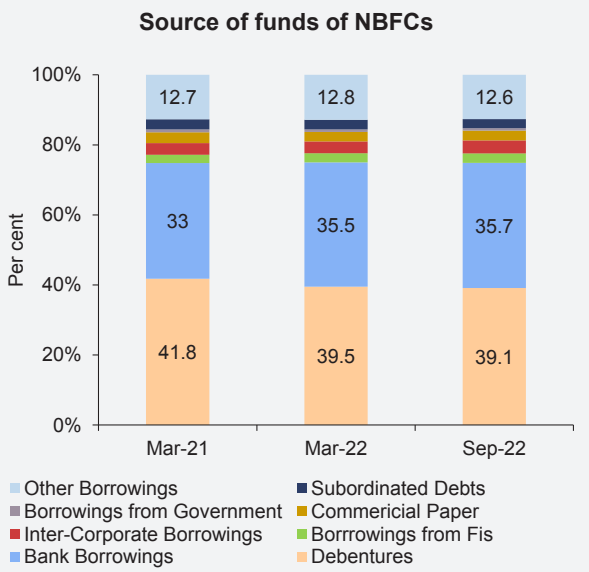
ILFS: Infrastructure Leasing & Financial Services DFHL: Dewan Housing Finance Corporation Ltd

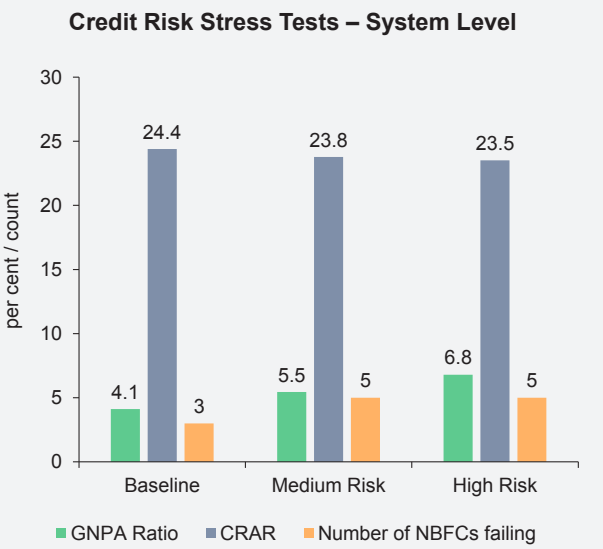
Asset Quality and Capital Adequacy of the NBFC Sector (2/2)



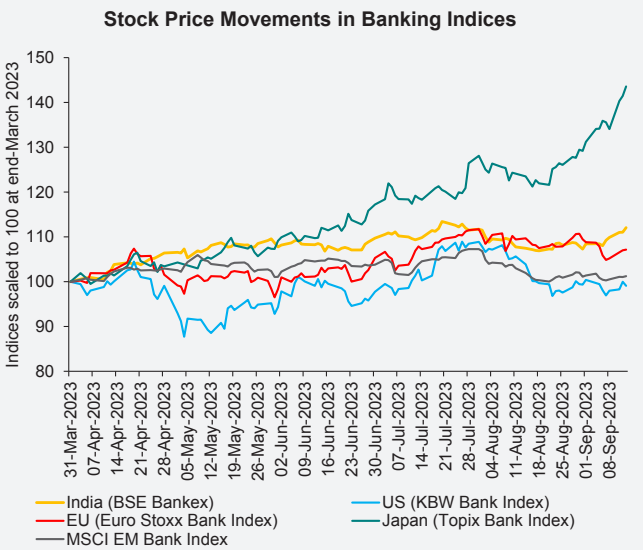


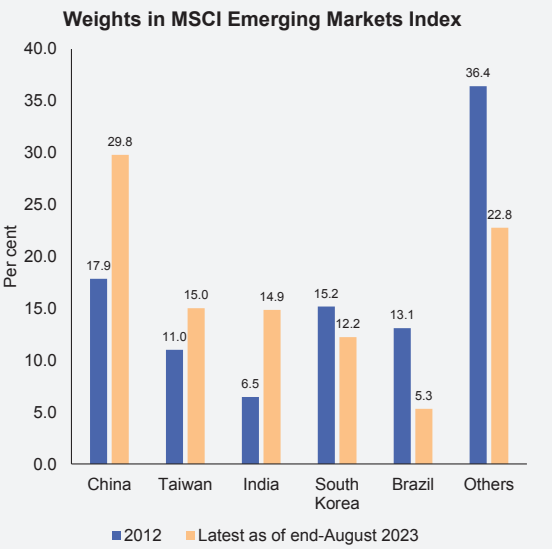
Stress Testing NBFCs



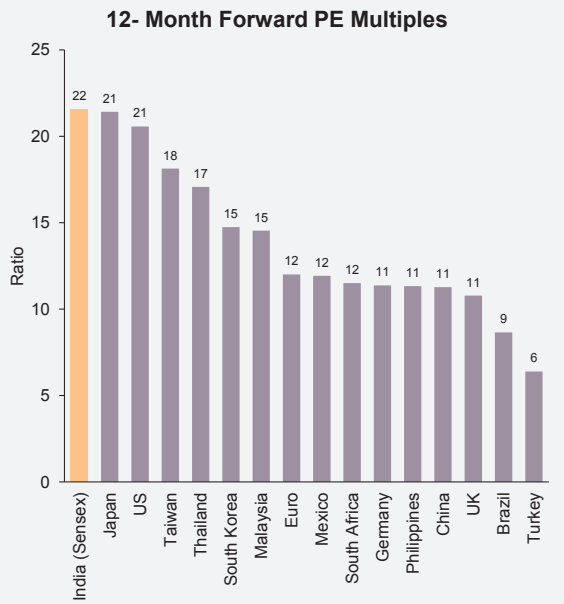


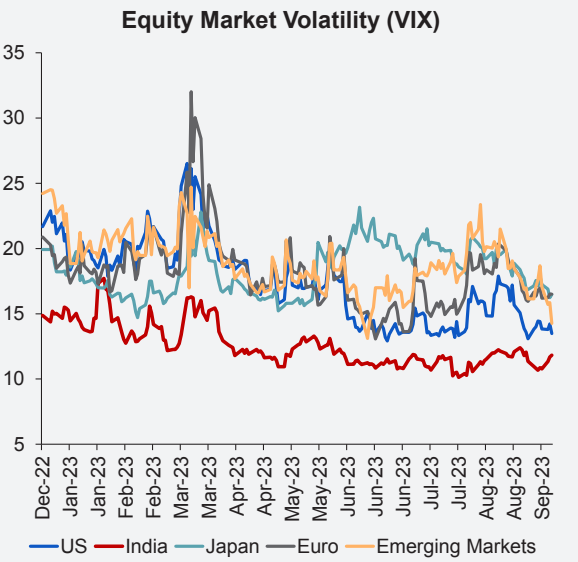
Indian Equity Markets and MSCI Emerging Markets Index



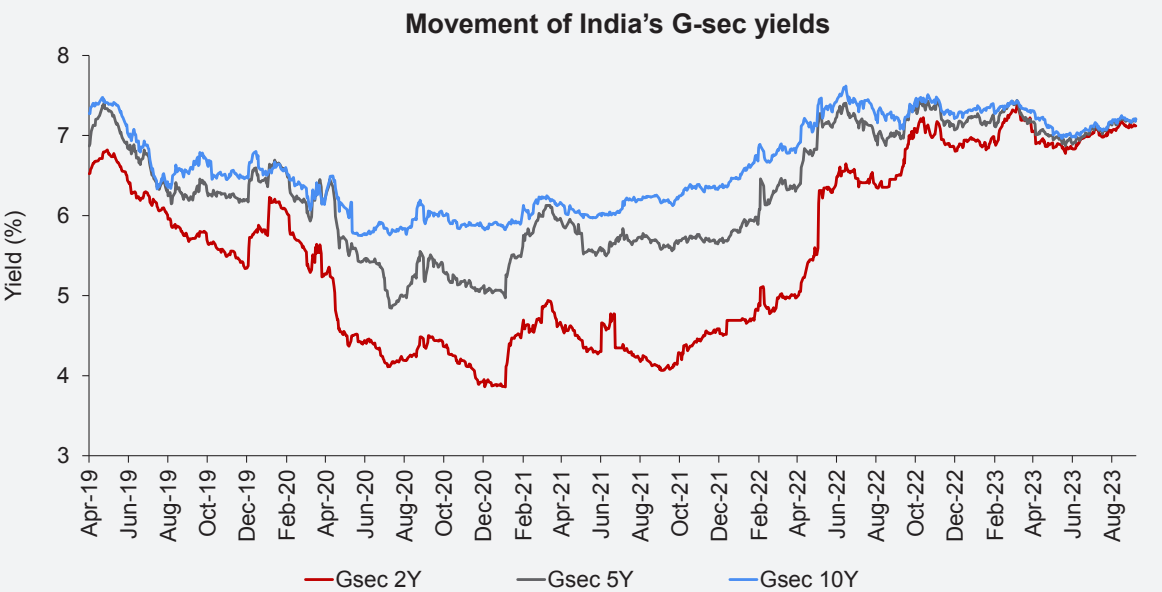


Indian Equity Markets - Financial Conditions

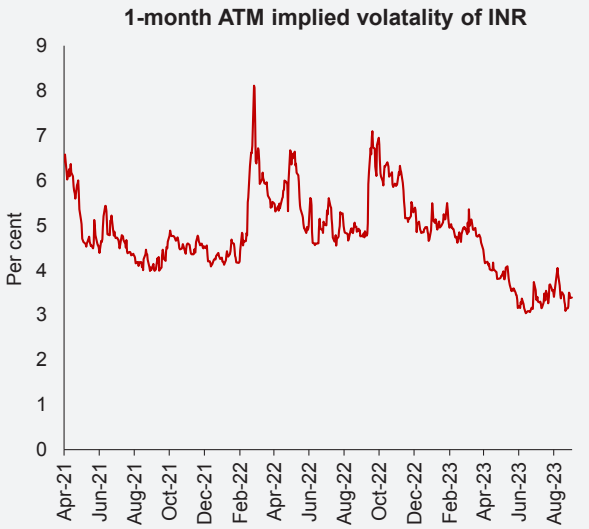




Indian Bond Market



Indian Foreign Exchange Market

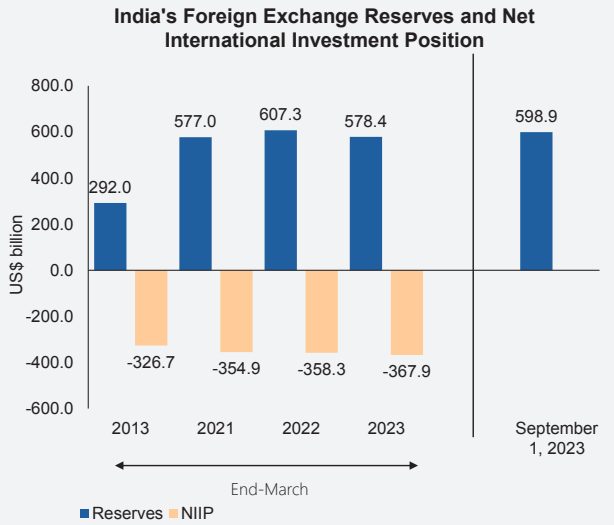


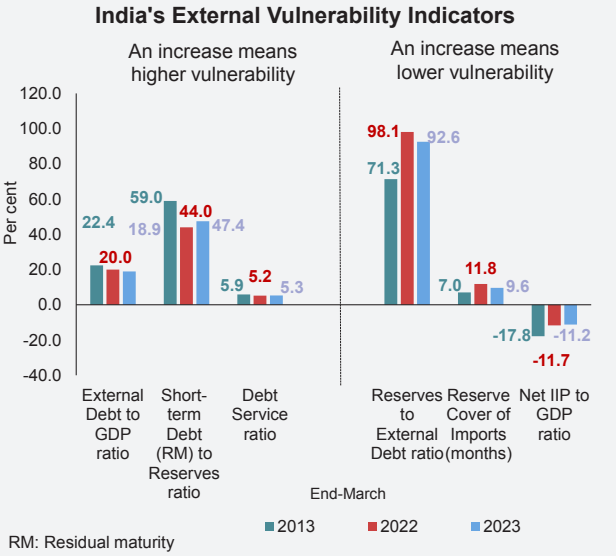
During 2023 (up to September 11), the INR volatility remained low.

Coefficient of Variation

Indian Rupee	0.7	0.3	0.3	0.2	0.5	0.3	0.3	0.3
Euro	1.1	1.0	1.0	0.5	1.1	0.9	1.1	0.6
UK pound	1.3	0.8	1.4	0.4	0.8	1.0	1.0	0.4
Japanese yen	1.2	1.7	1.6	0.9	1.6	1.4	1.5	1.0
Australian dollar	1.6	1.5	0.8	0.8	1.3	1.3	1.0	1.0
Canadian dollar	0.7	0.8	0.7	0.6	0.6	0.7	0.4	0.7
Korean won	1.3	2.3	0.7	0.9	0.7	1.2	1.1	1.1
New Zealand dollar	1.3	1.4	0.8	1.0	1.7	1.0	1.1	1.2
Singapore dollar	0.8	0.9	0.7	0.3	0.8	0.4	0.8	0.5
Swedish krona	1.1	0.8	1.3	0.7	2.3	0.8	2.4	1.3
Swiss franc	0.6	0.9	1.1	0.8	0.8	0.7	1.6	0.4
Hong Kong dollar	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2
Argentine peso	1.5	1.6	1.8	1.9	2.1	2.1	2.0	10.5
Brazilian real	2.3	1.1	1.1	1.1	0.8	1.4	1.2	1.1
Chinese yuan	0.8	1.0	0.5	0.3	1.0	0.7	0.5	0.6
Chilean peso	2.3	1.8	1.3	1.0	1.0	0.7	1.4	1.0
Indonesian rupiah	1.8	0.7	0.9	0.5	0.8	0.4	0.4	0.4
Malaysian ringgit	1.3	1.8	0.8	0.5	1.4	0.7	1.3	0.9
Mexican peso	1.3	1.3	1.8	0.5	0.9	0.9	0.9	0.9
Philippine peso	0.9	0.9	0.7	1.1	0.6	0.6	0.8	0.9
Russian ruble	2.4	2.5	1.2	1.4	1.8	2.4	0.9	1.9
South African rand	1.0	2.2	1.2	0.9	2.7	2.2	2.6	1.3
Thailand baht	1.7	2.0	0.9	0.5	1.1	0.9	1.1	0.8
Turkish lira	0.2	0.1	0.5	0.5	1.7	7.0	1.6	1.1
Vietnamese dong	0.2	0.5	0.4	0.1	0.1	0.1	0.1	0.6
Month	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23

India's Foreign Exchange Reserves - National Safety Net





RM: Residual maturity

- India's foreign exchange reserves were at US$ 598.9 billion as on September 1, 2023.
- Further, the IIP to GDP ratio moderated to (-) 11.2 per cent in end-March 2023.
- India's external debt to GDP ratio is lower than many major EMEs and the reserve covers of external debt and imports are higher than most major EMEs.

*A Customer Centric Approach- Navigating the Path to Excellence in Customer Service**

Swaminathan J

Chairmen of Customer Service Committees of banks, Whole Time Directors in charge of Customer Service Verticals, Principal Nodal Officers and my colleagues from the Reserve Bank of India. A very good morning to you all.

We have gathered here today to discuss a crucial aspect of our banking and financial services sector: customer service standards and grievance redress mechanism in RBI regulated entities.

As senior functionaries overseeing this critical domain, you bear a significant responsibility in shaping the quality of customer service rendered by your respective financial institutions. The focus must be on nurturing a customer-centric approach, for trust is the bedrock of the financial services business, and customer service, along with prompt grievance redress, is the bridge to building that trust. Over the course of my address today, I would like to highlight five important areas for your consideration which are:

i. Need for a customer centric approach
ii. Addressing the root cause of complaints
iii. Importance of resolution at first point of contact
iv. Responsible handling of complaints
v. Combatting cybercrime

Before closing, I would also like to highlight the importance of cultivating a culture of continuous improvement as ensuring quality of customer service is a journey and not a destination.

The Need for a Customer-Centric Approach

Let me begin by reaffirming a simple truth: financial services institutions exist because of their customers. They entrust regulated entities with their hard-earned money, their dreams, and their aspirations. As you all would know, the predominant source of your liabilities is customer deposits whose interest that we all seek to protect. It is, therefore, imperative to place them at the heart of operations of any bank. In fact, a customer-centric approach is not an optional thing; it is a necessity.

In the world of finance, trust is the currency of the realm. Every transaction, every investment, and every interaction is underpinned by the faith customers place in financial institutions. When you prioritize customer needs and concerns, you strengthen this trust, which in turn promotes your business and financial resilience, side by side.

Being commercial entities, there is nothing wrong in being target driven but Regulated entities should ensure that employees understand that their primary responsibility is to serve customers' financial needs. There should be clear and transparent incentive structures that reward employees for delivering quality financial advice and services rather than just making sales. Staff should ensure that products are recommended based on the customer's financial situation, goals, and risk tolerance. Towards this, every financial institution should have a policy for customer appropriateness and product suitability framework. By adhering to such a policy framework in letter and spirit, REs can greatly reduce the mis-selling complaints which form a substantial portion of the complaints that we get to see.

Addressing the Root Cause of Customer Complaints

In order to truly embrace customer centricity, we must delve into the root causes of customer complaints. Complaints are not mere inconveniences but vital feedback. As Bill Gates said, *"Your most unhappy customers are your greatest source of*

* Speech by Shri Swaminathan J, Deputy Governor, Reserve Bank of India - September 21, 2023 - at the Conference on Customer Service held in Mumbai.

learning."[1] They point us toward areas needing improvement. By addressing these root causes, we can prevent complaints from arising in the first place.

I would therefore urge you to have a proactive approach in identifying root causes. Regular analysis of customer feedback, complaints, and suggestions can serve as an invaluable compass in navigating toward a service-oriented future. Root cause analysis will not only allow rectification of individual grievances but also enhance systemic processes to prevent reoccurrence. I would urge the Customer Service Committees to allocate adequate time and focus on discussing the outcome of such root cause analysis to ensure that the institutions put in place mechanisms that can prevent recurrence of such complaints.

It has also come to our notice that some of the Banks have adopted an innovative approach to classify certain complaints as queries which results in understating the problem. This results in a false sense of complacency, and the truth will be out in any case. We seek to disincentivise such practices and as a Regulator, we will not hesitate to act in case if it turns out to be an entity wide behaviour. I, therefore, request the Customer Service Committees to keep a close watch and guard against such practices.

Resolution at the Point of First Contact

Every customer grievance is also an opportunity to prove our commitment to service excellence. Therefore, it is essential that customer complaints are addressed promptly and fairly through a robust and efficient complaint resolution process.

Regulated entities should empower their customer facing staff to resolve issues at the point of first contact. The objective should be to ensure that complaints rarely need to be escalated to the Internal Ombudsman or the Reserve Bank Ombudsman.

To achieve this, regulated entities must equip their frontline staff with not only the authority but also the tools and training needed to address customer concerns effectively.

Sam Walton[2], the founder of Walmart, used to say *'The way management treats associates is exactly how the associates will treat the customers.'* Well-informed and empowered frontline staff can transform customer grievances into opportunities for building stronger relationships. After all, staff are your ambassadors - they are the face and voice that customers encounter. A less than satisfying work environment results in employee dissatisfaction which in turn may impact their ability to serve their customers with a smile. It may not be out of place to mention here, that the tone at the top is very important – if you push your employees to do business at any cost, it is likely that they may relegate the customers' interests to the background.

Employees, therefore, must be fully equipped to deal with customer service-related issues. They should be provided adequate training and tools to handle customers well. Further, the commitment to training and development should extend beyond the initial onboarding process. Continuous learning and skill enhancement programs must be in place to adapt to changing customer expectations and the evolving landscape of financial services.

Another related aspect I would like to flag is complaints emanating from staff misbehaviour. While it may not be possible to fulfil the demands of your clients to their full satisfaction, no one has a right to behave badly with the customer. Such complaints must be dealt with firmly and deterrent action must be initiated quickly to ensure that employees don't indulge in such misdemeanours.

[1] Gates, Bill. Business @ the Speed of Thought. Grand Central Publishing, 1999

[2] Walton, Sam. Sam Walton: Made in America. Bantam, Reissue edition 2012

Responsible Handling of Complaints

As you are aware, the Reserve Bank launched the Internal Ombudsman (IO) Scheme in banks in India in May 2015 which was subsequently extended to other regulated entities such as non-banking financial companies, non-bank payment system participants and more recently to credit information companies. The intent behind the IO Scheme is to enhance the level of customer service by providing an independent and impartial apex level authority within the regulated entity itself to address customer complaints that are not resolved satisfactorily.

Accordingly, complaints should only be rejected after careful examination by the Internal Ombudsman. To do this effectively, regulated entities must ensure that the Internal Ombudsman is adequately resourced. The role of the IO is pivotal in ensuring fair and just resolution. Therefore, their resources should match the scale and complexity of the task at hand. Our feedback indicates that the IO framework in a few institutions is way below the requirement and adequate importance is not being accorded to this process by the management. This is another area where I would like the Customer Service Committees of the Board to pay enhanced attention.

By investing in the Internal Ombudsman's capabilities, regulated entities demonstrate their commitment to transparent and fair grievance redress. This, in turn, reinforces the trust of customers, knowing that their concerns will be addressed impartially within the regulated entity itself.

Combating Cybercrime

In today's digital age, the battle against cybercrime is constant. Regulated entities must strengthen their systems, raise customer awareness and collaborate with other banks and law enforcement agencies. Cybersecurity is not just a technological challenge; it is *sine qua non* for safeguarding customers' trust.

Enhancing cybersecurity involves not only implementing robust technologies but also fostering a culture of vigilance amongst employees. Cybersecurity awareness campaigns, regular drills, and collaborative initiatives can fortify our defences against the ever-evolving threats in the digital realm.

Cultivating a culture of continuous improvement

Finally, it's crucial that we cultivate a culture of continuous improvement. Customer expectations evolve, and so must the services offered. We must bear in mind that the way in which Banking as a service being rendered and consumed is rapidly changing. Therefore, regulated entities should actively seek feedback from customers, encourage innovation, and be willing to adapt to changing circumstances.

Continuous improvement is not a one-time effort but an ongoing commitment. Further, the commitment to continuous improvement should extend to every aspect of your operations, from product offerings to digital services to branch experiences. By embracing change and innovation, regulated entities can stay ahead in a rapidly evolving financial landscape.

Fintech companies are reshaping the industry by leveraging technology to provide innovative and convenient financial services. These companies often have agility and flexibility that can outpace traditional institutions. Rather than viewing fintech as a threat, we should see it as an opportunity. Embracing change and innovation is not just about staying competitive; it's about staying relevant. To navigate this changing landscape, traditional institutions must be willing to adapt and evolve as well as collaborate. I am glad that most of you have adopted such a collaborative approach, but please bear in mind that the principal responsibility to your customers lies with you and not with your partners. It is therefore essential to have adequate oversight whenever a product or service is being offered through such partnership channels.

Warren Buffet says *"It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you will do things differently".* The manner in which you handle customer complaints impacts your reputation to a large extent. Therefore, I would urge you to focus on a customer centric approach in implementing robust, effective and efficient customer grievance redress mechanisms in your respective institution. In this journey, as a Regulator, we are keen to walk alongside the Regulated Entities, as we believe that together we can protect the customers' interest better, so feel free to share your feedback with our team. With this I wish you successful and meaningful deliberations at this conference.

Thank you.

ARTICLES

State of the Economy

Measuring Uncertainty: An Indian Perspective

Impact of G-Sec Yield Movements on Bank Profitability in India

Production Weighted Rainfall Index and Agriculture Production: Relationship Re-visited

Housing Finance Companies and the COVID-19 Pandemic: Does Size Matter?

COVID-19 Pandemic and the Resilience of India's R&D Expenditure

*State of the Economy**

Global growth lost pace from Q3:2023 on the back of weak manufacturing activity and tight financial conditions in advanced economies even as several emerging market economies posted growth surprises. Surging yields and soaring crude oil prices have emerged as proximate risks to global growth. In India, a broad-based gaining of momentum is discernible in high frequency indicators. Deleveraging and higher capacity utilisation have enabled capital-heavy industries to gain traction. The Indian rupee (INR) is exhibiting low volatility. Inflation has moderated from its July peak, bolstering macroeconomic fundamentals.

Introduction

Global growth appears to have lost pace from the third quarter of 2023, after having quickened in the first half of the year relative to the preceding six months. Headline indicators suggest that labour market tightness in advanced economies (AEs) is easing, with weak wage growth adjusted for inflation dampening consumer spending and confidence. In this group of countries, manufacturing activity is either stagnating or contracting and services are moderating from a robust expansion. Europe's biggest economies ended the third quarter in contraction, according to purchasing managers' indices (PMIs). Globally, the modest easing of inflation from historical highs in 2022 has not been enough to recoup real income losses. Tight financial conditions engendered by higher-for-longer stances in monetary policy settings have punctured asset price inflation, with surging bond yields forcing equity markets into correction and sending up the US dollar from strength to strength. Fears are rife that these levels of real interest rates will prolong as neutral rates appear higher, triggering off retreats from risky assets, loan delinquencies, fall in house prices, impediments to rollovers and other such financial stresses. In some AEs, bank lending is beginning to show these strains. It is also reported that global deals involving mergers and acquisitions are languishing at a 10-year low as high interest rates chill activity in equity markets. This has adverse implications for the global foreign direct investment (FDI) cycle, already in a slump.

By contrast, several emerging market economies (EMEs), especially in Asia and among the BRICS barring China, have posted positive growth surprises. Their PMIs are in expansion. These countries are standing up to formidable global headwinds that keep stampeding capital flows out of their equity and debt markets and imposing relentless downward pressure on their currencies. Nevertheless, growth profiles in this group are varied, reflecting country-specific circumstances. Ominously, however, the recent rally in crude prices is undermining the overall prospects of these economies. They also appear increasingly vulnerable to sell-offs and safe haven flights. The situation is compounded by rising food prices, a geopolitical fallout. Several EMEs – and even advanced peers - are tapping into foreign exchange reserves to help shore up their currencies or are engaging in open mouth interventions.

The US dollar's strength is now a global risk, tightening the already tight financial conditions even more. Even as energy importers reel under the impact of soaring crude oil prices that resurrect the spectre of inflation alongside external vulnerabilities, the US dollar gets ever stronger on the heft of surging treasury yields, creating a pernicious feedback loop. The more this toxic vortex persists, the greater is the pain for

* This article has been prepared by G. V. Nadhanael, Subhadhra Sankaran, Shahbaaz Khan, Kunal Priyadarshi, Rohan Bansal, Ramesh Kumar Gupta, Pankaj Kumar, Harendra Behera, Rigzen Yangdol, D. Suganthi, Satyendra Kumar, Harshita Yadav, Ettem Abhignu Yadav, Shivam, Shelja Bhatia, Priyanka Sachdeva, Sakshi Awasthy, Dilpreet Sharma, Khushi Sinha, Avnish Kumar, Pratibha Kedia, Sourajyoti Sardar, Shivangee Misra, Abhilash Arun Satape, Asish Thomas George, Vineet Kumar Srivastava, Samir Ranjan Behera, Deba Prasad Rath, R. Subramanian and Michael Debabrata Patra. Views expressed in this article are those of the authors and do not represent the views of the Reserve Bank of India.

the world. Will the global economy be able to weather crude trading at current levels, especially with elevated energy prices turbocharging the US dollar? Monetary policy authorities facing these combined pressures may remain on guard for longer – in fact, even pauses are being accompanied by higher future rates guidance. Fiscal authorities in many countries may be forced to extend fossil fuel subsidies. Eventually, these forces can take down the global economy by weakening its main engines, notably the US and India. The end game could be to the detriment of all. Indeed, there is a view that an inflection point in the global monetary policy tightening cycle has already been reached, with signs of global activity slowing. Financial market traders too are sensing that this transition is being approached – they are pricing in no further rate increases by AEs and beginning of rate cuts by EMEs.

Global trade has lagged global growth through the first half of 2023, with merchandise trade volume having contracted at its fastest annual pace since the pandemic and the tourism-fired rebound in services trade is showing some signs of softening. This downturn has been broad-based in the third quarter, with most of the world reporting falling trade volumes. Although the World Trade Organization (WTO) points to strong automobile production and sales containing the downturn, upward momentum in the third quarter and beyond may be limited as long as export orders, container shipping, air freight and raw materials demand remain weak. Global import demand remains anemic, weighed down by sluggish economic growth in leading economies, including the European Union (EU) and China. The United Nations Conference on Trade and Development (UNCTAD) forecasts global trade in goods and services to grow by barely 1 per cent through the year as whole, the slowest since the end of the World War II. The piling up of unresolved disputes at the WTO seems to bear this out as world trade fragments, geopolitical strife engulfs the earth from Ukraine to Israel and beyond, rendering the world trading order teetering on the abyss of irrelevance.[1]

In recent editions of the State of the Economy, we have been flagging climate risks. Europe announced its hottest September on record in 2023. At the UN Climate Ambition Summit on September 20, back-tracking on green policies was highlighted, even as countries brace up for COP 28 which will provide yet another opportunity to accelerate action to limit global warming. According to the International Energy Agency (IEA), meeting net zero goals will require tripling of renewable energy capacities to 11,000 giga watts by 2030, increasing annual investment in clean energy from US$ 1 trillion to US$ 4.5 trillion by the early 2030s and driving a large portion of these investments to emerging and developing countries.[2] Fossil fuel use, if prolonged, needs to be accompanied by emissions-capturing technology. The main problem is the distribution of climate finance which is skewed towards those countries that have financial resources and infrastructure ready to ensure transition to low-carbon activity. By contrast, the global south faces a daunting disparity in the availability of climate finance, rendering their climate ambitions distant and making them increasingly vulnerable to natural disasters. It is clear that no country can address the impact of climate change by itself, but frayed international cooperation has been described as the 'Achilles heel of reaching our global climate targets.'[3] Global action for climate change also has to be isolated from geopolitical tensions. The pathway to net zero has to be equitable; this will necessarily involve differential timelines.

It is the season of forecast revisions again. The OECD is among those presenting an upward revision, observing that India's 'growth surprise' has been

[1] At WTO, growing disregard for trade rules shows world is fragmenting, Reuters, October 3, 2023.

[2] IEA, September 26, 2023.

[3] IEA chief Fatih Birol

positive, with notable strength reflected in its PMIs, and fostering a steady outlook. According to it, India's robust output growth has been supported by a strong expansion of investment and, on a sectoral level, the continued strength of services. The government's infrastructure projects have supported momentum in the construction sector. Export growth in respect of services such as information technology and consulting has been strong and relatively unaffected by the slowdown in global growth. The Asian Development Bank has pointed out that strong private consumption and upticks in public and private investment are expected to brighten India's outlook, although it foresees slight downward revision for 2023-24 due to erratic rainfall patterns. Our view is that they will all eventually gravitate to monetary policy committee's (MPC's) projection of 6.5 per cent real GDP growth for the year 2023-24.

High frequency indicators discussed in subsequent sections show a broad-based gaining of momentum in August and September. The festival season is all set to light up volumes of e-commerce sales. Entry-level prices of electronics are poised to fall in spite of the focus on 'premiumisation'. Consumer confidence is upbeat on online shopping, with wider choices, competitive pricing and the convenience of easy return and exchange lifting up the online shopping experience. In response, pan-India demand for warehousing has outgrown supply by an estimated 1.4 times[4], with an average growth of 10 per cent in rentals. Rural consumers also appear to be ready to join the party: there is a revival in demand for fast moving consumer goods after the September showers in spite of an uptick in freight and packaging costs. With *kharif* sowing acreage exceeding last year's coverage, joblessness in rural areas fell in September.

Residential real estate markets across India's cities are exhibiting a growth momentum that is scaling a six-year high, despite rising mortgage rates and property prices. The cloud to this silver lining is that there are bulk sales in the mid-income and premium segments while the affordable and low-cost segments are undergoing a decline in volume. Overall, the real estate industry is reflecting strong fundamentals.

In the corporate sector, rating agencies are reporting credit ratios – upgrades by downgrades – of more than one. The upgrade rate[5] has moderated but remains higher than the decadal average while the downgrade rate also undershot its 10-year average. Both investment- and non-investment grade companies recorded improvements in credit profiles. Infrastructure, automotive and cement companies that rely on local consumption harnessed robust cash flows to bolster balance sheets, pointing to a possible revival due in private capex. A secular improvement is underway for financials of rated companies, which is boosting credit ratios. Deleveraging and higher capacity utilisation has enabled capital-heavy industries to stage a broad-based improvement in performance and outlook.

In the financial markets, the festival mood is lifting sentiments. In September, primary equity markets sizzled, with the most number of initial public offerings (IPOs) in the past 13 years amidst a buoyant rally in mid- and small-cap stocks. This has been propelled by ebullient inflows into several small and mid-cap funds. The India volatility index (VIX), an equity market fear gauge, has remained subdued during the first half of 2023-24, indicative of the bullish market sentiment.

In the bond market, yields have shown a remarkable resilience and stability in the face of the rise in US yields, attributable to country-specific factors such as announcement of inclusion in the JP Morgan emerging market bond index, responsible government market borrowings indicative of underlying fiscal

[4] Economic Times, September 25, 2023.

[5] Indian Express, October 4, 2023.

health, and prudent debt and liquidity management. Both passive and active funds are expected to flow into Indian debt markets, but they may bring with them associated volatility which will need to be carefully and nimbly managed.

The Indian rupee (INR) has also exhibited low volatility and orderly movements relative to peers in spite of the elevated US treasury yields and a stronger US dollar. Movements in the INR are consistent with the strength of the underlying macro-fundamentals and the reassuring availability of buffers.

Term deposit rates have surged to their highest levels in the past five years as banks rush to meet strong credit demand. There is anecdotal evidence that funds are flowing from low-yielding current account savings account (CASA) to higher-interest bearing term deposits. Competition among banks for garnering deposits has intensified after a long hiatus. The structural liquidity mismatch in the banking system is also reflected in the highest issuances of certificates of deposits (CDs) in September during the current financial year. Outflows on account of tax payments and increased demand for credit ahead of the festival season have also tightened access to liquidity. Renewed government spending and the release of the last tranche of the incremental cash reserve ratio (I-CRR) will likely ease liquidity but CD raising will likely continue into October.

An important development that has spread cheer all around is the sharp correction in headline inflation in its September print from the recent spike in July and August. Vegetable prices may correct even more in October and expand disposable incomes of consumers. From the point of view of the conduct of monetary policy, the broad-based softening of core inflation has been a result of staying the straight and narrow course of excoriating inflation enduringly. The accumulated force of monetary policy actions and an unswerving disinflationary stance of withdrawing accommodation are yielding results in the form of dissipating the persistence of price pressures, aided by the receding of input costs. It is too early to declare victory though; there are many miles to go.

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.

II. Global Setting

Global growth remains weighed down by tight financial conditions, uncertainty about the monetary policy trajectory, high debt distress and geopolitical tensions which have been further accentuated by the Israel-Hamas conflict. Labour markets in major AEs continue to remain tight prompting central banks to maintain 'higher for longer' stance.

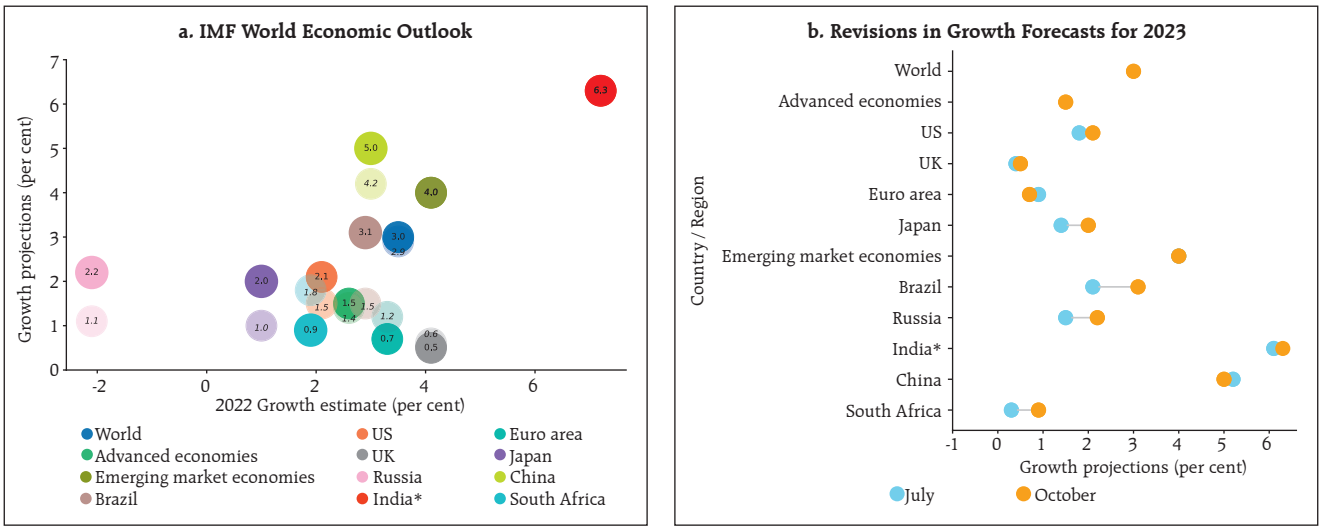
The International Monetary Fund (IMF), in its October 2023 update of the World Economic Outlook (WEO), kept the global growth forecast unchanged at 3.0 per cent in 2023, same as in its July 2023 update. Growth in 2024 is, however, projected to moderate to 2.9 per cent (downward revision by 10 basis points from the July 2023 update) as a stronger-than-expected momentum[6] in the US is likely to be more than offset by a weaker-than-expected growth in the euro area and China (Chart 1).

Our model-based nowcast for global GDP points to a pick-up in global growth momentum in Q3:2023 (Chart 2).

Geopolitical risks have risen with the escalation of the Russia-Ukraine conflict and the war in the Middle

[6] The projections are increasingly consistent with a "soft landing" scenario, especially in the United States, where the forecast increase in unemployment is very modest, from 3.6 to 3.9 per cent by 2025.

Chart 1: Global Growth Projections

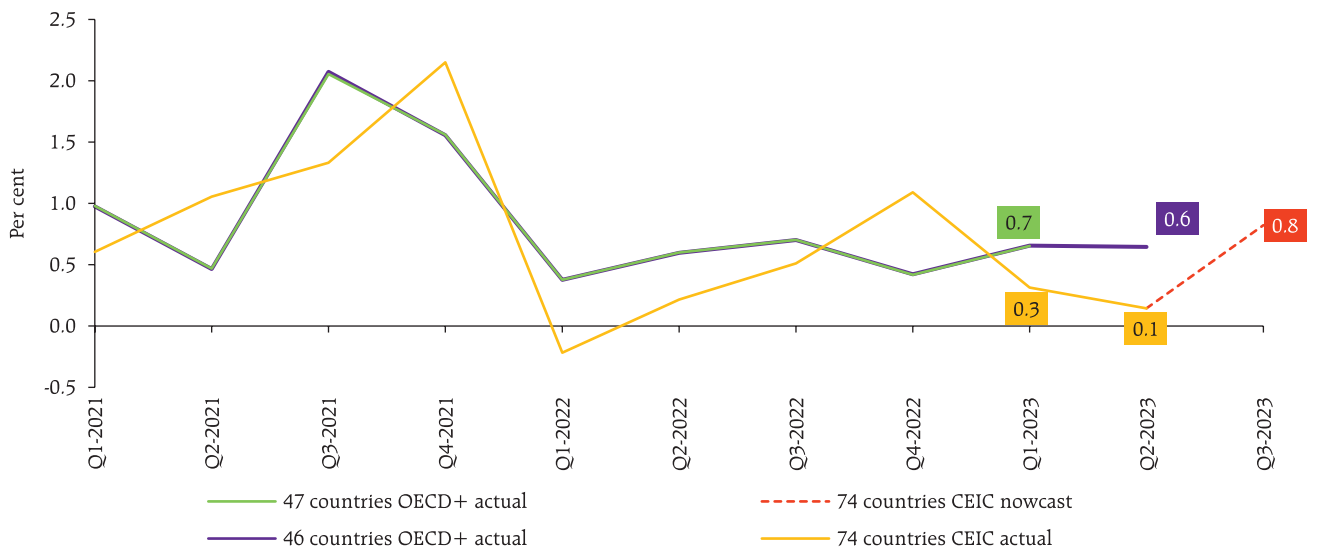


*: For India, forecasts are presented on a fiscal year basis.
Note: Darker (lighter) shaded circles pertain to 2023 (2024) forecasts in Chart 1a.
Source: IMF.

East (Chart 3a). Recent developments in the Middle East add to our concerns on the risks to global growth and stability. The global supply chain pressures index (GSCPI), has ticked up to a seven-month high of (-)0.7 in September 2023, although it remains below its historical average (Chart 3b).

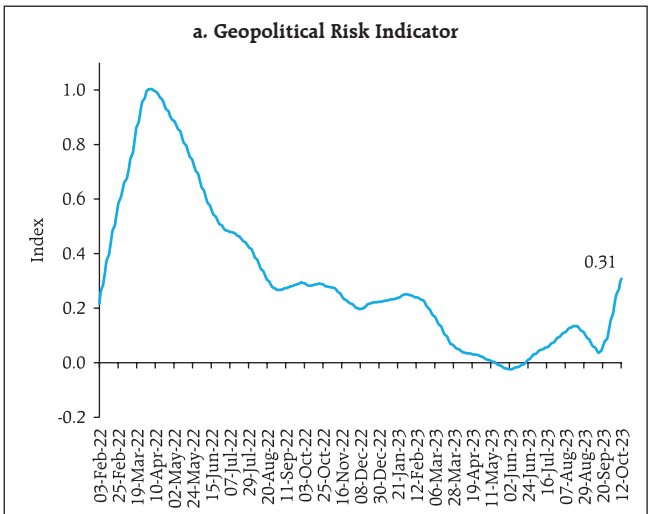
Consumer sentiment worsened across jurisdictions in September, indicative of a weak outlook for demand (Chart 4a). Economies such as the US, the EU and China witnessed further tightening of financial conditions (Chart 4b).

Chart 2: Global GDP Growth Nowcast (Adjusted Series, Q-o-Q)

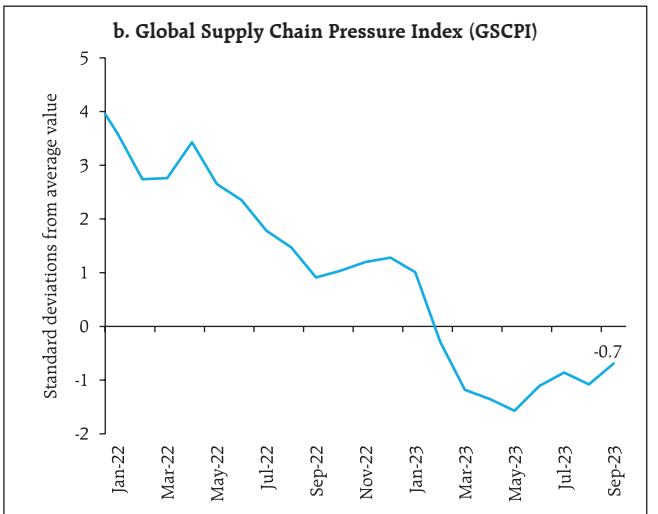


Sources: CEIC; OECD; and RBI staff estimates.

Chart 3: Trends in Geopolitical Risks and Supply Chain Pressures



Source: BlackRock Investment Institute, September 2023.

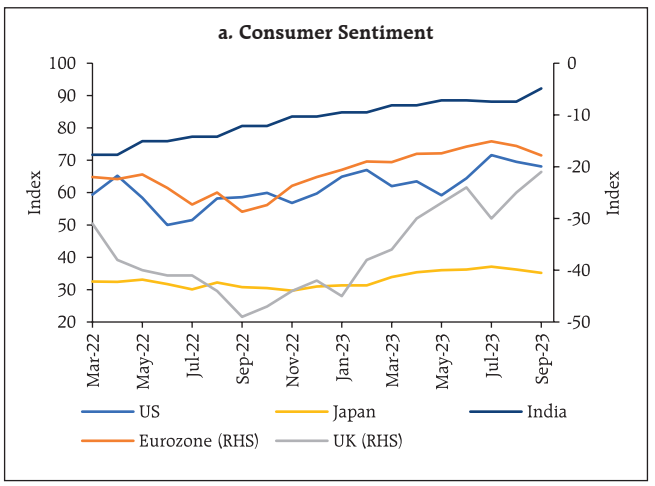


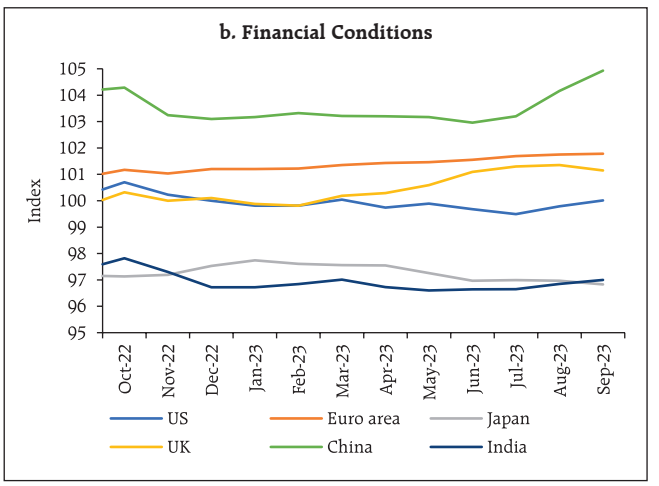
Note: GSCPI reflects data on transportation costs and manufacturing indicators.
Source: Federal Reserve Bank of New York.

The global composite PMI declined to 50.5 in September from 50.6 in August - its lowest reading since January - as the services component moderated. Despite a marginal pick-up in September, manufacturing PMI remained in the contractionary zone for 13 months in a row, as output, new orders and employment contracted (Chart 5).

Global trade continues to face significant headwinds. Export orders for manufacturing remained in contraction in September, *albeit* with a sequential improvement (Chart 6a). Export orders for services, moved into the contractionary zone after seven consecutive months of expansion. The World Trade Organization (WTO) downgraded the growth forecasts

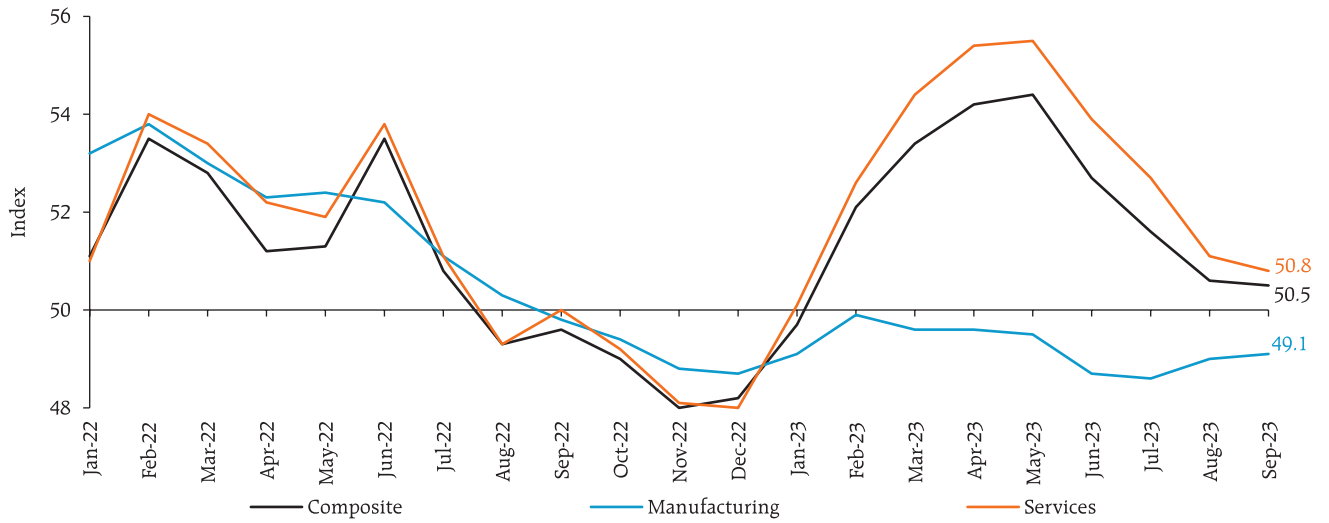
Chart 4: Sentiment and Financial Conditions





Notes: 1. Japan: A score above 50 indicates consumer optimism, below 50 shows lack of consumer confidence and 50 indicates neutrality.
2. Eurozone and UK: -100 indicate extreme lack of confidence, 0 neutrality and 100 extreme confidence.
3. India and US: Higher the value, higher is the consumer confidence.
Source: Bloomberg.

Chart 5: Global PMI

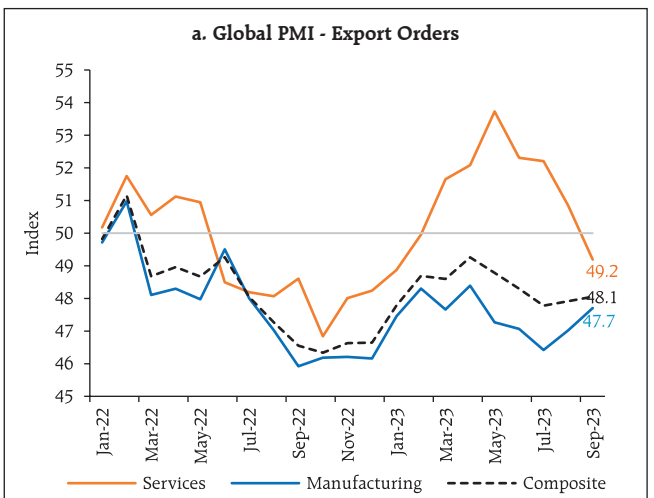


Note: A level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and *vice versa*.
Source: S&P Global.

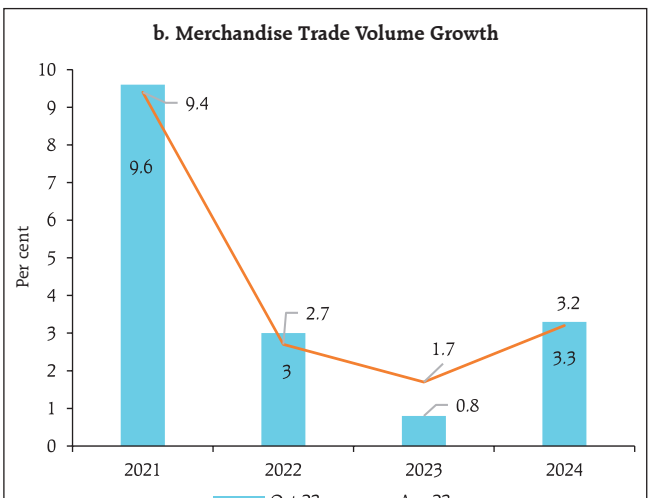
for world merchandise trade volume for 2023, while marginally upgrading the outlook for 2024, in its October 2023 edition of the Global Trade Outlook and Statistics (Chart 6b).

Global commodity prices hardened in September and the Bloomberg commodity price index increased by 1.2 per cent on a month-on-month (m-o-m) basis, driven by increases in energy prices. Supply cuts from OPEC+ and signals of further reductions drove crude oil prices higher, to average US$ 93.8 per barrel in September – a 25 per cent increase since June 2023 (Chart 7a). However, prices declined during the first week of October amidst continued fears of weaker demand stemming from the macroeconomic

Chart 6: Global Trade Activity

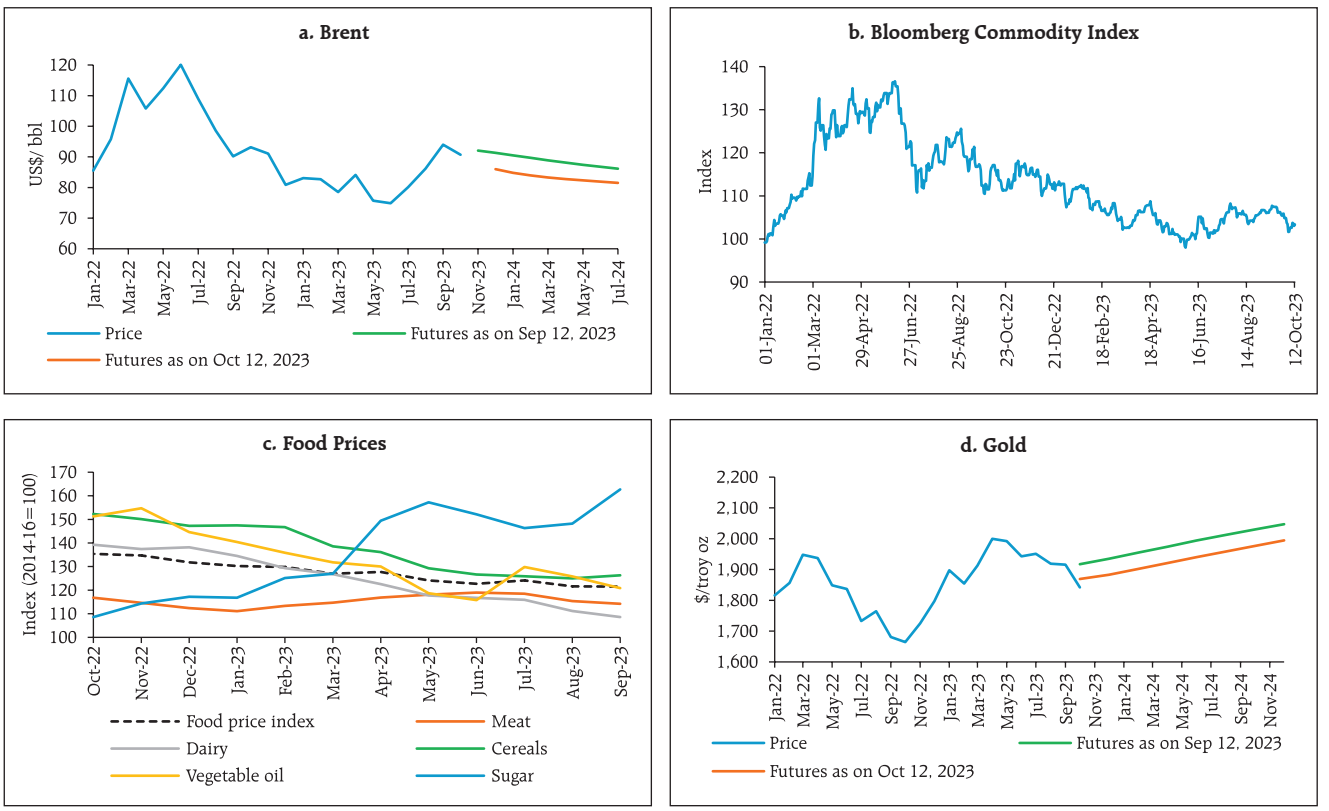


Note: A level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and *vice versa*.
Source: S&P Global.



Note: Figures for 2023 and 2024 are projections.
Source: WTO.

Chart 7: Commodity and Food Prices



Sources: Bloomberg; World Bank Pink Sheet; and FAO.

headwinds (Chart 7b). Crude futures indicate that prices are expected to remain at US$86 per barrel in April 2024 as weaker growth in China and the projected decline in the US retail fuel consumption are likely to subdue demand. Even supply prospects are expected to improve with non-OPEC suppliers such as Brazil and Guyana raising their output. However, the war between Israel and Hamas has added heightened uncertainty to the oil market.

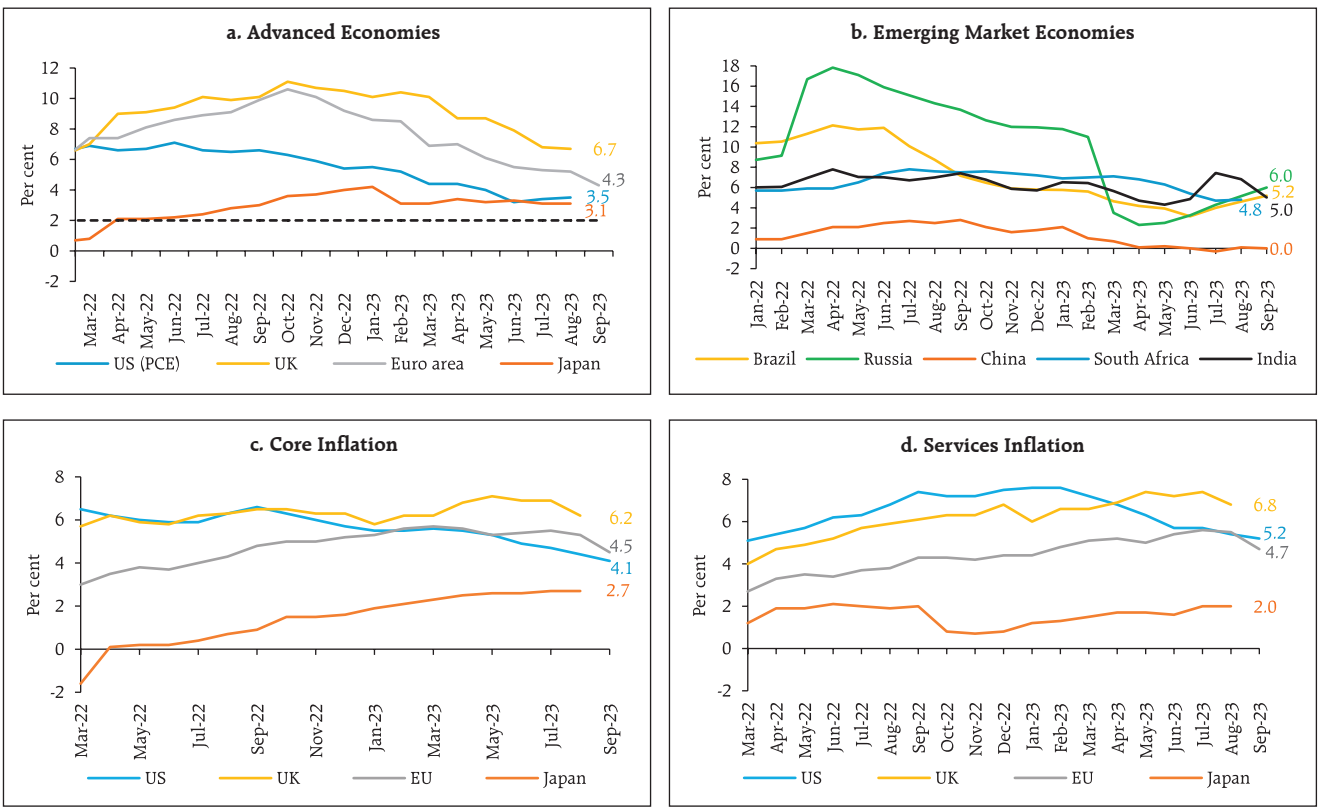
The Food and Agriculture Organization's (FAO's) food price index recorded a marginal decline of 0.1 per cent (m-o-m) in September as moderation in the prices of vegetable oils, dairy and meat were largely offset by increases in the prices of sugar and cereals (Chart 7c). Gold prices declined towards end-September and early October due to a stronger dollar and higher treasury yields but edged up thereafter reflecting safe-haven demand in the wake of renewed geopolitical tensions (Chart 7d).

Headline inflation remains elevated across countries with renewed pressures in major economies including the US.[7] The disinflationary process is slow and uneven, with core inflation[8] remaining sticky. CPI inflation in the US remained steady at 3.7 per cent in September 2023, the same as in August. Euro area inflation moderated to 4.3 per cent in September from 5.2 per cent in August. CPI inflation eased marginally in the UK to 6.7 per cent in August, the lowest since

[7] Nonetheless, the OECD in its latest Economic Outlook of September 2023 expects G20 inflation to fall from 7.8 per cent in 2022 to 6.0 per cent in 2023 and further to 4.8 per cent in 2024.

[8] Core inflation is expected to increase for G20 Advanced Economies (AEs) from 4.2 per cent in 2022 to 4.3 per cent in 2023 before softening to 2.8 per cent in 2024.

Chart 8: Inflation



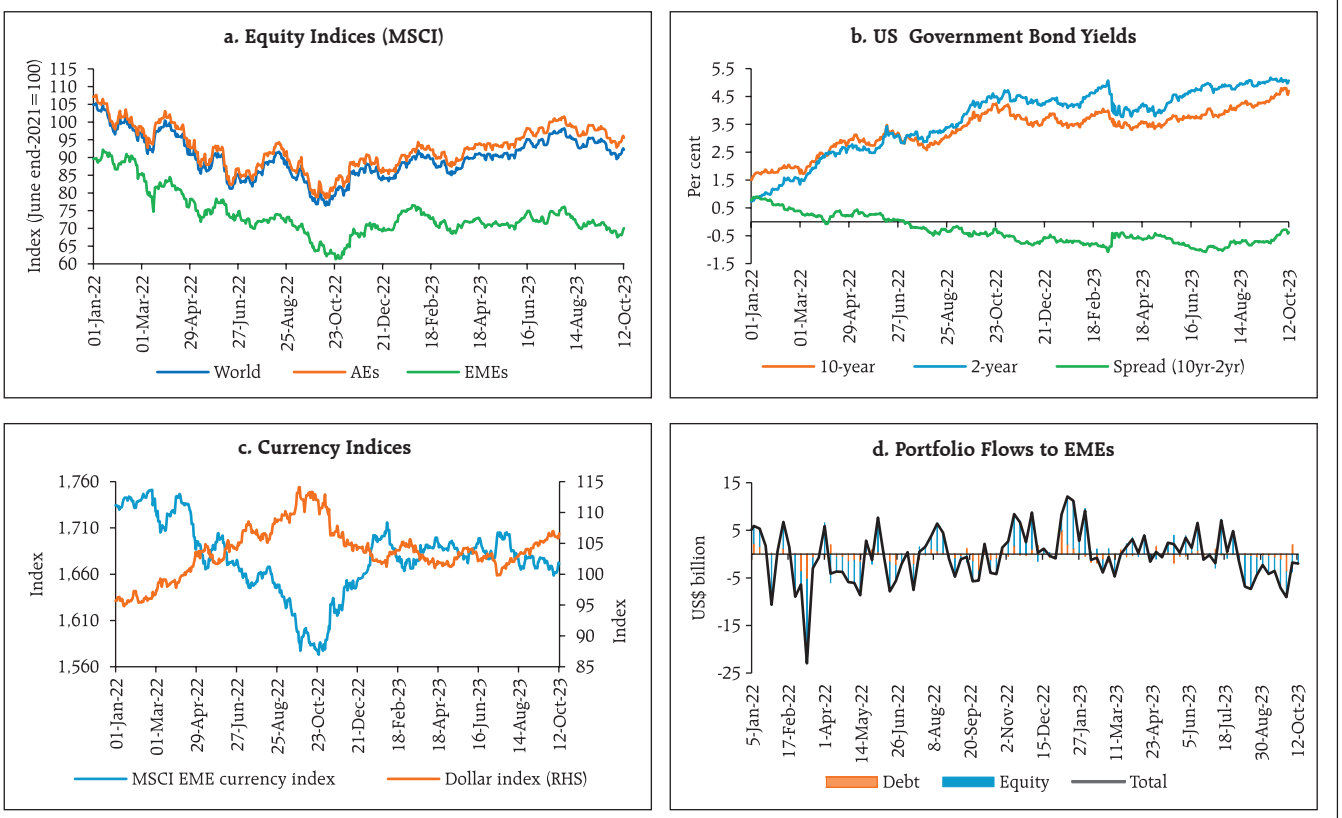
Sources: Bloomberg; and OECD.

February 2022, while Japan's inflation (CPI excluding fresh food) remained steady at 3.1 per cent. Inflation based on the US personal consumption expenditure (PCE) index edged up to 3.5 per cent in August from 3.4 per cent in July (Chart 8a). Among emerging market economies (EMEs), inflation edged up further to a seven-month high in Brazil and Russia in September (Chart 8b). Core and services inflation ruled above headline inflation in some advanced economies (AEs) [Chart 8c and 8d].

Global equity markets corrected in September and early October in anticipation of 'higher for longer' monetary policy stances, elevated energy prices and higher long-term borrowing costs along with weak recovery in China (Chart 9a). The US government bond yields hardened, reflecting the hawkish stance of the US monetary policy, their ongoing liquidity tightening and slow pace of disinflation. Notably, the US yield curve inversion has persisted since July 2022 (Chart 9b). At the long end, the 30-year US treasury yield crossed 5.0 per cent in early October for the first time since October 2007. Geopolitical developments in the Middle East have, however, triggered a predictable flight to safety with the US treasury yields softening and USD appreciating marginally.

In the currency markets, the US dollar appreciated in September by 2.1 per cent (m-o-m) and it continued to rise further in October driven by safe haven asset demand amidst significant geopolitical uncertainties. Concomitantly, the Morgan Stanley Capital International (MSCI) currency index for EMEs declined by 0.3 per cent in September and 0.5 per cent in October (up to 12th) as capital outflows, primarily equity outflows continued (Chart 9c and 9d).

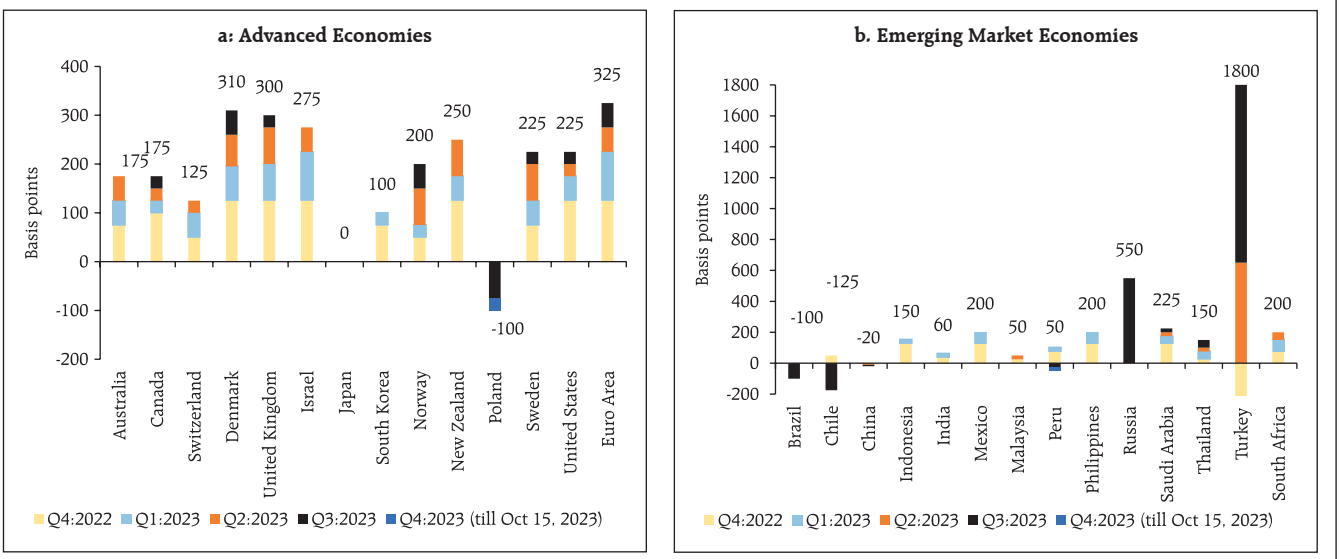
Chart 9: Global Financial Markets



Sources: Bloomberg; and IIF.

AE central banks in general opted for a pause while some continued with monetary tightening (Chart 10a). In their September policy meeting, the US Fed held the target range of the Federal Funds rate

Chart 10: Monetary Policy Actions



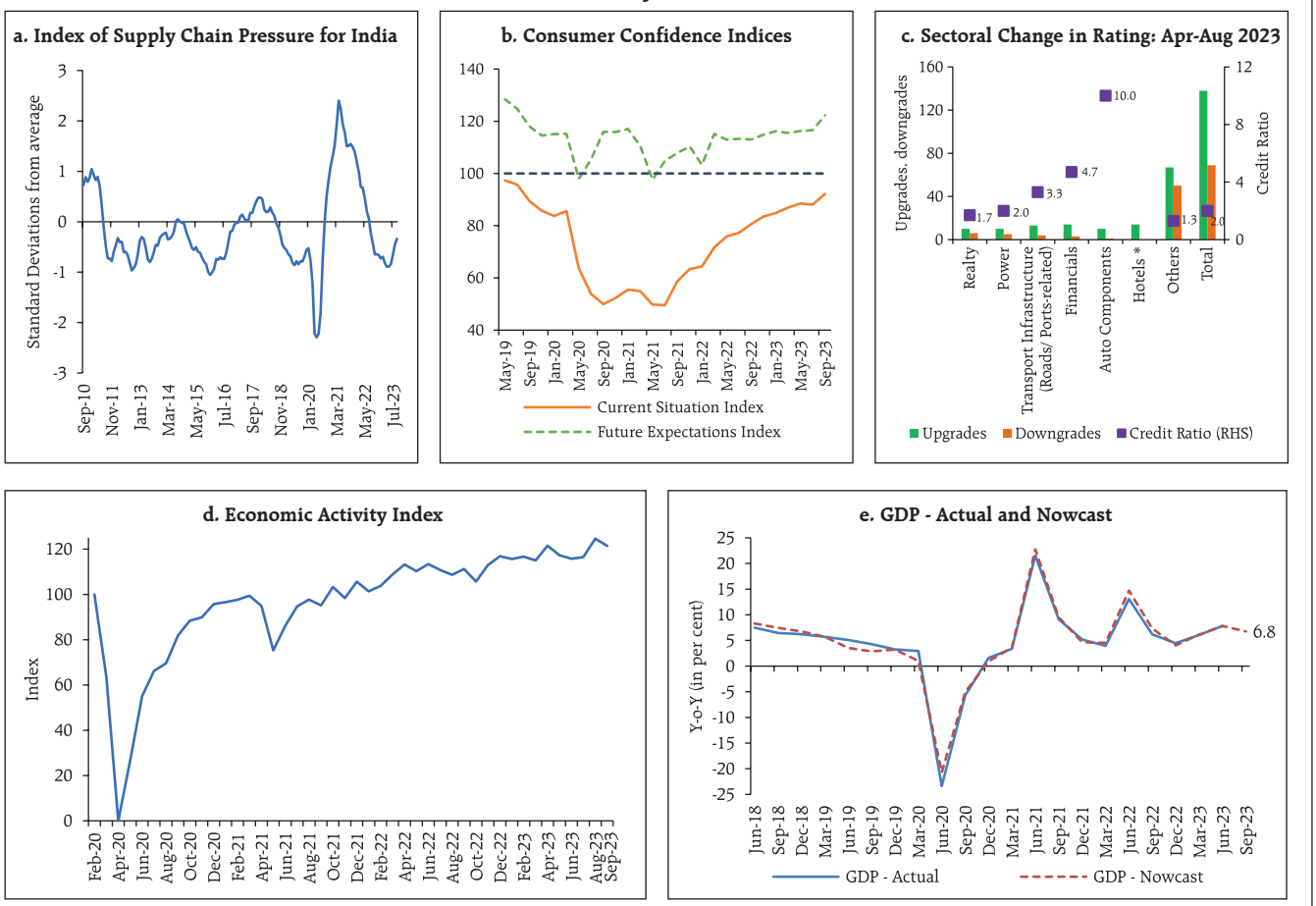
Source: Bloomberg.

steady at 5.25-5.50 per cent. The United Kingdom, Canada and Australia also kept their policy rates unchanged in September. The European Central Bank (ECB), the Norges Bank (Norway) and Sveriges Riksbank (Sweden), however, raised their key rates by 25 bps each. Among EMEs, Brazil cut its benchmark interest rate by 50 bps while China kept its rates unchanged but reduced the reserve requirement ratio by 25 bps.[9] In contrast, Turkey and Russia hiked their policy rate by 500 bps and 100 bps, respectively (Chart 10b).

III. Domestic Developments

The World Bank's latest India Development Update (IDU)[10], reflects India's resilience to global spillovers, even as pandemic-induced pent-up demand wanes. Supply chain pressures in India remain below historical average levels (Chart 11a). Consumer Confidence has improved with upticks in

Chart 11: Economic Activity and GDP Growth Nowcast



*Credit Ratio not available as no downgrades were reported in the Hotels sector

Note: The economic activity index (EAI) is constructed by extracting the common trend underlying twenty seven high frequency indicators of economic activity using a Dynamic Factor Model. EAI is scaled to 100 in February 2020 and 0 in April 2020, the worst affected month due to mobility restrictions.

Sources: National Statistical Office (NSO); Consumer Confidence Survey, RBI; ICRA; and RBI staff estimates.

[9] For all banks except those that have implemented a 5 per cent reserve ratio.

[10] IDU is a companion piece to the South Asia Development Update, a twice-a-year World Bank report that examines economic developments and prospects in the South Asia region and analyses policy challenges faced by countries.

most of the macroeconomic conditions (Chart 11b). Overall credit ratio[11] of ICRA assigned ratings was 2.0 in Apr-Aug 2023, indicating improved credit quality of India Inc. Rating upgrades were strong in the Hotels, Auto components, Financials and transport and infrastructure sectors Chart (11c).

Our economic activity index (EAI) nowcasts GDP growth for Q2:2023-24 at 6.8 per cent (Chart 11d and 11e).

Aggregate Demand

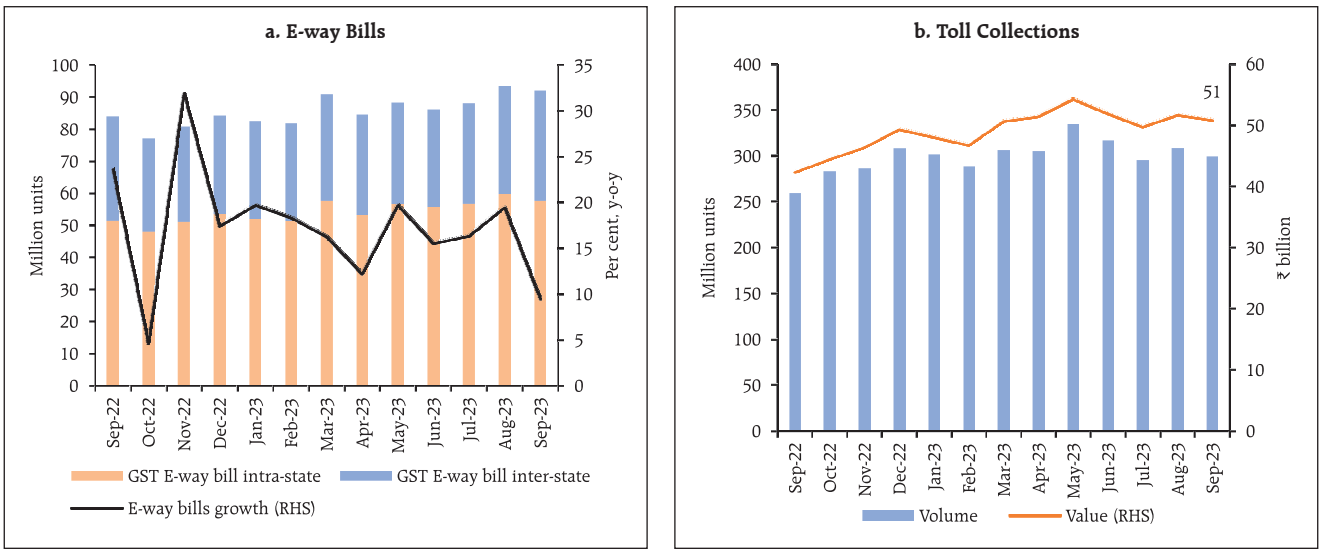
Demand conditions are upbeat in Q3:2023-24. E-way bill volumes remained above 90 million units in September (Chart 12a). Toll collection expanded 20 per cent (y-o-y) in terms of value (Chart 12b).

Automobile sales registered a y-o-y expansion of 4.4 per cent in September 2023 (Chart 13a), led by strong growth in the three wheeler segment. Sales of two wheelers, comprising of scooters and motor cycle also increased in September 2023 (Chart 13b). Domestic tractor sales improved to a three month high in September 2023 although it contracted y-o-y, on a high base of record sales in September 2022 (Chart 13b). Retail sales growth as reflected in vehicle registrations surged to an eleven-month high in September, buoyed by new launches and general festive cheer (Chart 13c). Growth in daily average consumption of petroleum products accelerated to 7.6 per cent y-o-y in September 2023 from 6.5 per cent a month ago (Chart 13d).

As per Bizom, in September 2023, fast moving consumer good (FMCG) sales increased by 4.9 per cent y-o-y, despite the effects of erratic monsoon and food price spikes[12] which impacted rural sales.

The all-India unemployment rate (UR) declined to 7.1 per cent in September 2023 from 8.1 per cent in August, with decline recorded in both urban and rural areas. (Chart 14a). The labour force participation rate (LFPR) recorded a decline in urban areas while rural LFPR recorded a marginal increase. The employment rate (ER) reached its highest level since September 2020 (Chart 14b). The employment outlook in the organised sector, as polled by the

Chart 12: E-way Bills and Toll Collections



Sources: GSTN; RBI.

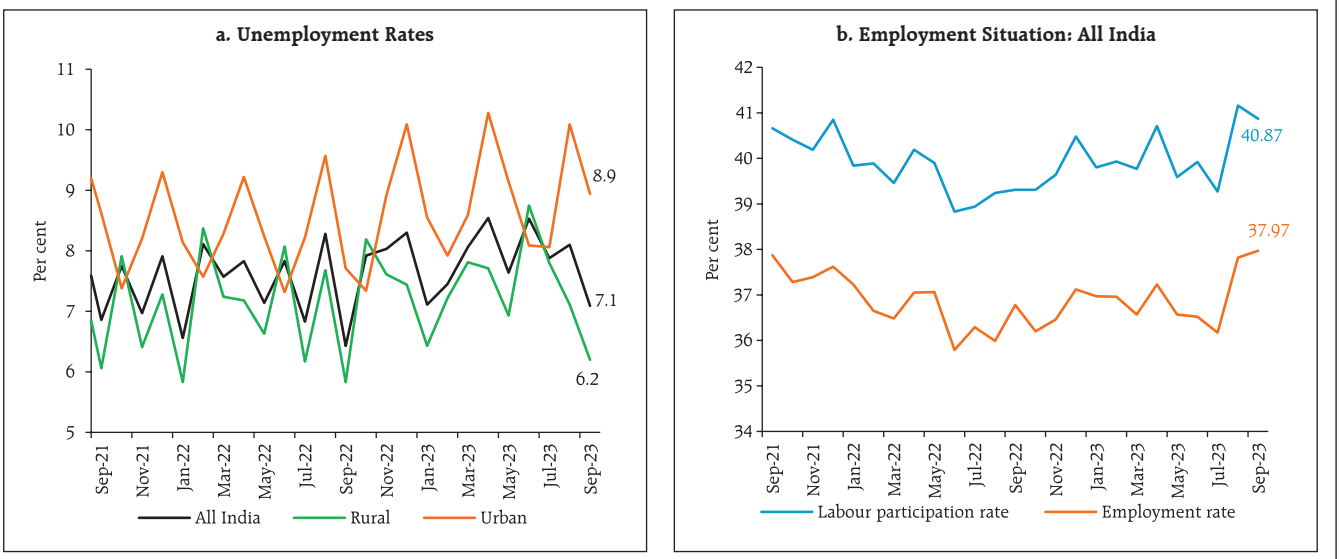
[11] Credit Ratio is defined as the number of entities upgraded to that downgraded.

[12] https://www.cnbctv18.com/business/fmcg-sales-down-23-in-q2-amid-food-inflation-erratic-monsoon-bizom-data-17993191.htm

Chart 13: Automobile Sector Indicators

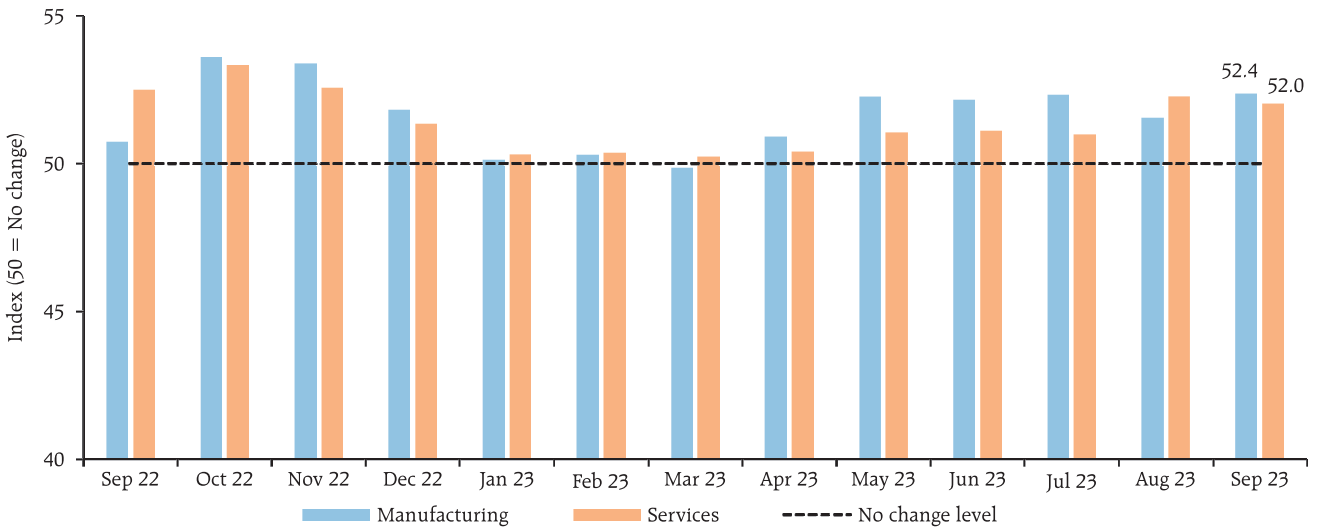
PMI for manufacturing and services, remained in the expansionary zone, with the manufacturing employment expanding at the fastest pace in the last ten months (Chart 15).

Chart 14: Labour Market Conditions



Source: CMIE.

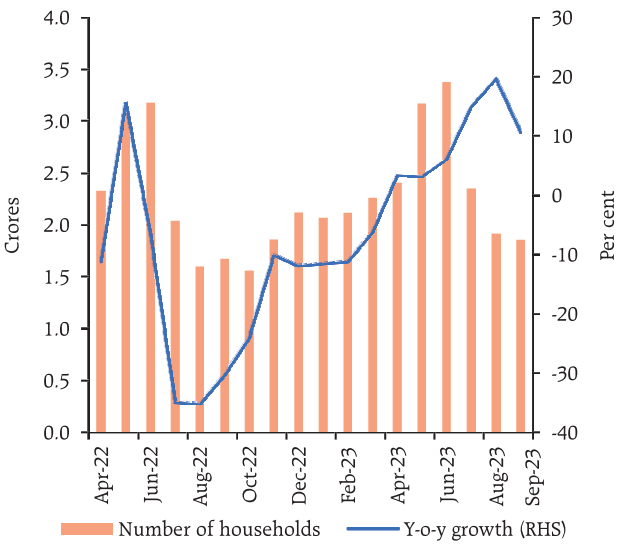
Chart 15: PMI Employment Indices



Note: PMI value of above 50 indicates expansion.
Source: S&P Global.

With the revival of the monsoon in September, the demand for work under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) continued to decline with the progress in *kharif* sowing (Chart 16).

Chart 16: Demand for Work under MGNREGS



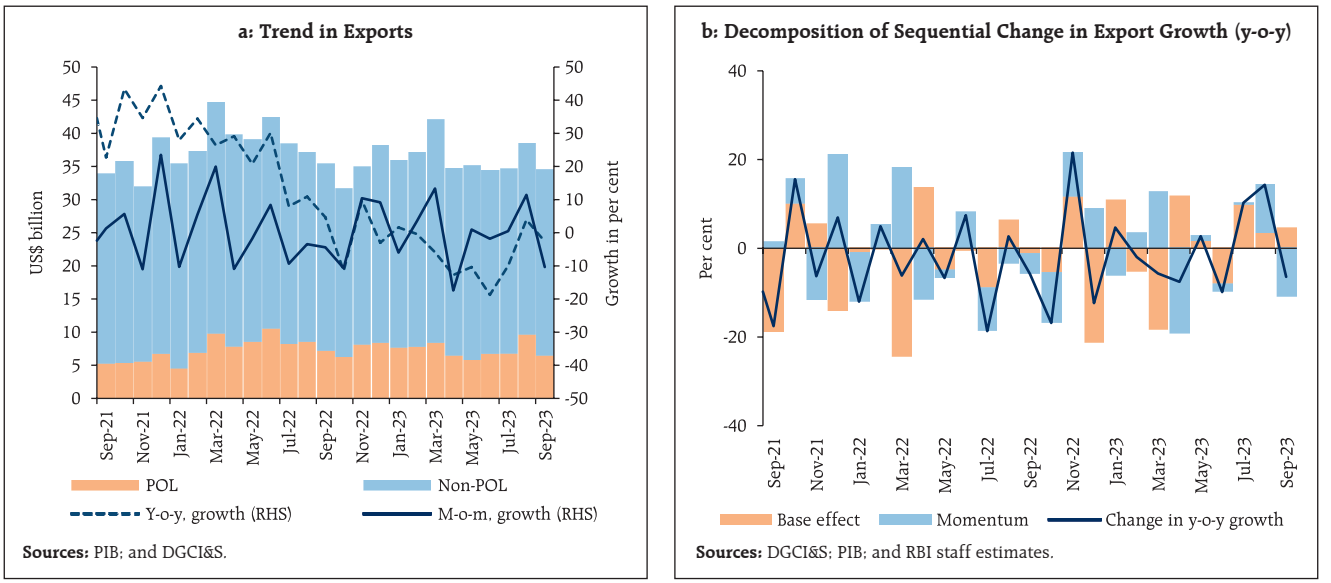
Source: Ministry of Rural Development.

India's merchandise exports at US$ 34.5 billion[13] registered a contraction of 2.6 per cent (y-o-y) in September 2023, with 18 out of 30 major commodities (with a combined share of 51.9 per cent in the export basket) recording a decline (Chart 17). Petroleum products, gems and jewellery, organic and inorganic chemicals dragged exports down, whereas engineering goods, iron ore, cotton yarn/fabrics, made-ups and handloom products contributed positively to export growth in September (Chart 18).

The final estimates available for August 2023 showed that India's exports recorded a growth of 3.9 per cent (y-oy) in August 2023 - the first expansion in six months, as against the earlier estimate of a contraction by (-) 6.8 per cent, reported in the previous edition of this article. Due to an upward revision by US$ 3.8 billion, the growth in value of petroleum products for August 2023 is now placed at 13.7 per cent (y-o-y) on the back of highest ever monthly

[13] As per the provisional data released on October 13, 2023 https://pib.gov.in/PressReleasePage.aspx?PRID=1967357

Chart 17: India's Merchandise Exports



shipments, as against a contraction witnessed for five consecutive months (Chart 19a). Exports of engineering goods, which account for more than one-fourth of India's merchandise export basket, grew by 7.8 per cent (y-o-y) in August 2023 after registering a contraction for eight consecutive months. Within engineering goods, 25 out of the 34 goods registered a growth in August 2023. Notably, electric machinery and equipment, other construction machinery and copper contributed positively to export growth, while aluminium and products were the main laggards (Chart 19b).

Chart 18: India's Merchandise Exports – Relative Contribution (September 2023 over September 2022)

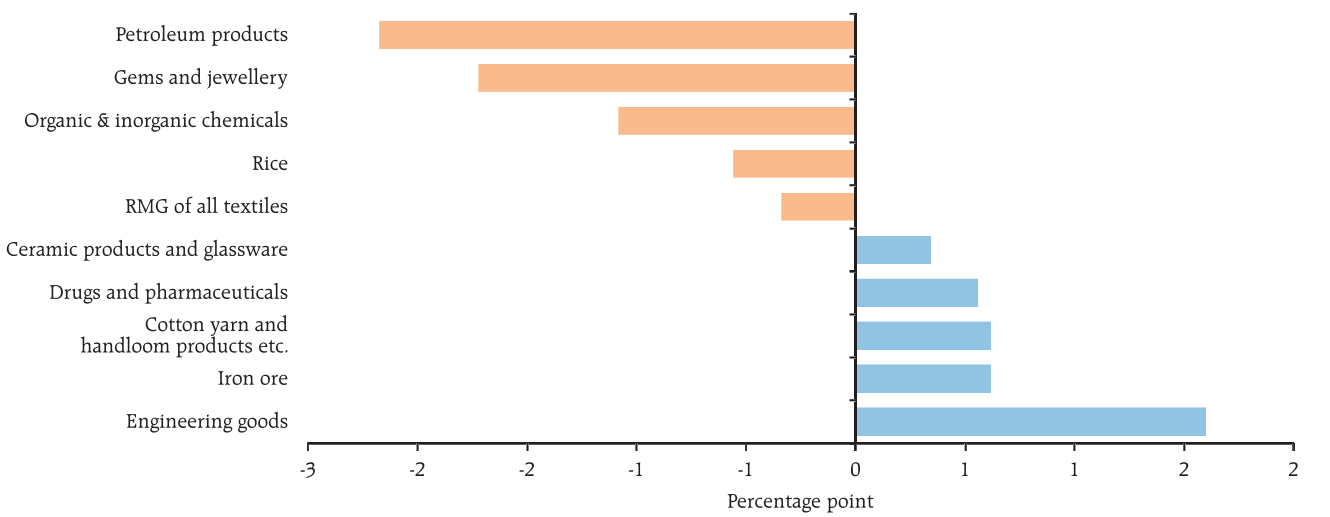
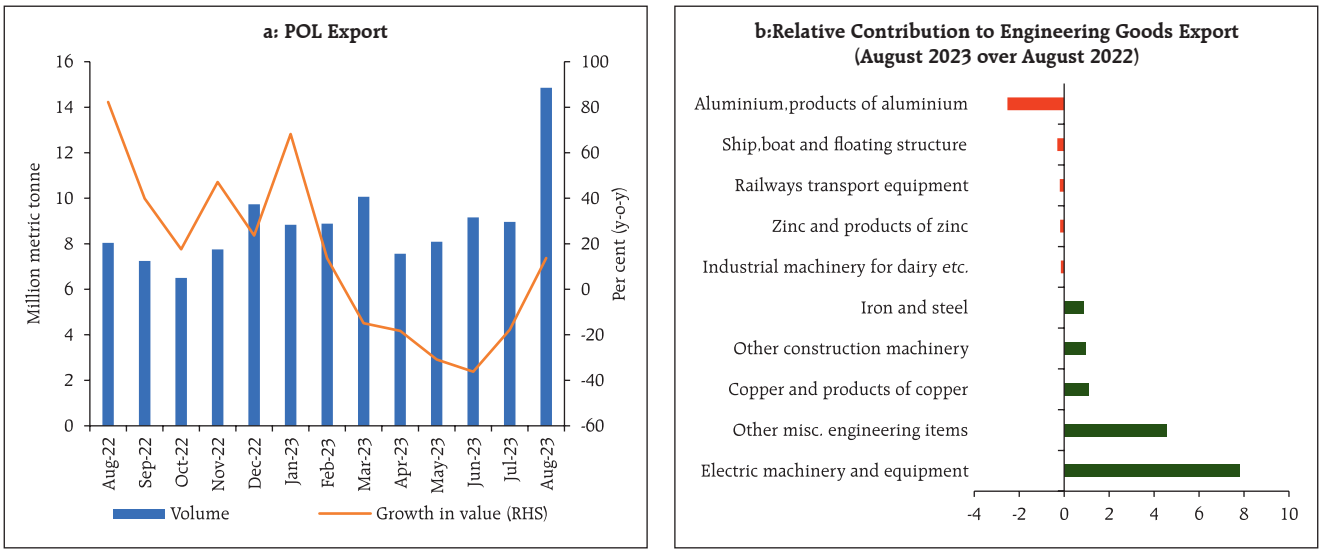


Chart 19: Drivers of Export Growth: August 2023



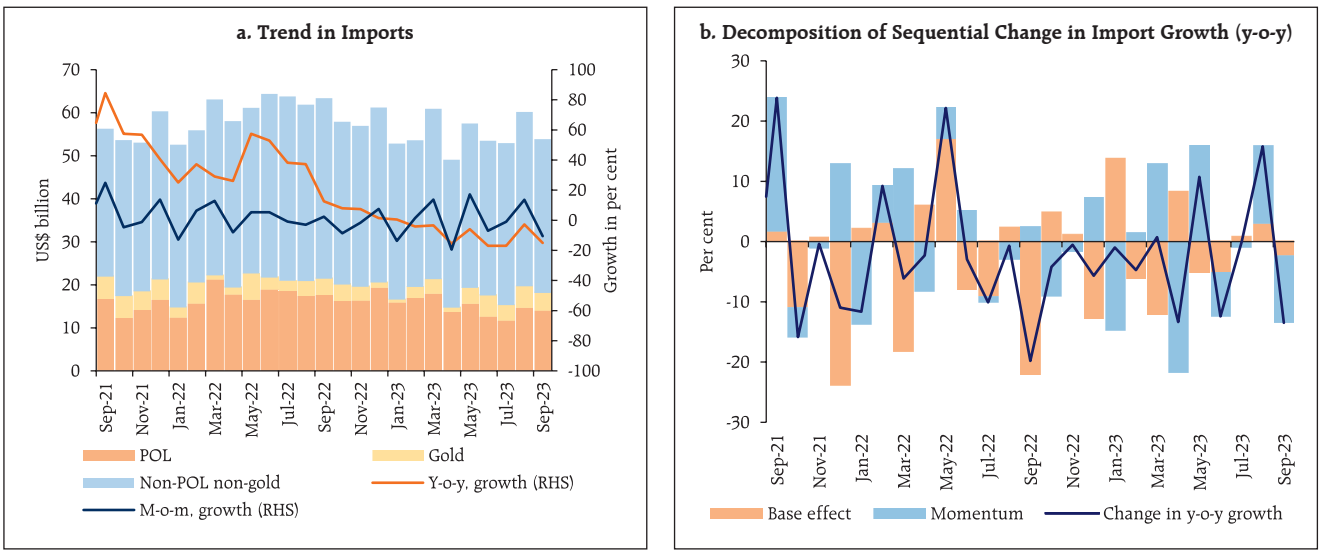
Sources: DGCI&S; and RBI Staff Calculations.

Merchandise imports at US$ 53.8 billion registered a contraction of 15 per cent (y-o-y) in September 2023, the eighth consecutive month of contraction (Chart 20). 20 out of 30 major commodities, accounting for 54.4 per cent of the import basket registered a decline on y-o-y basis.

Petroleum, oil and lubricants (POL), transport equipment, coal, coke and briquettes, fertiliser and silver were the main items that dragged imports down while electronic goods, gold, non-ferrous metals, dyeing/tanning/colouring materials and artificial resins, plastic materials, contributed positively in September 2023 (Chart 21).

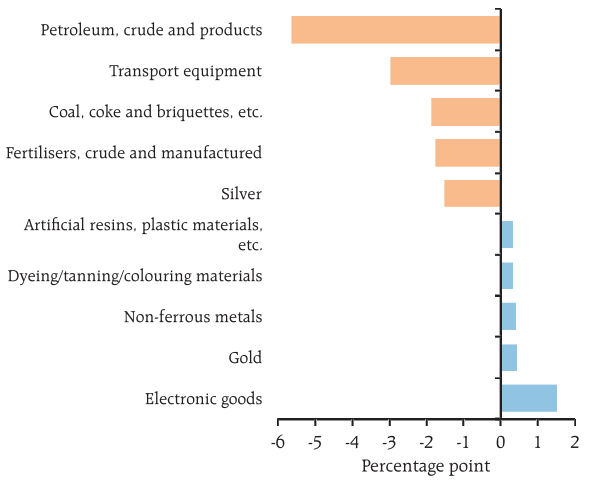
With stronger negative momentum in imports than in exports, the merchandise trade deficit in September declined by US$ 2.3 billion on a sequential

Chart 20: India's Merchandise Imports



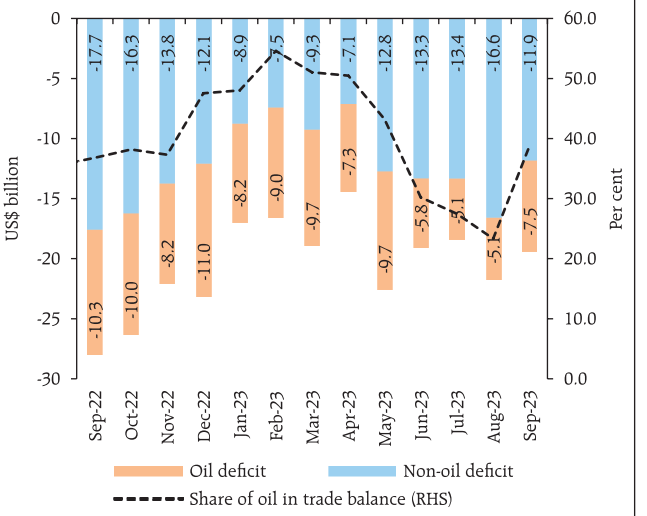
Sources: PIB; DGCI&S; and RBI staff estimates.

Chart 21: India's Merchandise Imports – Relative Contribution (September 2023 over September 2022)



Sources: PIB; and RBI staff estimates.

Chart 22: Decomposition of India's Merchandise Trade Deficit



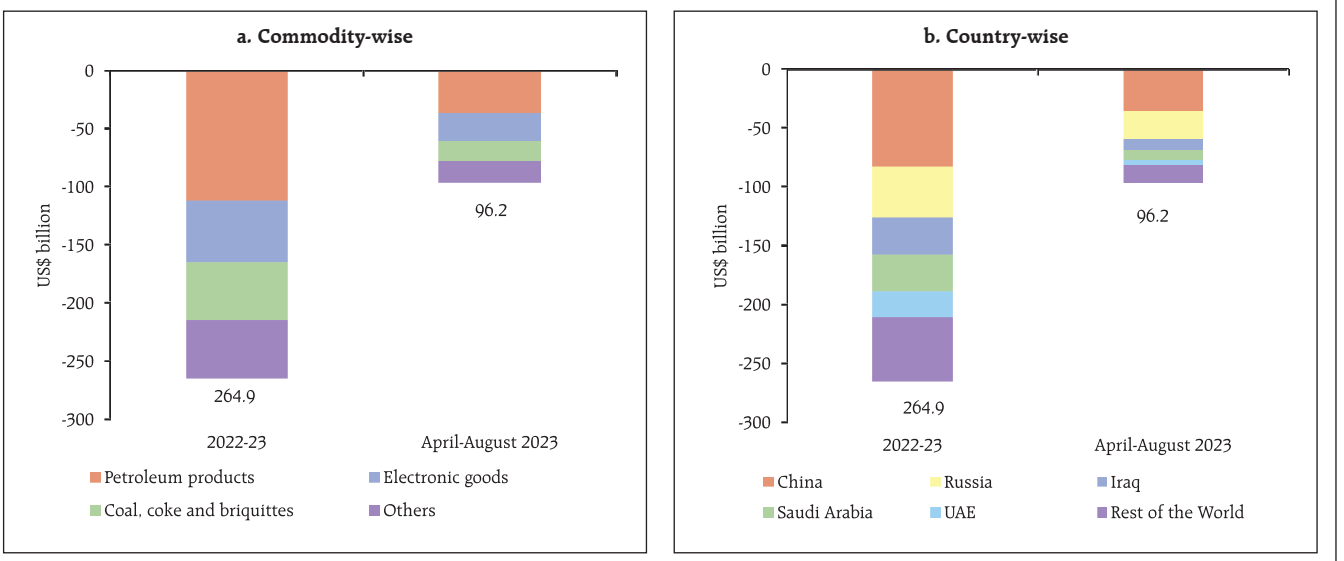
Sources: DGCI&S; and PIB.

basis to reach at US$ 19.4 billion. The oil deficit reached a 4-month high, accounting for about 38.7 per cent of the overall deficit (Chart 22).

During April-September 2023, India's merchandise exports at US$ 211.4 billion contracted by 8.8 per cent (y-o-y). Merchandise imports at US$ 327.0 billion declined by 12.2 per cent (y-o-y). Consequently, the merchandise trade deficit narrowed to US$ 115.6 billion from US$ 140.8 billion during the corresponding period a year ago. Petroleum products were the major source of the trade deficit, followed by electronic goods (Chart 23a). Country-wise, China and Russia remained the major sources of the trade deficit for the April-August period (Chart 23b).

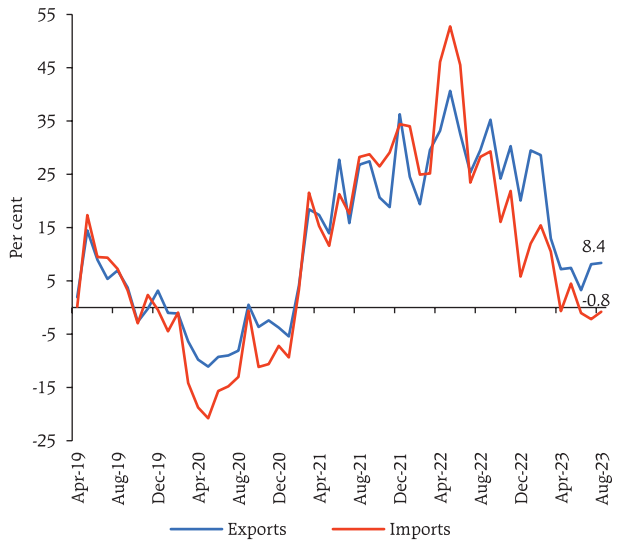
Services exports at US$ 28.7 billion in August 2023 exhibited a robust growth of 8.4 per cent (y-o-y)

Chart 23: Decomposition of India's Merchandise Trade Deficit



Sources: DGCI&S; PIB; and RBI staff estimates.

Chart 24: Services Exports and Imports

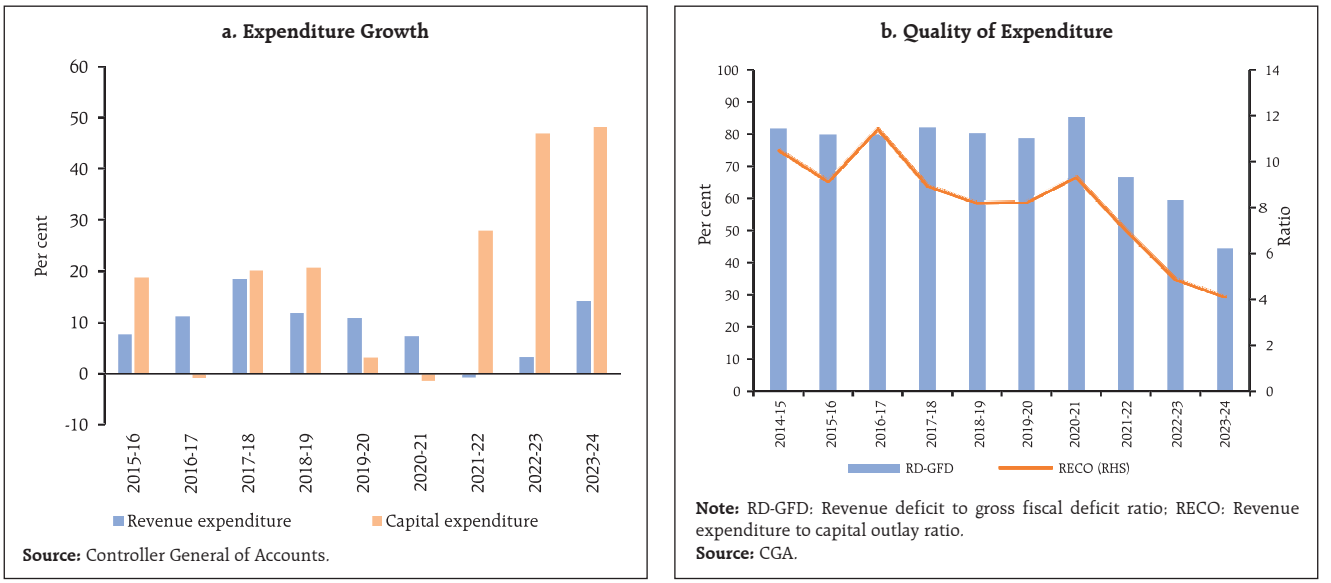


Source: RBI.

primarily driven by software and business services. On the other hand, services imports declined by 0.8 per cent y-o-y to US$ 15.1 billion, resulting in net services earnings of US$ 13.6 billion in August (Chart 24). With the global IT spending forecast to grow by 4.3 per cent in 2023[14], the outlook for India's services exports remains encouraging.

According to the Controller General of Accounts (CGA), the gross fiscal deficit (GFD) of the central government stood at 36.0 per cent of the budget estimates (BE) for 2023-24 during April-August 2023-24, marginally higher than 32.6 per cent of BE during the corresponding period of the previous year. This is attributable to an increase in capital expenditure by 48.1 per cent (y-o-y), which was led by the Ministry of Railways registering a y-o-y growth of 67.6 per cent and revenue expenditure by 14.1 per cent (y-o-y) [Chart 25a]. Revenue expenditure growth reflected the increase in expenditure incurred by the Ministry of Chemicals and Fertilisers on fertiliser subsidy, and the Ministry of Agriculture and Farmer's Welfare, which recorded a y-o-y growth of 58.7 per cent and 24.9 per cent, respectively. Capital outlay (*i.e.*, capital expenditure excluding loans and advances) recorded an increase of 35.3 per cent, resulting in a marked improvement in the quality of spending of the central government (Chart 25b).

Chart 25: Government Expenditure (April-August)



Source: Controller General of Accounts.

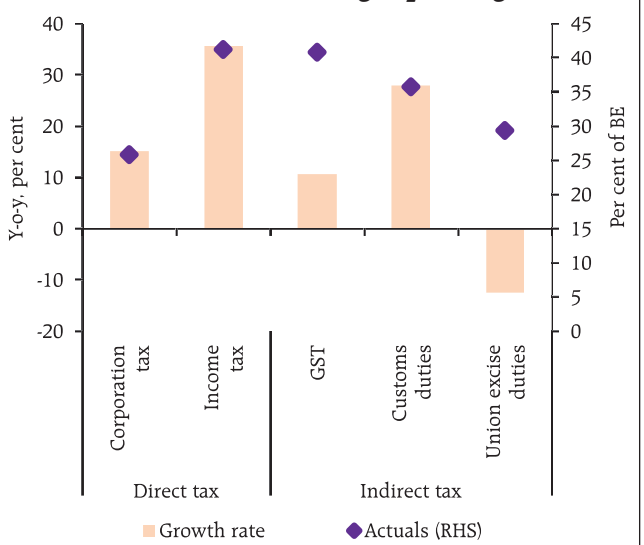
Note: RD-GFD: Revenue deficit to gross fiscal deficit ratio; RECO: Revenue expenditure to capital outlay ratio.
Source: CGA.

[14] As per Gartner, an IT research firm and consultancy group.

On the receipts side, direct tax collections grew by 26.1 per cent (y-o-y) during April-August 2023-24, with corporation tax growth turning positive for the first time in 2023-24, exhibiting signs of improvement in corporate profitability. The other major component of direct tax *viz.*, income tax receipts recorded a growth of 35.7 per cent during April-August 2023 on top of 33.2 per cent growth during the corresponding period of the previous year. This points to increased compliance and a widening of the tax base.[15] Besides, advance tax collections indicate an improvement in income tax and corporation tax collections during Q2:2023-24.[16]

On the other hand, indirect tax collections grew by 7.9 per cent (y-o-y), with the growth in goods and services tax (GST) and customs revenues outweighing the contraction in excise duties. Higher custom revenues are attributable to, *inter alia*, higher export and import duties for a few items, counterweighing the contraction in excise duties y-o-y terms, partly on account of duty cuts announced last year. Overall, gross tax revenue recorded a growth of 16.5 per cent y-o-y, led by double-digit growth in all major tax heads, except excise collections, which registered a contraction of 12.4 per cent (Chart 26).

Chart 26: Tax Revenue during (April-August 2023)

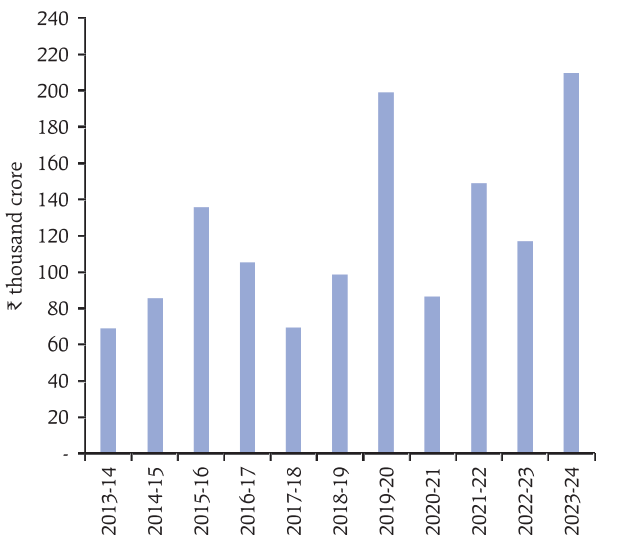


Sources: CGA; and Union budget documents.

Non-tax revenue collection recorded a y-o-y growth of 79.4 per cent during April-August on the back of higher than budgeted surplus transfer from the Reserve Bank[17] while non-debt capital receipts contracted by 51.1 per cent[18] (Chart 27). Total receipts of the central government recorded an expansion of 21.3 per cent on a y-o-y basis.

GST collections (Centre *plus* States) grew by 10.2 per cent (y-o-y) to ₹1.63 lakh crore in September 2023 which is the fourth highest monthly collection since its inception (Chart 28). The gross GST collection for H1:2023-24 at ₹9.93 lakh crore is 11 per cent higher than a year ago (₹8.93 lakh crore).

Chart 27: Non-tax Revenue (April-August)



Source: CGA.

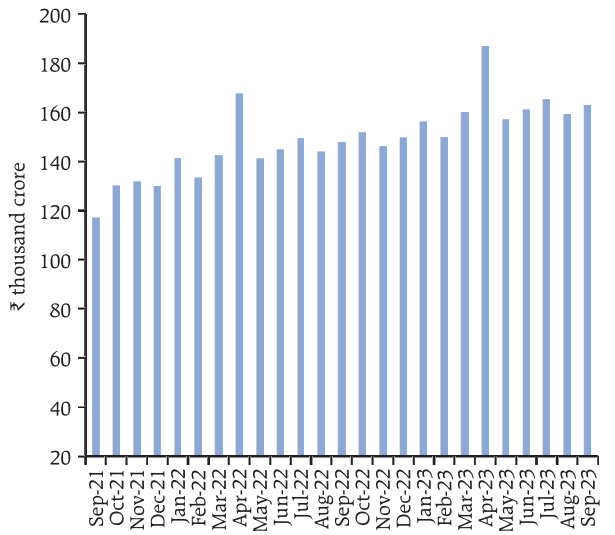
[15] https://pib.gov.in/PressReleseDetail.aspx?PRID=1944821#:~:text=The%20total%20number%20of%20ITRs,till%2031st%20July%202022

[16] https://incometaxindia.gov.in/Lists/Press%20Releases/Attachments/1152/PressRelease-Gross-Direct-Tax-collections-for-the-Financial-Year-2023-24.pdf

[17] During 2023-24, the Reserve Bank transferred a surplus of ₹87,416.22 crore to the central government which is higher than both the amount transferred last year (₹30,307.45 crore) and the budgeted amount under Dividend/Surplus transfer of Reserve Bank of India, Nationalised Banks and Financial Institutions in the Union Budget 2023-24 (₹48,000 crore).

[18] During April-August 2023-24, the government mobilised ₹5,601 crore in the form of disinvestment receipts as compared with ₹24,560 crore during the corresponding period of the previous year.

Chart 28: Monthly GST Revenue



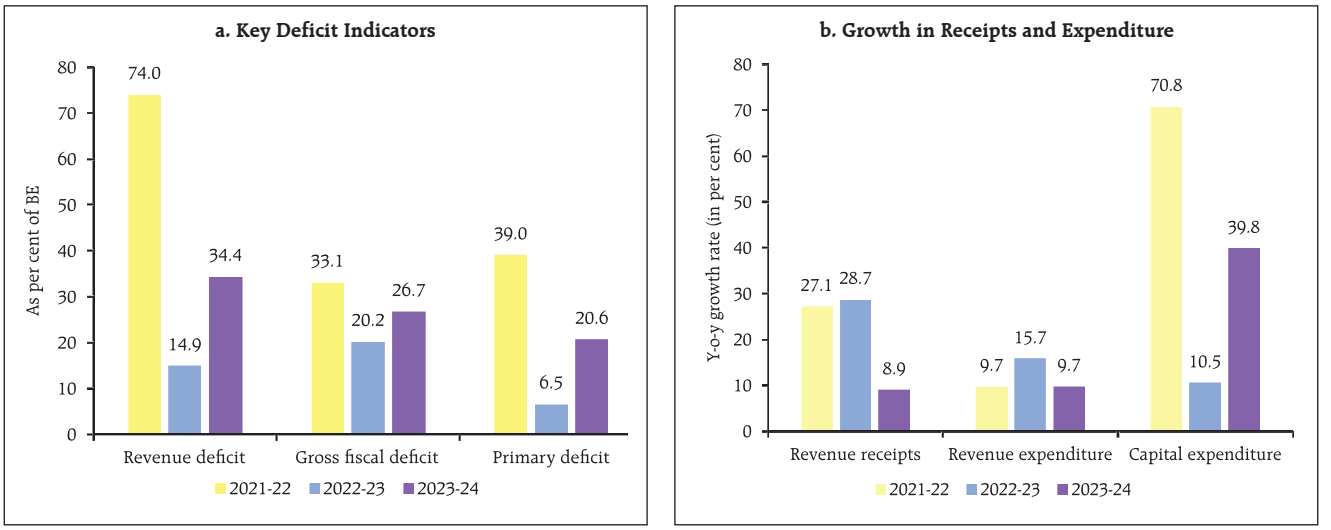
Source: *Press Information Bureau (PIB).*

The central government's borrowing proposal for H2:2023-24 has been kept unchanged at ₹6.55 lakh crore, in line with the full year's budgeted borrowing target of ₹15.43 lakh crore.[19] During 2023-24, ₹20,000 crore will be raised through Sovereign Green Bonds (SGBs), which is 25 per cent higher than the amount raised from SGBs a year ago. Besides, in response to growing market demand for longer duration securities, the government will issue 50-year securities for the first time.

As per the accounts data available for April-August[20] of 2023-24, states' key deficit indicators as a proportion to the full year BE were higher than a year ago (Chart 29a). While growth in revenue receipts and expenditure moderated, capital expenditure growth remained robust (Chart 29b).

Within revenue receipts, growth in tax revenue, including tax devolution from the Centre and non-tax revenue moderated mainly on account of high base effect, while grants from the Centre contracted sharply (Chart 30a). States' goods and service tax (SGST) witnessed a y-o-y growth of 20.3 per cent. Among the debt service indicators, both interest payments to revenue receipts (IP-RR) ratio and interest payments to revenue expenditure (IP-RE) ratio remained at levels similar to a year ago (Chart 30b).

Chart 29: States' Fiscal Indicators (April-August)

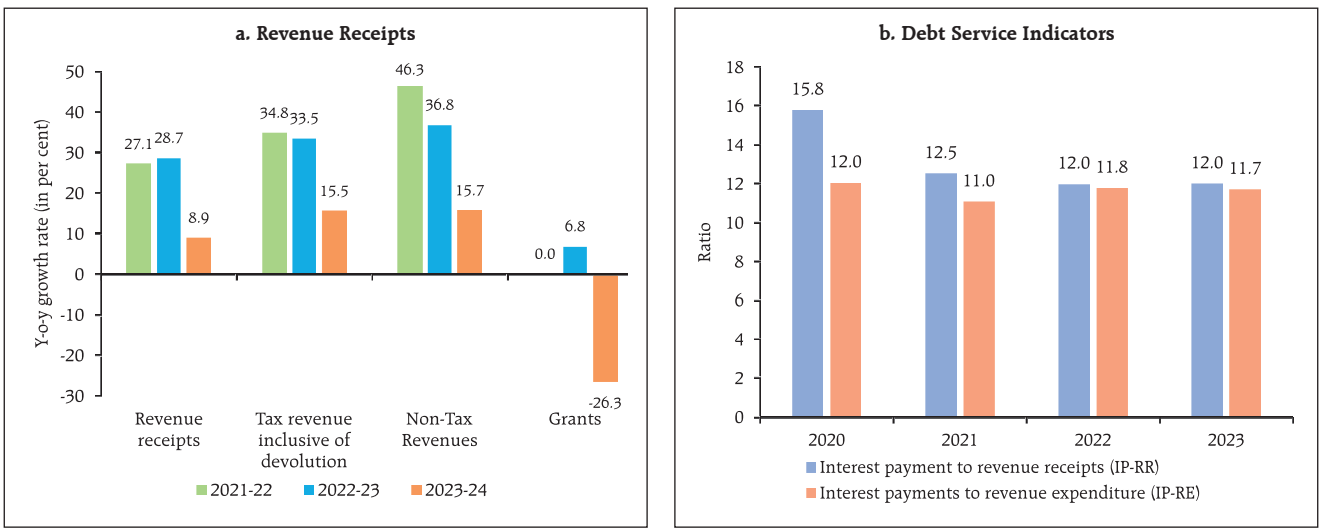


Note: Data pertain to 21 states.
Source: CAG.

[19] https://pib.gov.in/PressReleasePage.aspx?PRID=1961016#:~:text=Out%20of%20Gross%20Market%20borrowing,including%20%E2%82%B920%2C000%20crore%20through

[20] The data pertains to 21 states.

Chart 30: Key Fiscal Performance Indicators (April -August)

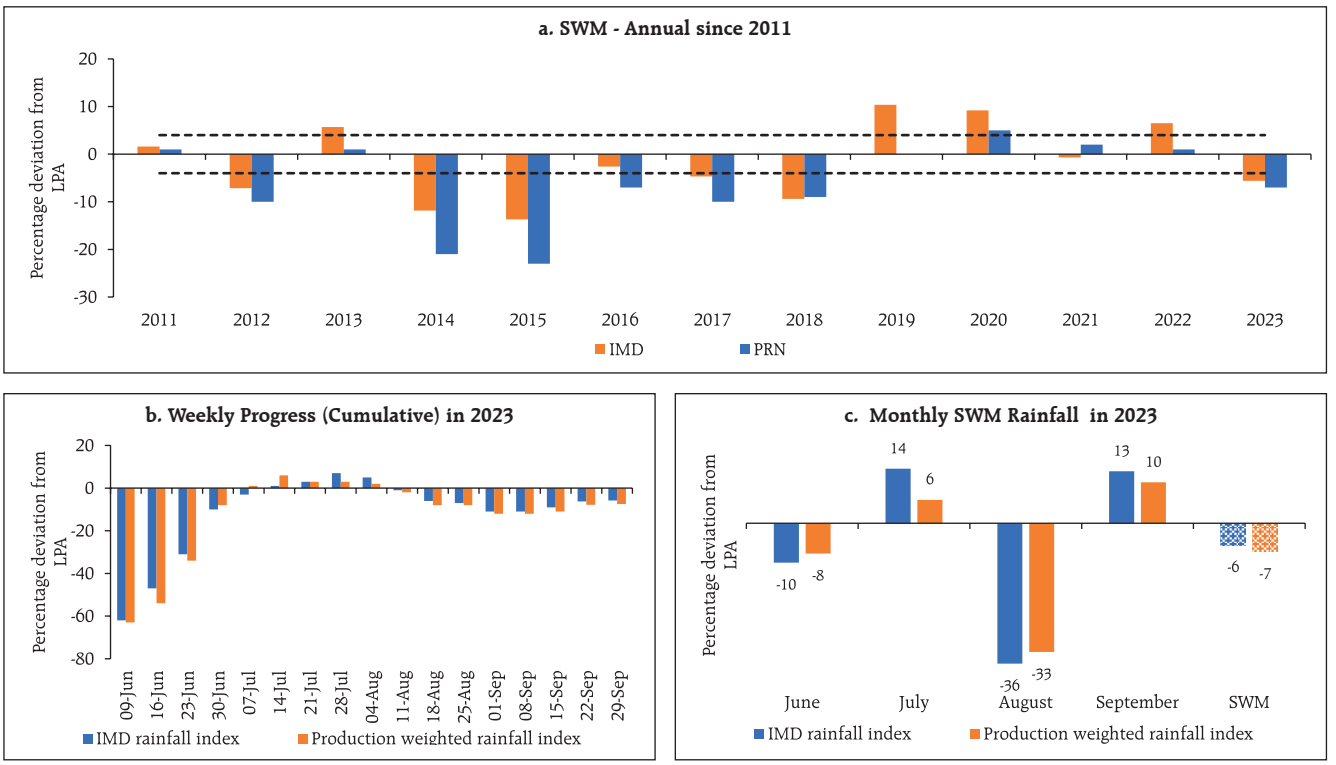


Note: Data pertain to 21 states.
Source: CAG.

Aggregate Supply

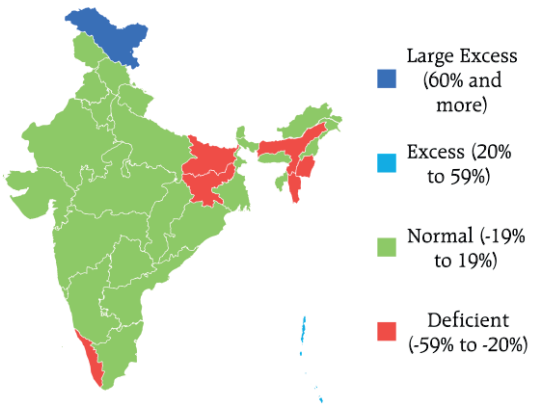
The south-west monsoon (SWM) ended with the country recording rainfall at 94.4 per cent of the long period average (LPA), akin to normal precipitation (Chart 31). There was a sharp rebound in September rainfall, aided by positive Indian Ocean Dipole

Chart 31: South-west Monsoon (SWM) Rainfall



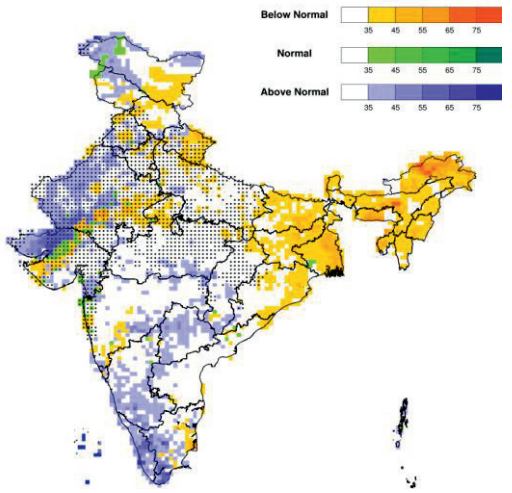
Note: Dashed lines indicate the normal range.
Sources: Indian Meterological Department (IMD); and RBI staff estimates.

Chart 32: Spatial Distribution of SWM



Note: Maps are for illustrative purpose only.
Source: IMD.

Chart 33: Forecast for the North-East Monsoon (October to December)



Source: IMD.

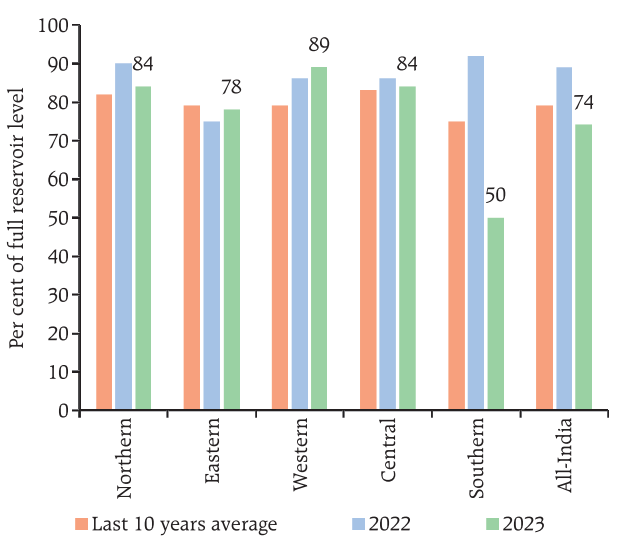
(IOD) and Madden Julian Oscillation (MJO). As per our production weighted rainfall index (PRN), the cumulative monsoon rainfall this year was 7 per cent below the LPA.

The distribution of rainfall was geographically uneven, with the east and north-east (-18 per cent of LPA) and the south peninsular region (-8 per cent of LPA), recording deficiency in precipitation while all other regions of the country received normal rainfall (Chart 32).

It is expected that soil moisture levels are going to improve and rejuvenate the prospects for *rabi* production. Furthermore, the forecast for the North-East monsoon is 'normal' to 'above normal' over many areas of northwest and southern peninsular India (Chart 33). As on October 5, 2023, reservoir levels stood at 74 per cent of the full reservoir level (FRL), lower than the decadal average as well as last year's level (Chart 34). Reservoir conditions in north, west and central India bode well for key *rabi* crops such as wheat, rapeseed and mustard and gram, which are primarily cultivated in five states belonging to these regions (Chart 35).

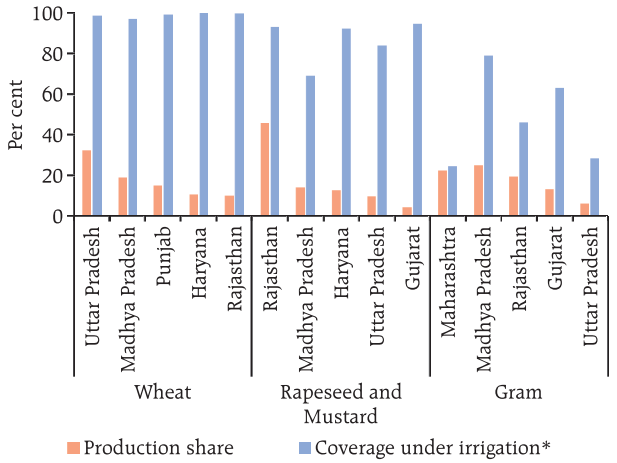
Rice procurement for the *Kharif* Marketing Season (KMS) for 2023-24 is 18.5 lakh tonnes up to October 8 against 13.6 lakh tonnes a year ago. As of September 16, 2023, the public stocks of rice and wheat were 2.4 and 0.9 times the buffer norms, respectively. The government has set the foodgrains production target for *rabi* season at 161.2 million tonnes, with wheat

Chart 34: Reservoir Level (as on October 5, 2023)



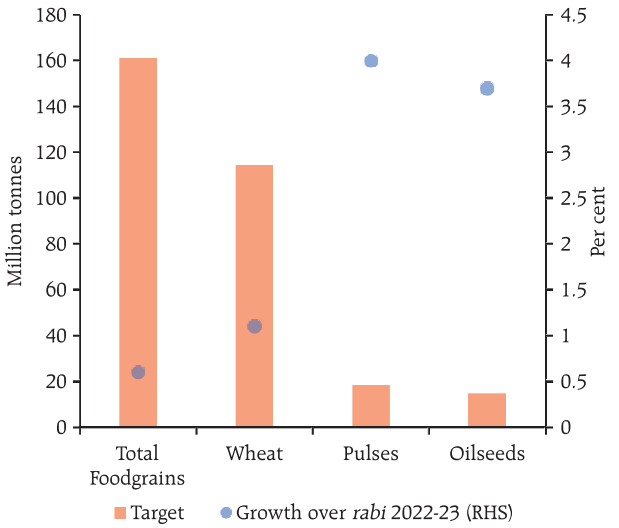
Source: Central Water Commission.

Chart 35: *Rabi* Crops' Production Share and Irrigation Coverage in Major Producing States



*Irrigation values pertain to 2019-20.
Notes: Production share is average of 2020-21 and 2021-22.
Source: Ministry of Agriculture and Farmers' Welfare.

Chart 36: *Rabi* Production Target

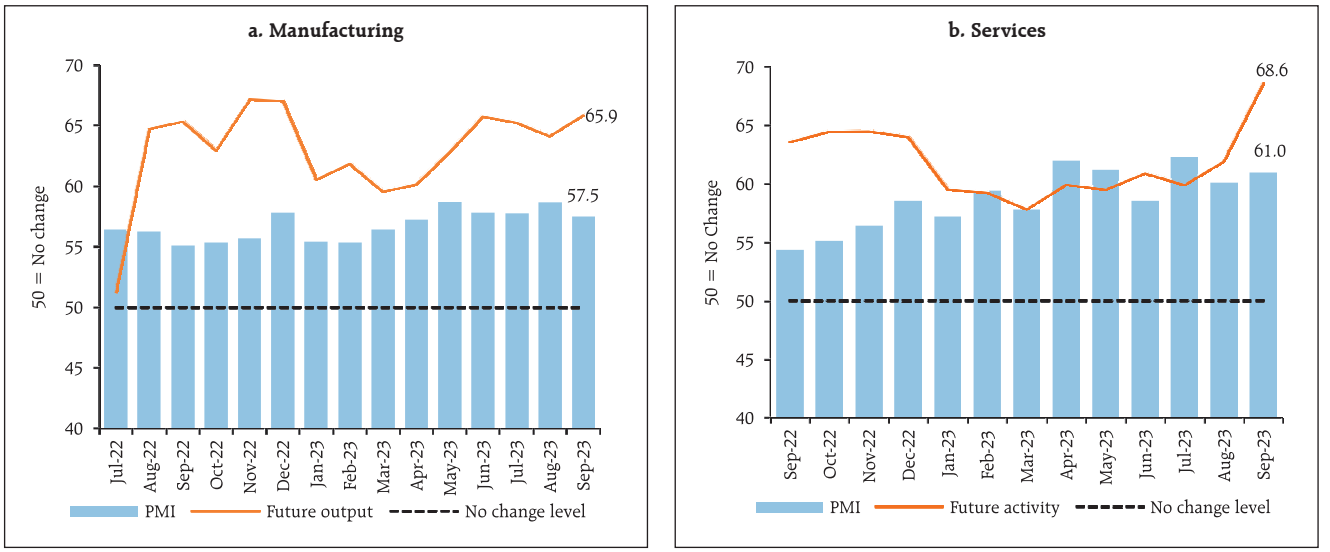


Note: Foodgrains include cereals and pulses.
Source: Ministry of Agriculture and Farmers' Welfare.

at 114 million tonnes, 1.1 per cent higher than the third advance estimates for *rabi* 2022-23 (Chart 36). Similarly, the target for pulses and oilseeds are set at 18.2 million tonnes and 14.5 million tonnes, respectively, which are 4 per cent and 3.7 per cent higher than the third advance estimates of *rabi* 2022-23.

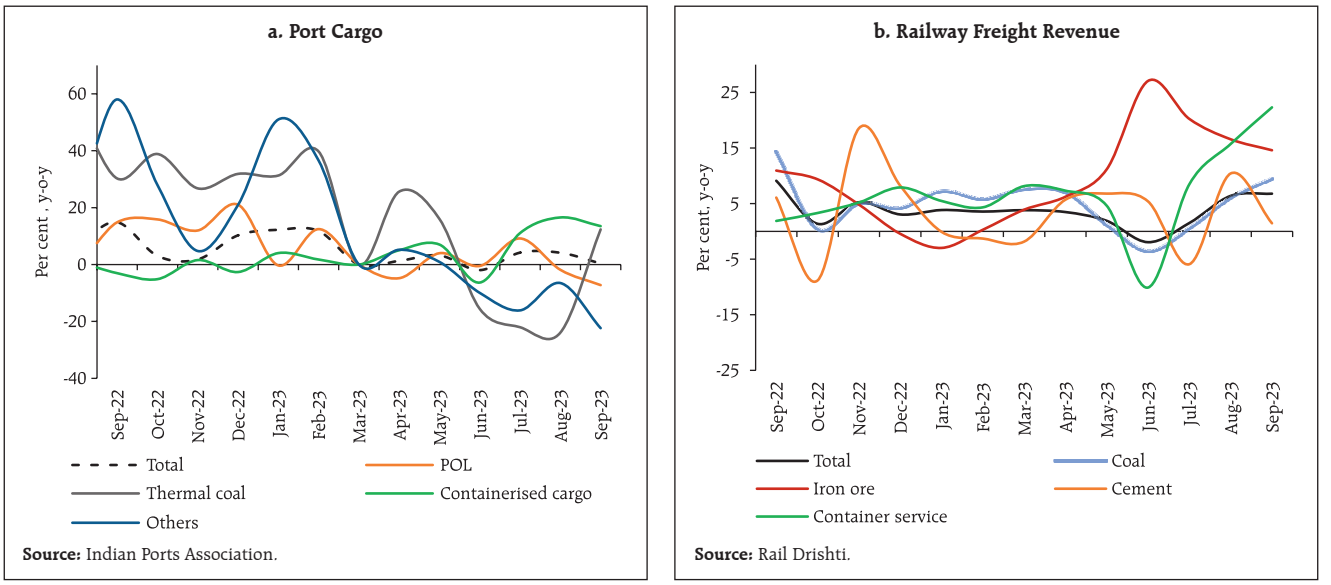
The headline PMI for manufacturing sector moderated to 57.5 in September 2023 from 58.6 a month ago on the back of lower new orders and output. On the other hand, business expectations reached a nine-month high at 65.9 (Chart 37a). The PMI for services expanded to 61.0 in September 2023 (one of the strongest in over thirteen years), with

Chart 37: Purchasing Managers' Index (PMI)



Source: S&P Global.

Chart 38: Railway and Port Cargo Traffic



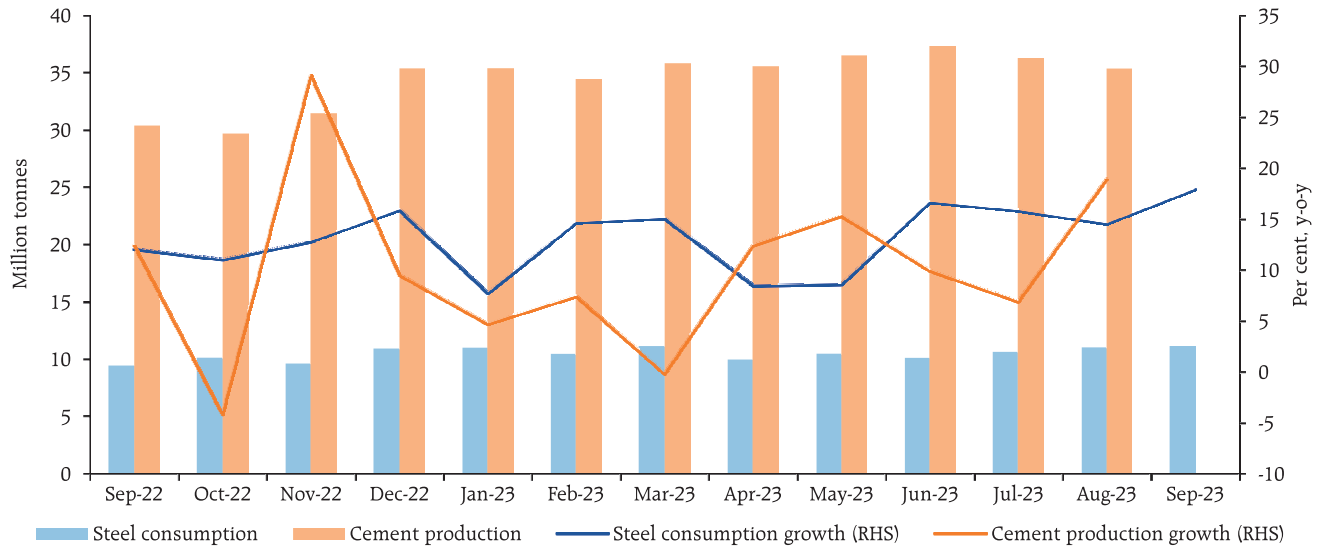
Source: Indian Ports Association. **Source:** Rail Drishti.

business expectations improving to a nine-year high (Chart 37b).

Growth in cargo traffic at major ports moderated to a three-month low (Chart 38a). Railway freight traffic recorded the highest growth in 12 months, driven by an increase in freight of coal and containerised cargo (Chart 38b).

Coincident indicators of the construction sector remained strong in September, with steel consumption increasing by 17.9 per cent (y-o-y) aided by high government infrastructure spending. Cement production increased by 18.9 per cent (y-o-y) in August 2023 (Chart 39).

Chart 39: Steel Consumption and Cement Production



Sources: Joint Plant Committee; and Office of the Economic Adviser, Ministry of Commerce and Industry.

Table 1: High Frequency Indicators – Services

		Growth (y-o-y, per cent)								
Sector	**Indicator**	**Jan-23**	**Feb-23**	**Mar-23**	**Apr-23**	**May-23**	**Jun-23**	**Jul-23**	**Aug-23**	**Sep-23**
Urban demand	Passenger Vehicles Sales	17.2	11.0	4.5	31.608	33.1	18.7	2.9	9.4	3.1
Rural demand	Two Wheeler Sales	5.0	7.6	7.7	15.1	17.4	1.7	-7.2	0.6	0.8
	Three Wheeler Sales	103.0	86.1	69.2	104.2	70.4	98.6	78.9	68.8	47.0
	Tractor Sales	24.4	20.0	13.7	-11.1	1.2	4.2	6.1	1.1	-14.7
Trade, hotels, transport, communication	Commercial Vehicles Sales	11.8			-3.3			6.91		
	Railway Freight Traffic	3.8	3.6	3.8	3.5	1.9	-1.9	1.51	6.4	6.8
	Port Cargo Traffic	12.2	11.8		1.3	3.2	-2.0	4.2	4.1	0.4
	Domestic Air Cargo Traffic*	-7.5	0.0	-4.4	-1.7	-12.7	-12.2	-14.0	0.6	13.5
	International Air Cargo Traffic*	-4.3	-8.1	0.8	-3.0	-0.5	5.8	-2.7	15.3	28.7
	Domestic Air Passenger Traffic *	95.3	50.2	22.9	23.2	15.9	21.1	25.5	27.3	38.8
	International Air Passenger Traffic *	115.1	98.0	62.4	43.9	35.8	24.1	21.1	25.0	40.5
	GST E-way Bills (Total)	19.7	18.4	16.3	12.2	19.7	15.5	16.4	19.5	9.5
	GST E-way Bills (Intra State)	24.1	22.2	20.7	16.2	23.0	18.8	20.8	22.6	12.4
	GST E-way Bills (Inter State)	12.8	12.4	9.3	5.9	14.3	9.9	9.1	14.4	4.9
	Hotel occupancy rate	81.9	32.2	3.0	-2.4	-3.4	-1.8	-3.2	0.7	
	Average revenue per room	53.1	62.0	39.6	21.2	15.8	14.0	14.2	13.9	
	Tourist Arrivals	330.8	259.4	132.5	53.7	41.3	24.0	13.6	22.6	
Construction	Steel Consumption	7.7	14.6	15.0	8.5	8.6	16.7	15.8	14.5	17.9
	Cement Production	4.7	7.4	-0.2	12.4	15.3	9.9	6.9	18.9	
PMI Index#	Services	57.2	59.4	57.8	62.0	61.2	58.5	62.3	60.1	61.0

Note: #: Data in levels. *: Data are based on the monthly average of daily figures.

Sources: CMIE; CEIC; IHS Markit; SIAM; Airports Authority of India; and Joint Plant Committee; Ministry of Tourism, Ministry of Railways, India Port Association, Ministry of Commerce & Industry, GSTN, HVS Anarock.

High-frequency indicators for the services sector reflect a broad-based uptick in overall economic activity in September 2023. Higher y-o-y growth in air cargo, railway freight and construction indicators of steel consumption and cement production validated the uptick (Table 1).

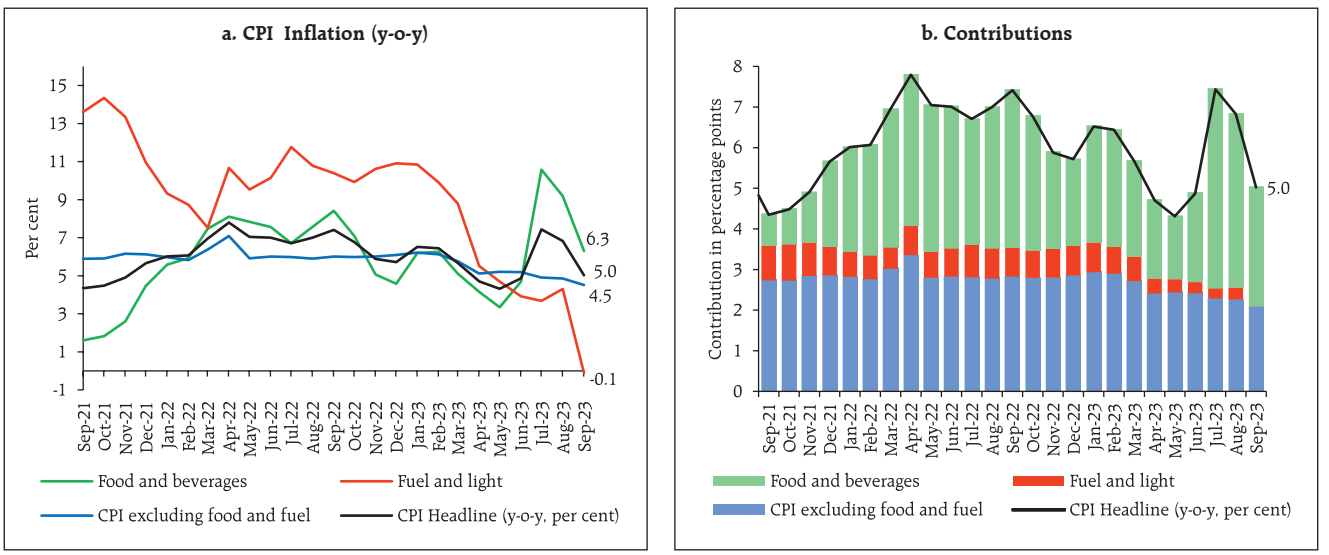
In terms of regional policy initiatives, Maharashtra's New Information Technology (IT) and Information Technology Enabled Services (ITES) Policy seeks to make the state a global hub for IT and ITES technology. Odisha launched the Location Accessible Multi-modal Initiative (LAccMI) to establish a seamless public transport network across the state to ensure sustainable, affordable, assured, and safe transportation of passengers and commodities. To generate employment opportunities, Madhya Pradesh will invest ₹2 lakh crore in the establishment of a petrochemicals complex refinery project. Tamil Nadu introduced a subsidy scheme under the E-Rental (E-*Vaadagaii*) application to meet farmers' need for agricultural machinery.

Inflation

Headline inflation, as measured by y-o-y changes in the all-India consumer price index (CPI)[21], moderated to 5.0 per cent in September 2023 from 6.8 per cent in August (Chart 40). The softening in inflation by 180 bps came from a strong negative momentum of around 110 bps and a favourable base effect of around 60 bps. Food prices recorded a m-o-m decline of around 180 bps while fuel prices fell around 390 bps m-o-m. The index of core prices (*i.e.*, CPI excluding food and fuel) remained unchanged.

[21] As per the provisional data released by the National Statistical Office (NSO) on October 12, 2023.

Chart 40: Trends and Drivers of CPI Inflation

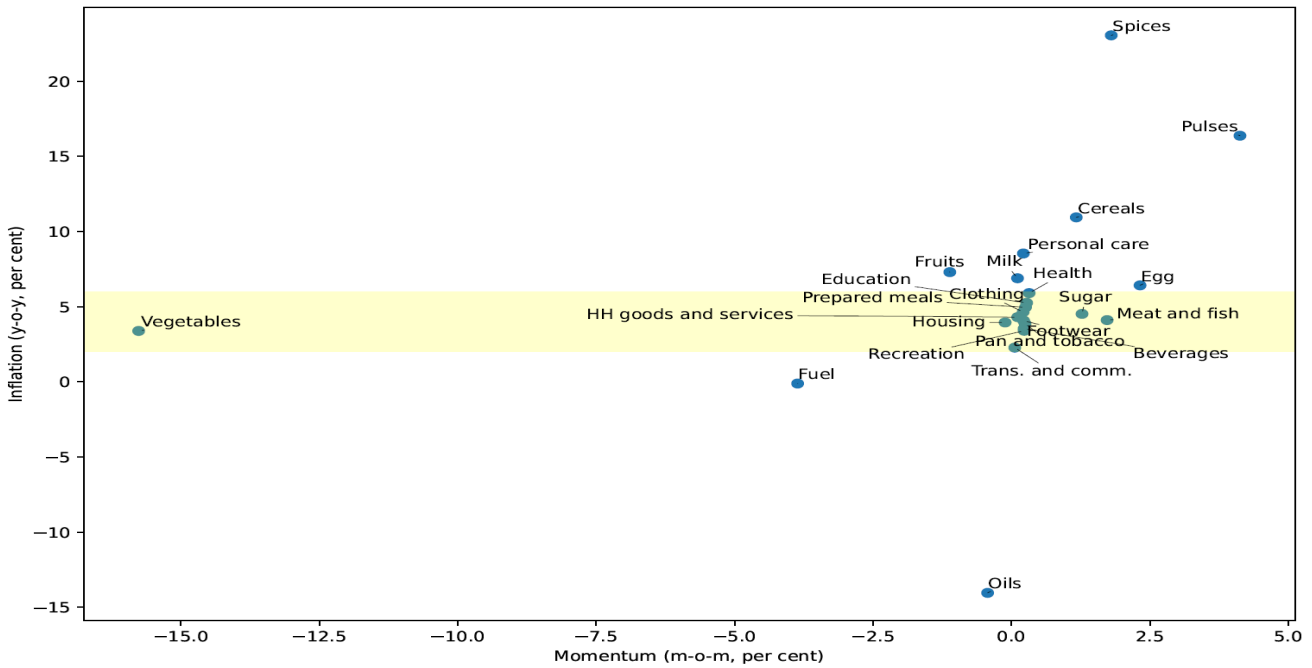


Sources: National Statistical Office (NSO); and RBI staff estimates.

Food inflation (y-o-y) fell to 6.3 per cent in September from 9.2 per cent in August. In terms of sub-groups, vegetable price inflation corrected sharply to 3.4 per cent in September from 26.1 per cent in the previous month. Inflation in cereals, milk, non-alcoholic beverages, and prepared meals also softened. While edible oil prices remained in deflation, inflation edged up in meat and fish, eggs, fruits, pulses and sugar. It remained steady, *albeit* at elevated levels, for spices (Chart 41).

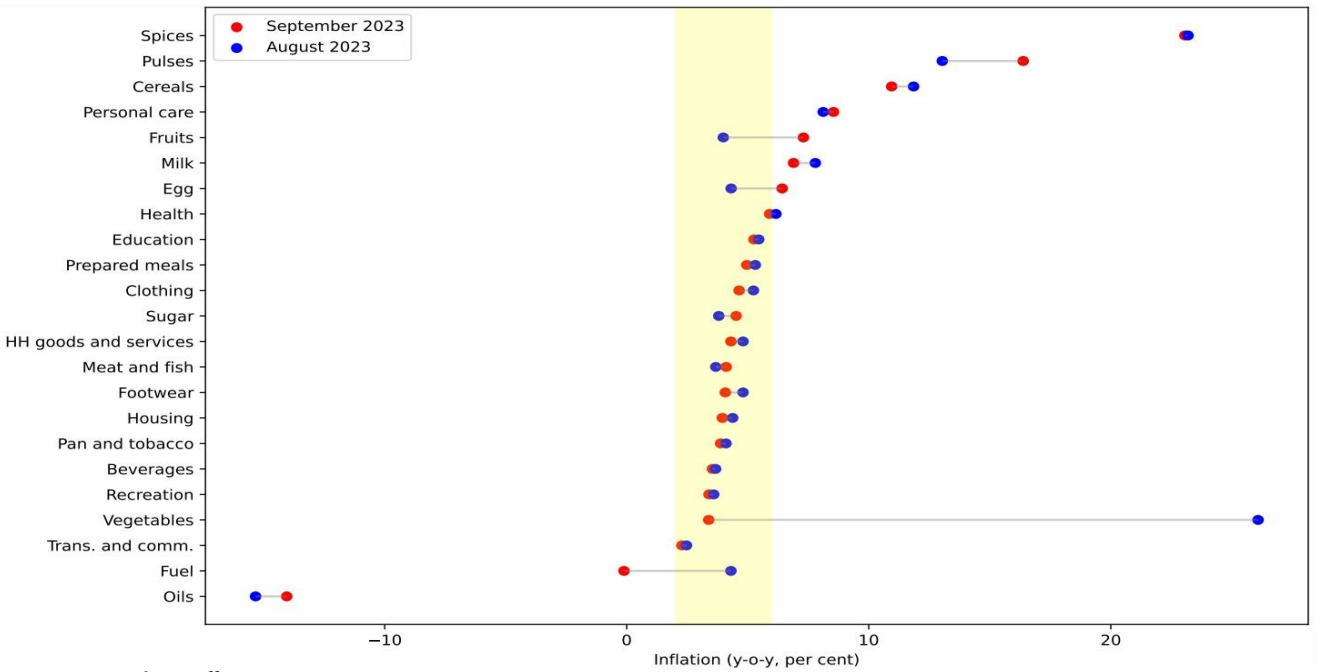
The fuel and light group recorded deflation of (-) 0.1 per cent in September as against an inflation of

Chart 41: Annual Inflation (y-o-y) and Momentum (m-o-m) across Sub-groups



Sources: NSO; and RBI staff estimates.

Chart 42: Annual Inflation across Sub-groups (September 2023 *versus* August 2023)



Sources: NSO; and RBI staff estimates.

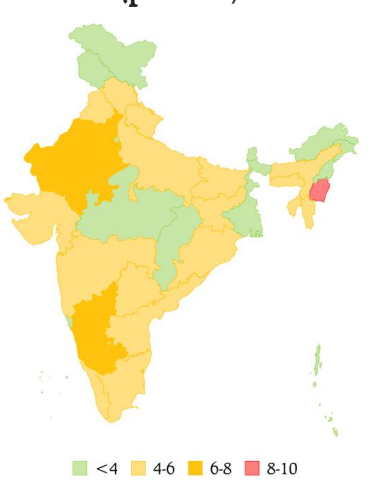
4.3 per cent in August. There was a sharp reduction in LPG prices, reflecting the full impact of the reduction in domestic LPG prices by ₹200 per cylinder effected at the end of August. Electricity, firewood and other cooking fuel prices also registered some moderation on a y-o-y basis. Kerosene prices in the public distribution system (PDS) remained in deflation.

Core inflation moderated to 4.5 per cent in September from 4.9 per cent in August. The moderation was broad-based across most sub-groups (Chart 42). Inflation in personal care and effects, on the other hand, edged up after softening for three consecutive months due to a pick up in gold prices.

In terms of regional distribution, rural inflation at 5.3 per cent was higher than urban inflation (4.7 per cent). Majority of the states registered inflation in the range of 4-6 per cent. Haryana, Karnataka, and Rajasthan recorded inflation between 6 to 8 per cent (Chart 43).

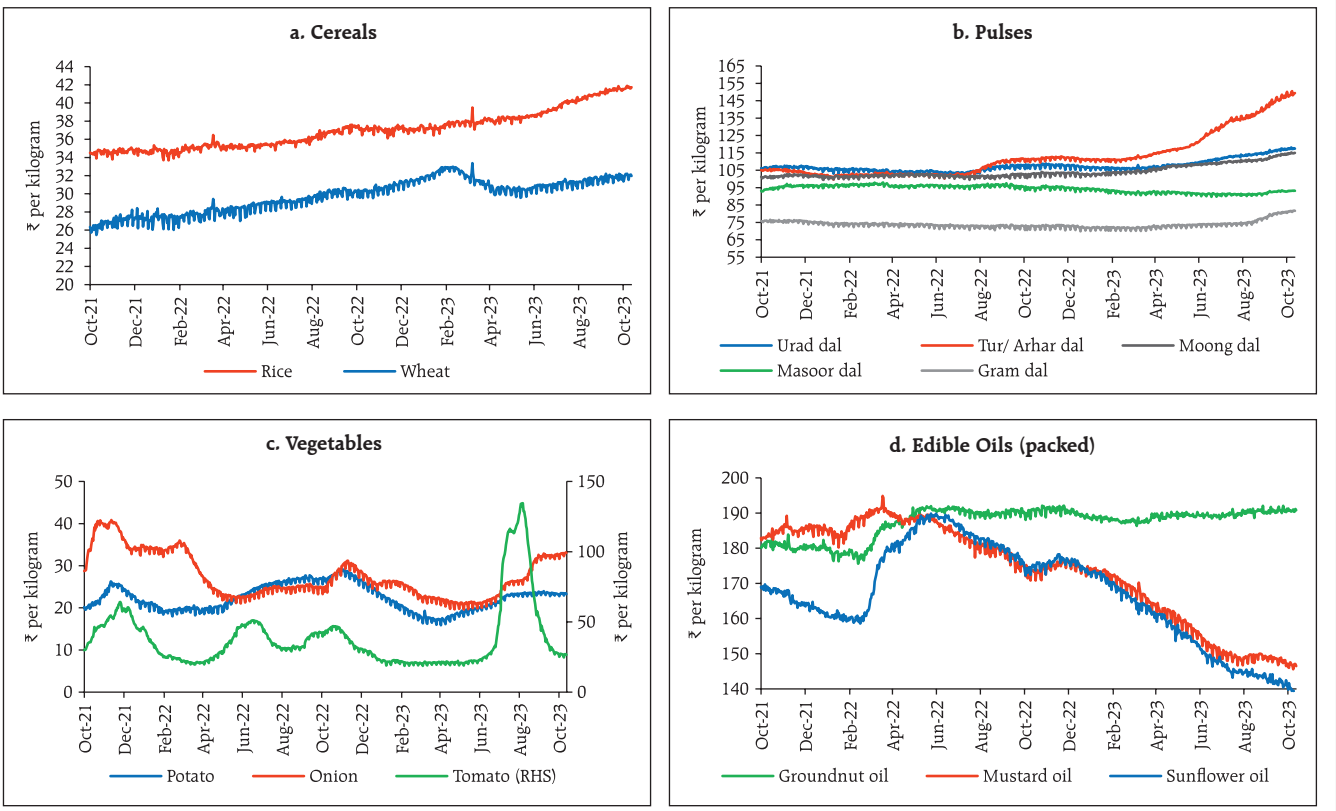
High frequency food price data for October (up to 12th) show that while cereal and pulses prices rose further, edible oil prices remained in a broad-based decline (Chart 44). Amongst key vegetables, tomato

Chart 43: Spatial Distribution of Inflation September 2023 (CPI-Combined, y-o-y), (per cent)



Note: Map is for illustrative purposes only.
Sources: NSO; and RBI Staff estimates.

Chart 44: DCA Essential Commodity Prices



Sources: Department of Consumer Affairs, GoI; and RBI staff estimates.

prices continued to correct in October. Onion prices registered a sequential uptick, although at a lower rate. Potato prices remained largely steady.

Retail selling prices of petrol and diesel in the four major metros remained steady in October (up to 12th). While kerosene prices increased further following the upsurge in international prices, LPG prices were kept unchanged in September and October (Table 2).

The PMIs for September 2023 indicated a moderation in input costs across manufacturing and services. Selling prices, on the other hand, increased in the manufacturing sector while they moderated for the services sector (Chart 45). Surveys conducted by the Reserve Bank indicate that, going forward, input cost pressures remain firm for the manufacturing sector while services and infrastructure companies expect them to moderate (Annex 1).

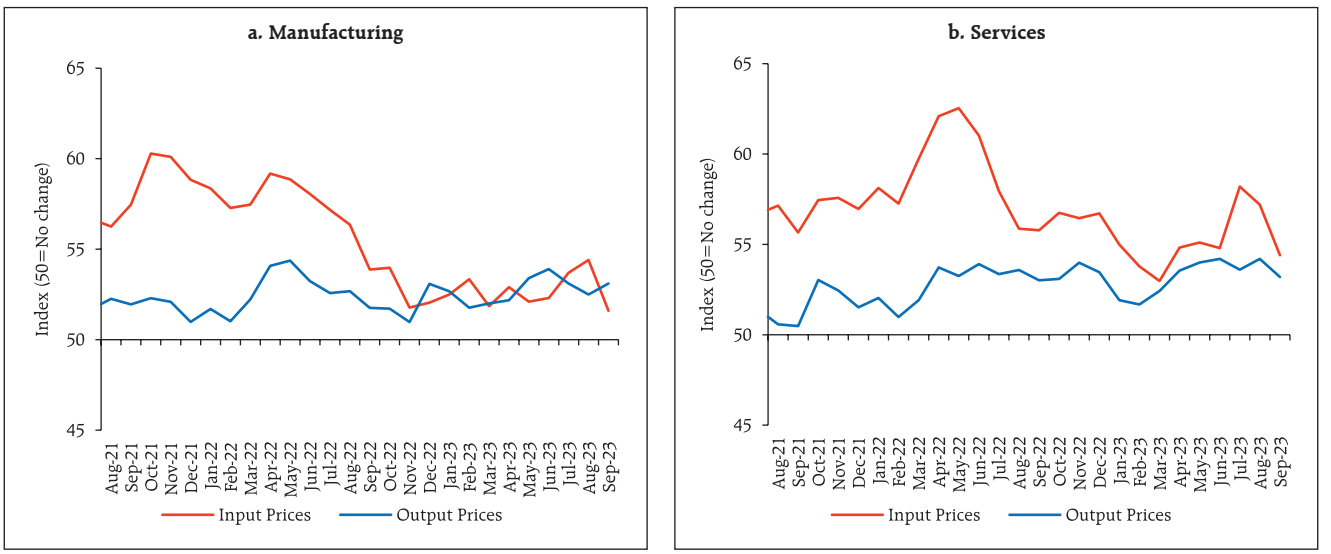
Households' median inflation expectations declined by 90 basis points (bps) and 40 bps over three months and one year horizons, respectively, to revert to single digits since the onset of the Covid-19 pandemic

Table 2: Petroleum Products Prices

Item	Unit	Domestic Prices			Month-over-month (per cent)	
		Oct-22	Sep-23	Oct-23^	Sep-23	Oct-23^
Petrol	₹/litre	102.92	102.92	102.92	0.0	0.0
Diesel	₹/litre	92.72	92.72	92.72	0.0	0.0
Kerosene (subsidised)	₹/litre	57.55	54.89	57.95	15.2	5.6
LPG (non-subsidised)	₹/cylinder	1063.25	913.25	913.25	-17.0	0.0

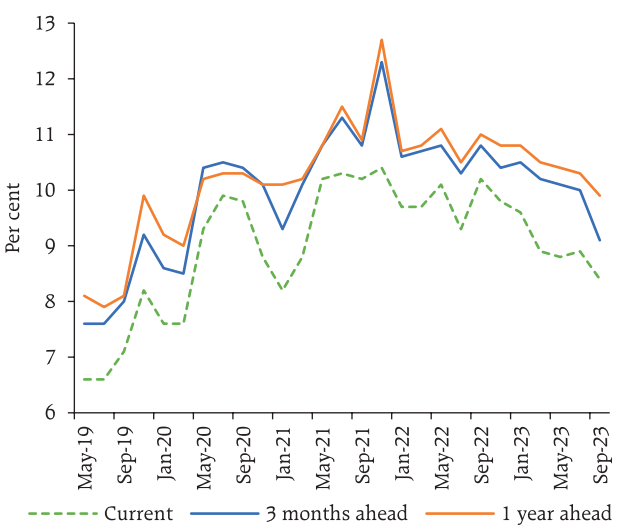
^: For the period October 1-12, 2023.
Note: Other than kerosene, prices represent the average Indian Oil Corporation Limited (IOCL) prices in four major metros (Delhi, Kolkata, Mumbai and Chennai). For kerosene, prices denote the average of the subsidised prices in Kolkata, Mumbai and Chennai.
Sources: IOCL; Petroleum Planning and Analysis Cell (PPAC); and RBI staff estimates.

Chart 45: PMI: Input and Output Prices



Source: S&P Global

Chart 46: Households' Median Inflation Expectations



Source: IESH, RBI.

(Chart 46). The share of households expecting higher inflation for the major product groups has also come down.

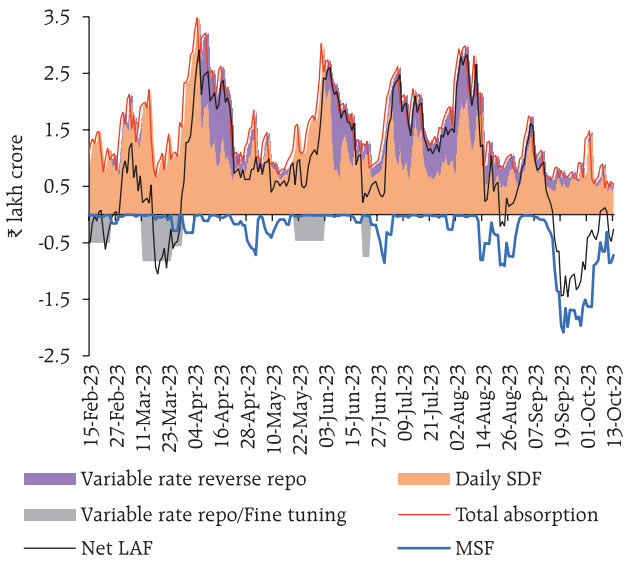
IV. Financial Conditions

Consistent with the policy decision and stance in the fourth bi-monthly policy meeting of 2023-24 held during October 4-6, the Governor's statement indicated that liquidity would be modulated through various instruments, including open market sales, as needed. The build-up of government cash balances due to advance tax collections and GST payments tightened liquidity conditions during the second half of September and early October. Consequently, the average total absorption under the liquidity adjustment facility (LAF) declined to about ₹0.8 lakh crore during September 16 – October 13, 2023 from ₹1.0 lakh crore during August 16 to mid-September (Chart 47). Of the total average surplus liquidity, placement of funds under the standing deposit facility (SDF) averaged ₹0.7 lakh crore while the remaining amount was mopped up through main operations in the form of variable rate reverse repo (VRRR).

The 14-day VRRR auction conducted on October 6 elicited offers of ₹6,668 crore against a notified amount of ₹50,000 crore at a cut-off rate of 6.49 per cent. As noted in earlier edition of this article, banks have preferred to place funds under the overnight SDF instead of the 14-day VRRR main operations, reflecting heightened uncertainty surrounding payment obligations related to large tax outflows.

As liquidity conditions tightened, recourse to the marginal standing facility (MSF) increased, with daily

Chart 47: Liquidity Operations

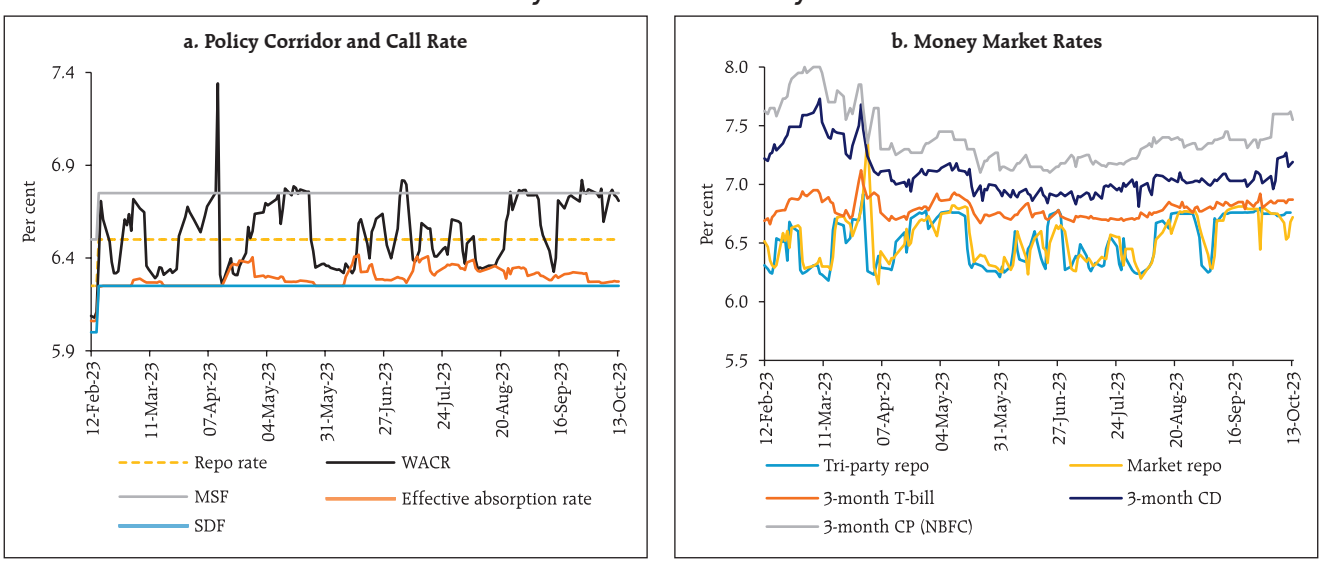


Sources: RBI; and CCIL.

average borrowings during this period at ₹1.3 lakh crore (₹0.30 lakh crore during August 16 – September 15). On a daily basis, MSF borrowings touched an all-time high of ₹1.99 lakh crore on September 21. Large placement of funds under the SDF alongside simultaneous recourse to the MSF is symptomatic of skewed liquidity distribution in the banking system. Net LAF (including MSF) operations slipped into deficit, with the Reserve Bank engaging in average daily net injection of ₹0.7 lakh crore.[22] With the release of the remaining impounded I-CRR funds and a pickup in government spending, liquidity conditions should ease despite the festival time increase in currency demand.

Reflecting the tight liquidity conditions, overnight money market rates hovered close to the ceiling of the LAF corridor during the second half of September.[23] On an average, the WACR, triparty and market repo rates traded 23 bps, 26 bps and 22 bps, respectively, above the policy repo rate (Chart 48a). Across the term money segment, the yields on 3-month CDs and commercial paper (CP) for NBFCs stayed elevated,

Chart 48: Policy Corridor and Money Market Rates



Sources: RBI; Bloomberg; and RBI staff estimates.

[22] Average net LAF slipped into deficit mode in September – the first time since May 2019.

[23] Overnight money market rates dropped on September 28 reflecting lower borrowing requirement on that day which was earlier a scheduled holiday and cancelled later. To ensure smooth functioning of the financial markets and non-disruptive settlement of transactions especially in view of the quarter / half year end, the RBI decided, in public interest, to keep the Government securities market, foreign exchange market, money market and rupee interest rate derivatives market operational on September 29, 2023 in addition to September 28, 2023.

while the yield on 3-month treasury bills (T-bills) was broadly aligned with the MSF rate (Chart 48b).

Fund mobilisation through issuances of CDs has picked up to ₹3.31 lakh crore during 2023-24 (up to October 6) from ₹3.08 lakh crore in the corresponding period of the previous year as banks tried to bridge the funding gap caused by faster credit *vis-à-vis* deposit growth. CP issuances at ₹7.1 lakh crore (up to September 30) were broadly unchanged *vis-à-vis* ₹7.3 lakh crore a year ago.

Domestic bond yields firmed up, taking cues from the rise in the US treasury yields, with the 10-year benchmark yield rising to 7.32 per cent on October 13 from 7.21 per cent on October 5 (Chart 49a). Yields hardened across the term structure and the yield curve shifted upwards (Chart 49b).

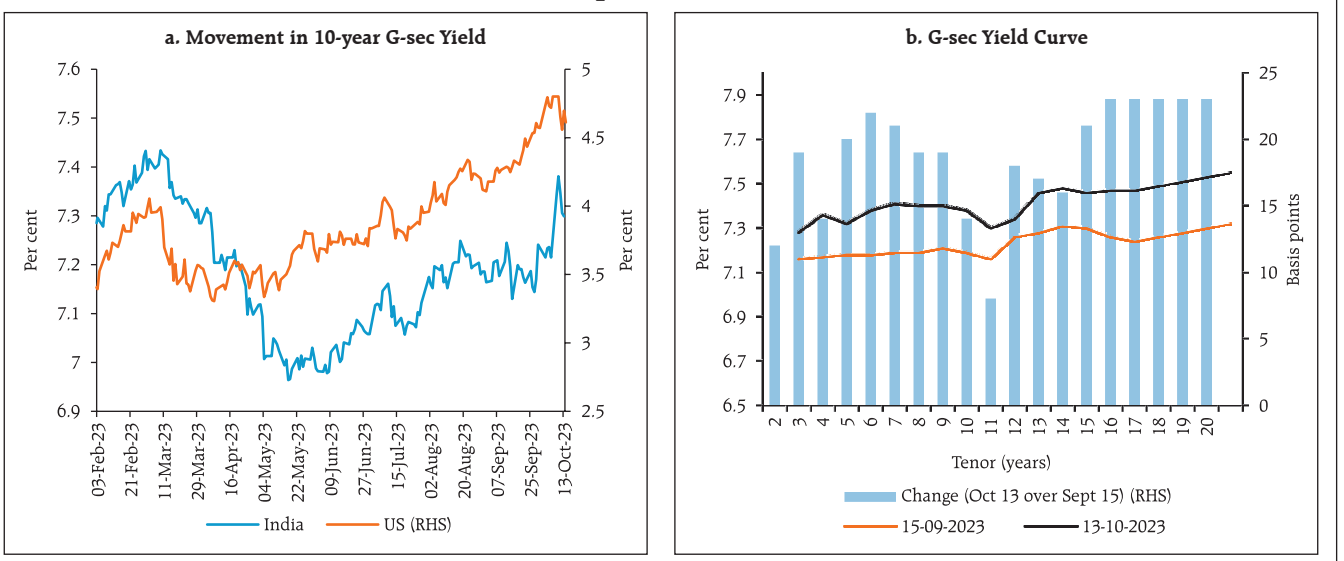
Corporate bond yields exhibited mixed trend and associated risk premia narrowed during September 18 to October 12, 2023; however, the average risk premia in the liquid segment of the bond market (5-year AAA *minus* 5 year G-sec) remained unchanged indicating healthy investor appetite (Table 3). Favourable market conditions and a cost advantage over bank loans have increased the demand for corporate bonds. Overall, corporate bond issuances during the current year so far (up to September) at ₹3.9 lakh crore is sharply higher than ₹2.8 lakh crore during the same period of the previous year.

Table 3: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (basis points) (Over Corresponding Risk-free Rate)		
	Aug 17, 2023 – Sept 15, 2023	Sept 18, 2023 – Oct 12, 2023	Variation	Aug 17, 2023 – Sept 15, 2023	Sept 18, 2023 – Oct 12, 2023	Variation
1	2	3	(4 = 3-2)	5	6	(7 = 6-5)
Corporate Bonds						
(i) AAA (1-year)	7.68	7.72	4	55	52	-3
(ii) AAA (3-year)	7.88	7.83	-5	57	43	-14
(iii) AAA (5-year)	7.69	7.75	6	36	36	0
(iv) AA (3-year)	8.49	8.46	-3	117	107	-10
(v) BBB-(3-year)	12.17	12.16	-1	485	477	-8

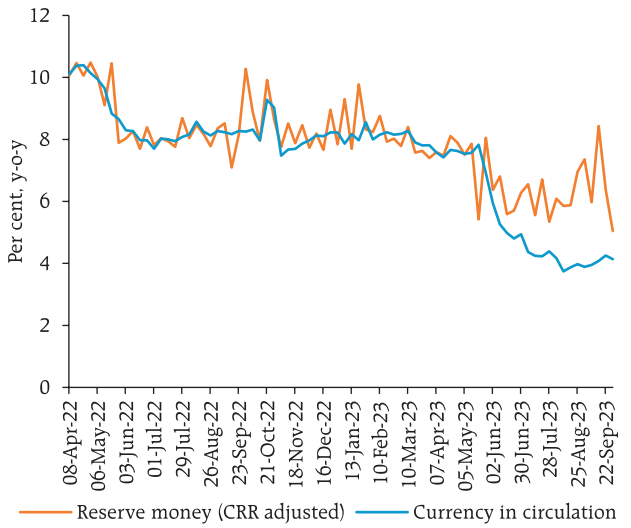
Note: Yields and spreads are computed as monthly averages.
Sources: FIMMDA; and Bloomberg.

Chart 49: Developments in the G-sec Market



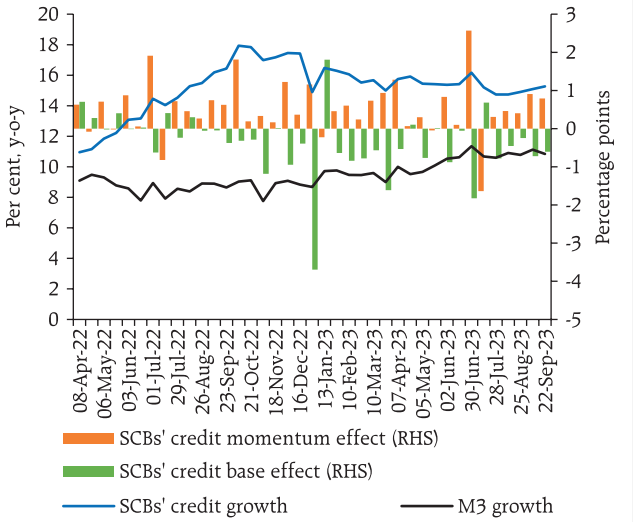
Sources: Bloomberg; CCIL; and RBI staff estimates.

Chart 50: Reserve Money and Currency in Circulation



Source: RBI.

Chart 51: M_3 Growth and Credit Growth of SCBs - Base and Momemtum Effect



Source: RBI.

Reserve money (RM), excluding the first-round impact of change in the cash reserve ratio (CRR)[24], recorded a growth of 6.1 per cent (y-o-y) as on October 13, 2023 (8.0 per cent a year ago) [Chart 50]. Growth in currency in circulation (CiC), the largest component of RM, decelerated to 3.6 per cent from 8.0 per cent a year ago, reflecting the withdrawal of ₹2000 banknotes[25] – 96 per cent has been returned to the banking system (as on September 30, 2023), mostly in the form of deposits. In terms of value, of the total ₹3.56 lakh crore of ₹2000 banknotes in circulation as on May 19, 2023, ₹3.42 lakh crore has been received back leaving only ₹0.14 lakh crore in circulation as at the close of business on September 29, 2023. The facility to deposit/exchange of ₹2000 banknotes was extended from September 30 until October 7, 2023.

As on October 6, 2023 money supply (M_3) expanded by 11.0 per cent (y-o-y) as against 9.0 per cent a year ago. Aggregate deposits, the largest component of M_3, increased by 12.2 per cent (9.1 per cent a year ago). Scheduled commercial banks' (SCBs') credit (excluding the impact of the merger of HDFC with HDFC bank) growth remained robust at 14.7 per cent as on October 6, 2023 (Chart 51).

During May 2022 to August 2023, the weighted average lending rate (WALR) on fresh rupee loans increased by 196 bps. The WALR on outstanding rupee loans increased by 112 bps during May 2022 to August 2023. On the deposit side, the weighted average domestic term deposit rate (WADTDR) on fresh and outstanding deposits increased by 233 bps and 157 bps, respectively, during the same period. While the WADTDR on fresh deposits has declined in recent months, rates on outstanding term deposits continue reflecting the repricing at higher rates (Table 4). Savings deposit rates of banks have responded slowly, moderating the extent of transmission to total deposit rates (including term as well as savings deposits).[26]

The pass-through to WALR on fresh rupee loans and WADTDR on fresh deposits was higher for public sector banks than for private banks, while transmission

[24] This takes into account the impact of imposition of Incremental CRR (I-CRR).

[25] Announced on May 19, 2023.

[26] For details see Monetary Policy Report, October 2023.

Table 4: 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 - Year MCLR (Median)	WALR (Fresh Rupee Loans)	WALR (Outstanding Rupee Loans)
Feb 2019 to Mar 2022	-250	-259	-188	-250	-155	-232	-150
May 2022 to Aug 2023	250	233	157	250	154*	196	112
of which:							
Apr to Aug 2023	0	-12	44	0	15*	15	12

*: Latest data on MCLR are up to September 2023.

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

2. Data on EBLR pertain to 32 domestic banks.

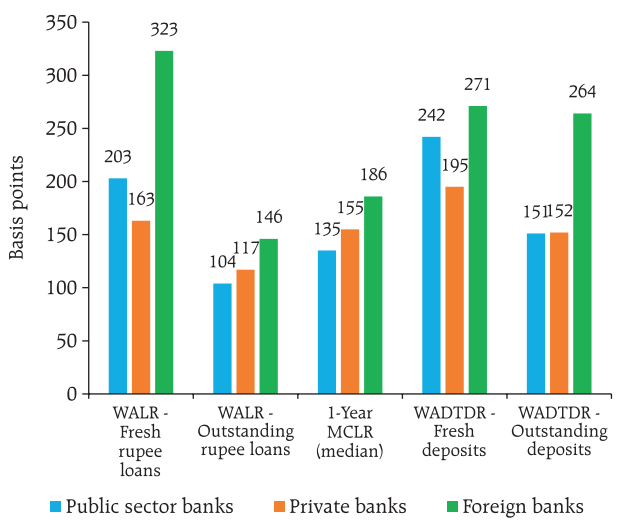
Source: RBI.

to WALR on outstanding loans was higher for private banks (Chart 52).

On September 29, the government increased the interest rate on the five-year recurring deposit scheme to 6.7 per cent from 6.5 per cent for Q3:2023-24, while keeping the rates same for all other small savings schemes (Chart 53).[27]

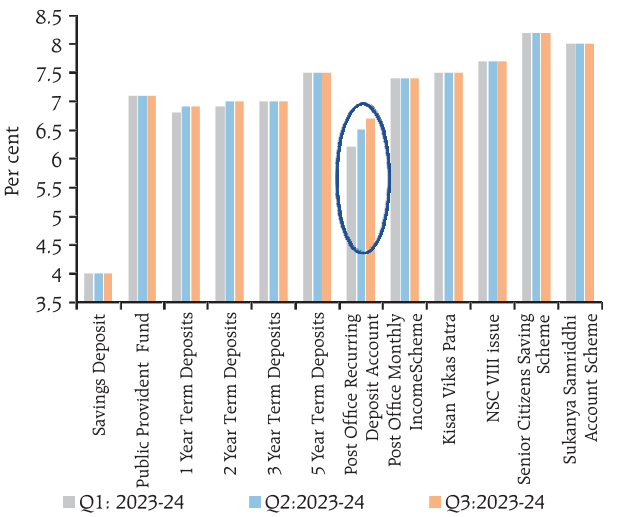
During September 2023, the BSE Sensex increased by 4.64 per cent in the first half of the month, scaling new peaks on strong macroeconomic fundamentals. The benchmark index registered losses in the second half, declining by 2.96 per cent as markets prepared for a high interest rate environment globally following hawkish commentary from the US Fed and the rising 10-year US treasury yield. Overall, the market ended with marginal gains of 1.54 per cent during the month (Chart 54). The broader market indices continued their uptrend, with the BSE MidCap and SmallCap increasing by 3.65 per cent and 1.13 per cent, respectively, during the month. The primary market

Chart 52: Transmission across Bank Groups (May 2022 to August 2023)



Source: RBI.

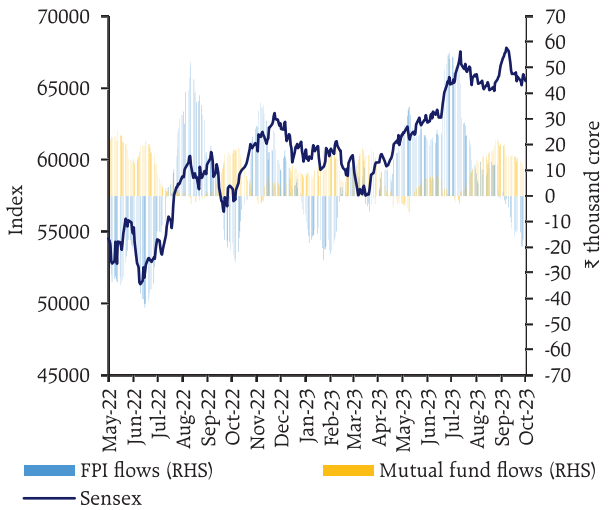
Chart 53: Small Savings Instruments Interest Rates



Source: GoI.

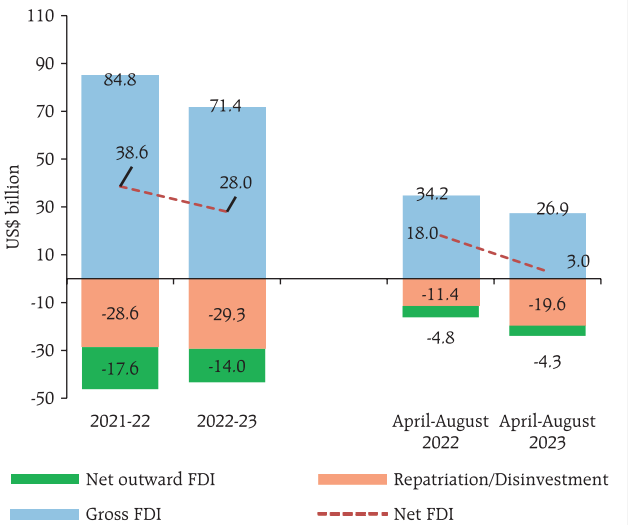
[27] https://dea.gov.in/sites/default/files/RuI_Q3_2324.pdf

Chart 54 : BSE Sensex and Institutional Flows



Note: FPI and MF flows are represented on 15-days rolling sum basis.
Source: Bloomberg.

Chart 55: Foreign Direct Investment Flows to India



Source: RBI.

experienced vibrant activity with 31 initial public offerings (IPOs) comprising a total issue size of ₹9,285 crore – the highest in the current year.

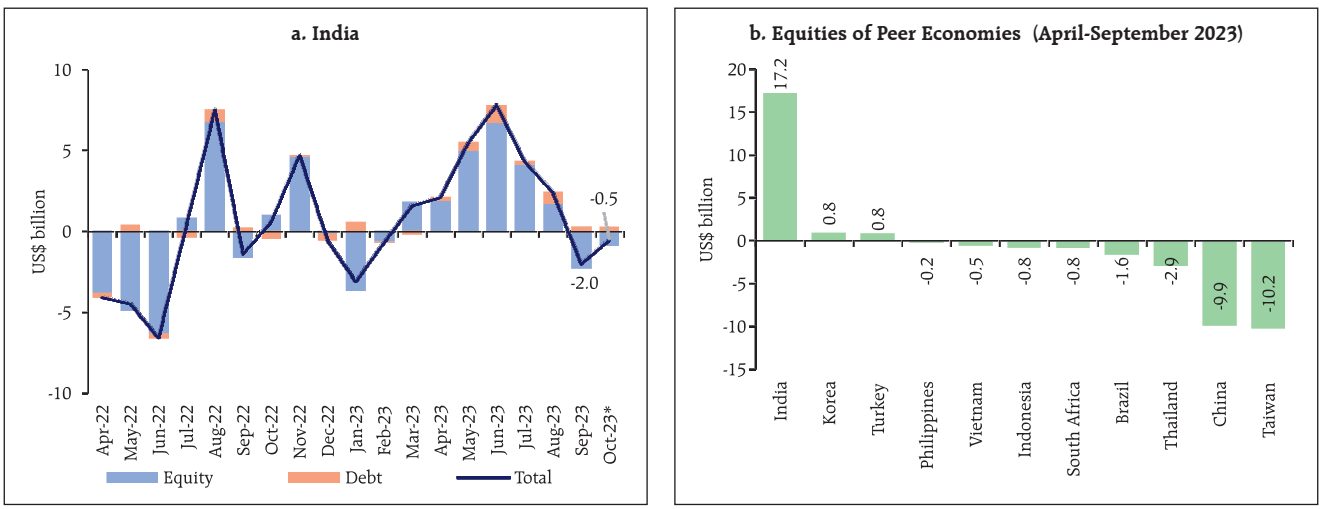
In October, thus far, markets have remained under pressure from the elevated yields globally as well as worsening geopolitical situation in the Middle-East. The markets have registered marginal gains of 0.69 per cent till October 13, 2023. Positive macroeconomic releases have weighed against global uncertainties to keep the markets rangebound.

Gross inward FDI moderated to US$ 26.9 billion during April-August 2023 from US$ 34.2 billion a year ago (Chart 55). Manufacturing, financial services, business services, computer services, electricity and other energy sectors contributed around two-third of the FDI equity flows. There was moderation in flows directed towards computer services, manufacturing, financial services and electricity and other energy sectors. Singapore, Japan, the US, the Netherlands and Mauritius were major source countries, accounting for more than two-thirds of the FDI equity flows during the same period. FDI inflows from Singapore, Mauritius and the US slowed during April-August 2023. Net FDI declined to US$ 3.0 billion during April-August 2023 from US$ 18.0 billion a year ago on account of moderating gross FDI and a rise in repatriation.

After sustained buying in the last six months, foreign portfolio investors (FPIs) turned net sellers in domestic financial markets in September 2023, with net outflows of US$ 2.0 billion, led by the equity segment (Chart 56a). Within equity, power, oil, gas and consumable fuels, and metals and mining recorded outflows, whereas capital goods and consumer services attracted fresh investments. Amidst high US bond yields and strong US dollar, other EMEs also faced outflow pressures during the month. During the current financial year (up to September 2023), net FPI inflows to India stood at US$ 20.3 billion, with equity inflows at US$ 17.2 billion – the highest among emerging market peers (Chart 56b). In October 2023 (up to 12th), net sales by FPIs were to the tune of US$ 0.5 billion.

Net accretions to non-resident deposits rose to US$ 3.7 billion during April-August 2023, led by accretions to Foreign Currency Non-Resident [FCNR(B)] accounts, as compared with US$ 1.4 billion during the same period a year ago.

Chart 56: Net Portfolio Investments

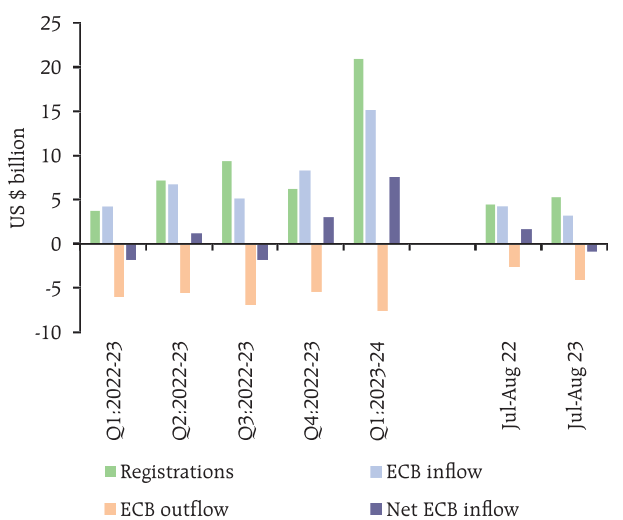


Note: 1. Debt includes investments under the voluntary retention route and hybrid instruments.
2. *: Data for October 2023 is up to October 12, 2023.
Sources: National Securities Depository Limited; and Institute of International Finance.

After a surge in Q1:2023-24, external commercial borrowing (ECB) registrations have reverted to their long period monthly average levels in recent months. Gross disbursements of ECBs to India at US$ 18.3 billion during April-August 2023, was more than double US$ 8.3 billion a year ago. On a net basis, ECBs recorded inflows of US$ 6.8 billion as against a small net outflow in the corresponding period of the previous year (Chart 57).

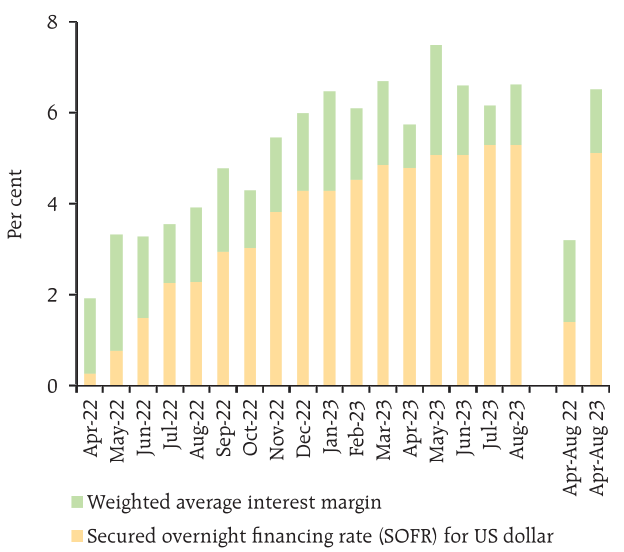
Global monetary tightening led to higher cost of ECBs raised during April-August 2023, even as the weighted average interest margin over the benchmark rates came down to 139 bps from 177 bps a year ago (Chart 58).

Chart 57: External Commercial Borrowings - Registrations and Flows



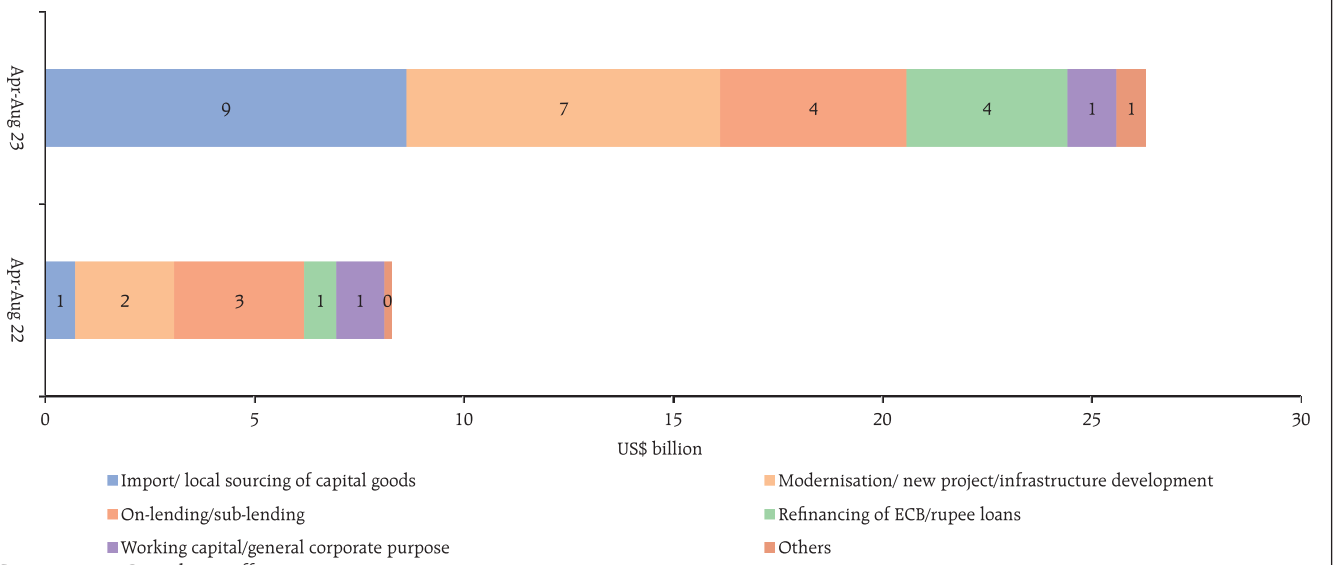
Source: RBI.

Chart 58: Overall Cost of ECBs



Sources: Form ECB; and RBI staff estimates.

Chart 59: End-use of the Registered ECBs

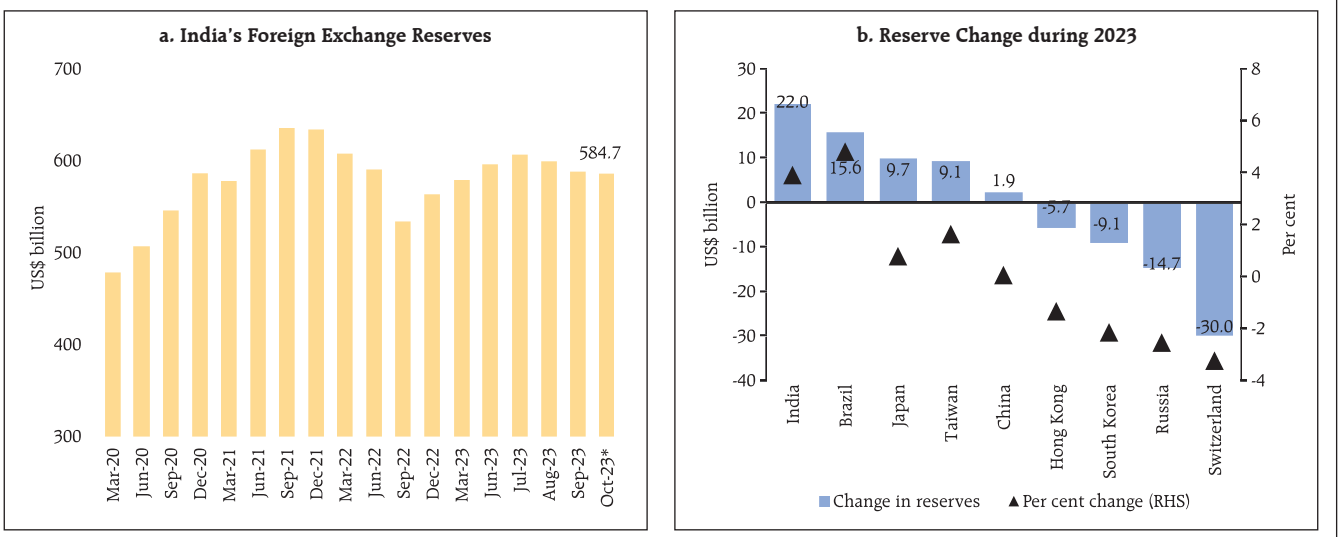


Sources: Form ECB; and RBI staff estimates.

Nearly two-thirds of ECBs registered during April-August 2023 were earmarked for capital expenditure purposes (Chart 59).

The foreign exchange reserves stood at US$ 584.7 billion on October 6, 2023 covering about 10 months of imports projected for 2023-24 (93 per cent of total external debt outstanding at end-June 2023) [Chart 60a]. During the calendar year 2023, India's foreign exchange reserves increased by US$ 22.0 billion, which is the highest among major foreign exchange reserves holding countries (Chart 60b).

Chart 60: Foreign Exchange Reserves



Note: Data for India and Russia are for October 6, 2023, and August for Hong Kong and Switzerland, and September for the remaining countries.
Sources: RBI; and respective central bank websites.

Chart 61: Movements of the Indian Rupee and Major Currencies against the US Dollar

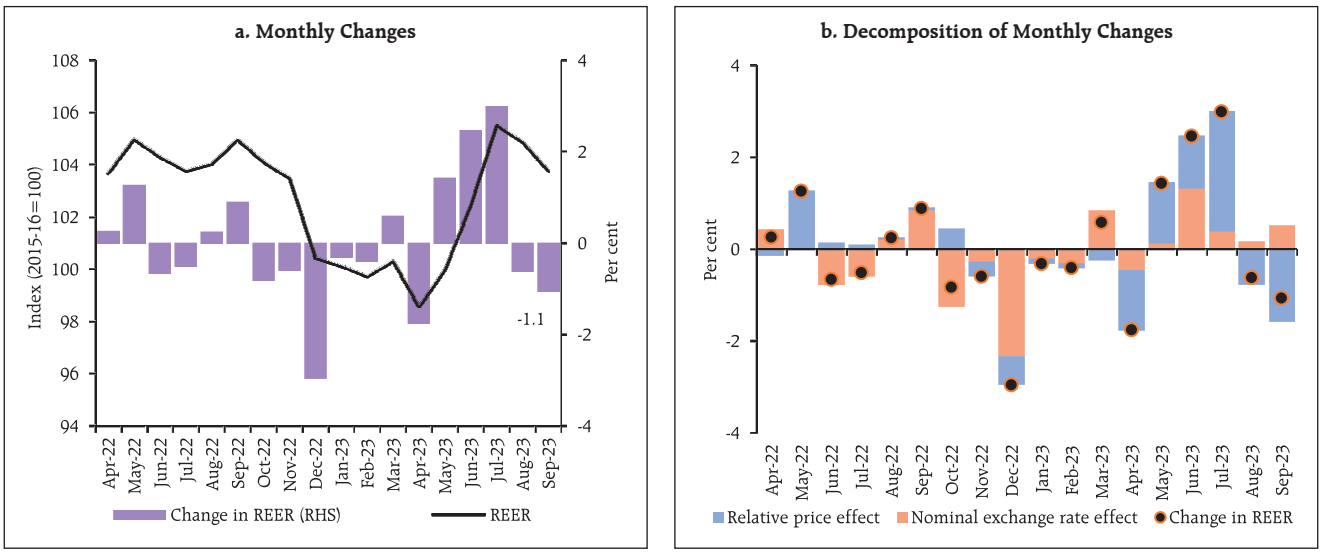
Note: Data represents m-o-m change (September 2023 over August 2023).
Sources: FBIL; Thomson Reuters; and RBI staff estimates.

The Indian rupee (INR) depreciated by 0.3 per cent (m-o-m) vis-à-vis the US dollar in September 2023 (Chart 61). The INR remained one of the least volatile among major currencies during the month.

The INR depreciated by 1.1 per cent (m-o-m) in terms of the 40-currency real effective exchange rate (REER) in September 2023 as negative relative price/cost differentials more than offset the appreciation of the INR in nominal effective terms (Chart 62).

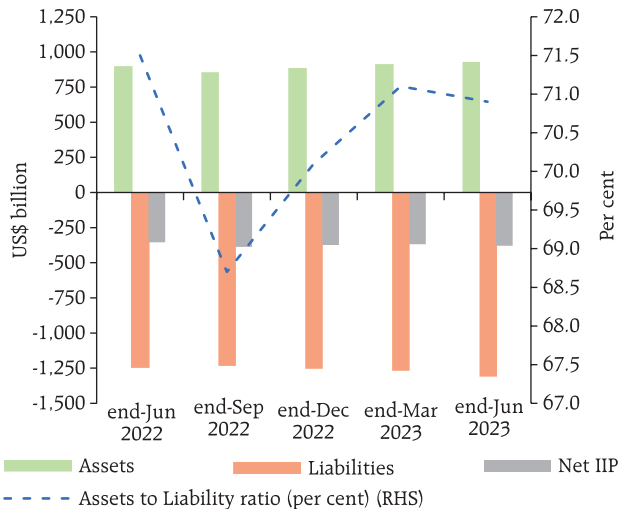
India's net international investment position (IIP) increased by US$ 12.1 billion during Q1:2023-24 due to a rise in foreign-owned financial assets in the country *vis-a-vis* residents' overseas financial assets (Chart 63). Reserve assets accounted for 64.2

Chart 62: Movements in the 40-Currency Real Effective Exchange Rate



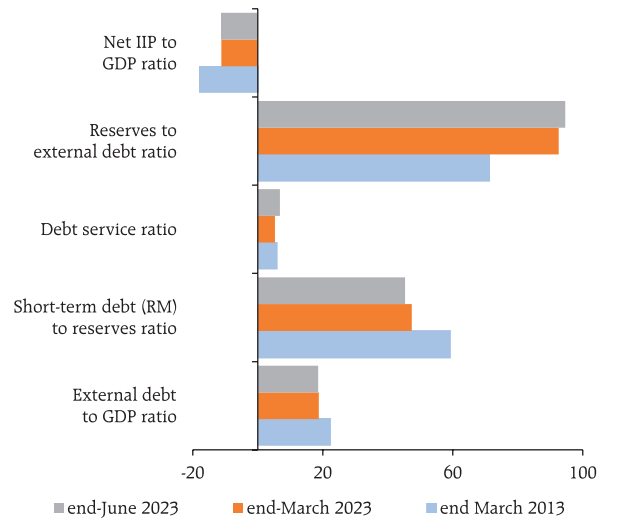
Source: RBI.

Chart 63: Movement of Net IIP and Asset to Liability Ratio



Source: RBI.

Chart 64: External Vulnerability Indicators of India



Source: RBI.

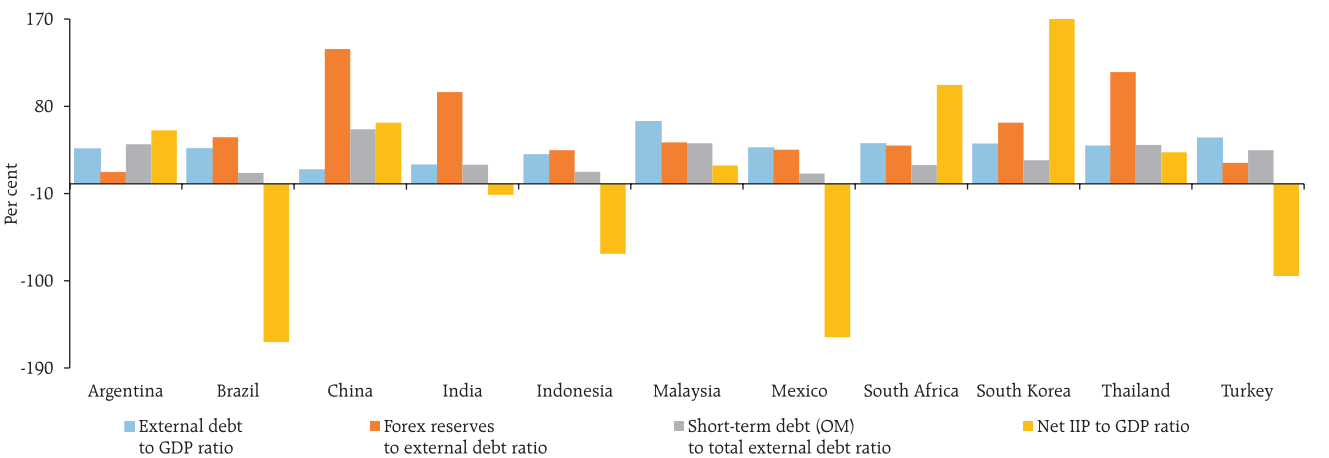
per cent of India's total international financial assets. Liabilities consisted of debt and non-debt components in equal share. The ratio of India's international assets to international liabilities was 70.9 per cent and net claims of non-residents on India stood at US $ 379.7 billion in June 2023.

Key indicators of external sector vulnerability remained at sustainable levels at end-June 2023 (Chart 64), indicating India's external sector resilience (Chart 65).

Payment Systems

Digital payment transactions displayed steady growth (y-o-y) across large value and retail payment modes in September 2023 (Table 5). The Unified Payments Interface (UPI) recorded more than 10

Chart 65: External Vulnerability Indicators: Cross Country Comparison



Notes: 1. OM: Original Maturity.
2. The ratios pertaining to forex reserves to external debt ratio for Thailand are for end-December 2022, net IIP to GDP ratio for Malaysia and South Africa are for end-March 2023 while all other ratios pertain to end-June 2023.

Sources: RBI; World Bank; and Bloomberg.

Table 5: Growth in Select Payment Systems

(y-o-y in per cent)

Payment System Indicators	Transaction Volume				Transaction Value			
	Aug-22	Aug-23	Sep-22	Sep-23	Aug-22	Aug-23	Sep-22	Sep-23
RTGS	12.9	16.0	13.6	7.9	14.8	17.8	24.6	5.5
NEFT	29.5	35.6	29.0	29.2	19.1	19.1	20.8	7.0
UPI	85.1	60.8	85.5	55.7	67.9	46.9	70.5	41.4
IMPS	23.0	4.8	20.1	2.3	39.3	15.3	40.2	11.7
NACH	14.3	14.1	38.2	20.2	24.3	17.9	28.1	14.1
NETC	35.2	13.3	33.9	15.4	38.0	21.9	41.1	19.9
BBPS	48.5	23.9	49.5	20.2	56.1	46.5	36.8	43.8

Note: RTGS: Real Time Gross Settlement; **NEFT:** National Electronic Funds Transfer; **UPI:** Unified Payments Interface; **IMPS:** Immediate Payment Service; **NACH:** National Automated Clearing House; and **NETC:** National Electronic Toll Collection; **BBPS:** Bharat Bill Payment System.
Source: RBI.

billion transactions for the second consecutive month, with the aggregate transaction value reaching ₹15.8 lakh crore. Within the UPI, the average ticket size for person-to-merchant (P2M) transactions reduced to ₹640 in September 2023 from ₹717 in September 2022, indicating a shift towards digital payments even for low-value transactions. Transaction volumes under the National Electronic Toll Collection (NETC) recorded an uptick, pushed up by rising vehicle density and enhancements in FASTag usage. In the cards segment, credit card spending scaled the peak of ₹1.48 lakh crore in August on the back of robust growth in e-commerce and point-of-sale transactions.

Merchant payments are poised to drive the next phase of growth in the Indian digital payment ecosystem. Buoyed by low transaction fees and expanding acceptance, P2M transactions in India are projected to constitute 75 per cent of all UPI transactions by 2025, up from 58.5 per cent in September 2023.[28] Recent digital innovations, including conversational payments, the UPI Tap and Pay facility, and credit lines on the UPI are expected to further boost adoption of digital payments.

In the Statement on Developmental and Regulatory Policies announced on October 06, 2023[29], the Reserve Bank extended the Payment Infrastructure Development Fund (PIDF) Scheme by two years up to December 31, 2025, including for beneficiaries of the PM *Vishwakarma* Scheme in all centres, thereby encouraging deployment of emerging modes of payment acceptance to promote digital transactions at grassroots level. Additionally, it has been proposed to introduce Card-on-File (CoF) token creation facilities directly at the issuer bank level.

Conclusion

In this strange and heady environment of formidable global headwinds and resilient domestic economic activity, the MPC met during October 4-6 for its fourth bi-monthly meeting for the year 2023-24. Its resolution reflects the approaching of an inflection point in the conduct of monetary policy in India. The MPC observed that the expected correction in vegetable prices from the spike of July-August along with the recent reduction in LPG prices could improve the near-term inflation outlook. A major positive development is the relative stability in core inflation, with services inflation muted. While risks are evenly balanced, with weather conditions and volatile global energy and food prices weighing in on the upside, firms across manufacturing and services sectors expect moderation in growth of selling prices. Households are looking through the current inflation

[28] Worldline. *India Digital Payments Report HI 2023*. September 27, 2023.

[29] https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=56503

spike, awaiting better days three months and a year ahead. Consumer confidence in the fight against inflation is upbeat. Accordingly, the MPC retained the CPI inflation forecast at 5.4 per cent for 2023-24, the same as in its August 2023 meeting. Inflation is projected to ease to 4.5 per cent in 2024-25 in the Reserve Bank's monetary policy report (MPR).

In the assessment of the MPC, the outlook for domestic activity is brightening on account of the sustained buoyancy in services, consumer and business optimism, public spending on infrastructure and the underlying strength of the financial sector's balance sheet even as corporations deleverage and post strong bottom lines. Growth is expected to gain momentum through the rest of the year, especially from the impetus of festival spending. On the external front, the current account deficit (CAD) is modest and more than financed, with foreign exchange reserves providing a strong buffer that is insulating the economy from global spillovers as well as from the slowdown in external demand. While recognising global risks and the volatility in financial markets that they entail, the projection of real GDP growth for 2023-24 was also retained at 6.5 per cent by the MPC, as in June. The MPR maintained 6.5 per cent as the projection of growth for 2024-25.

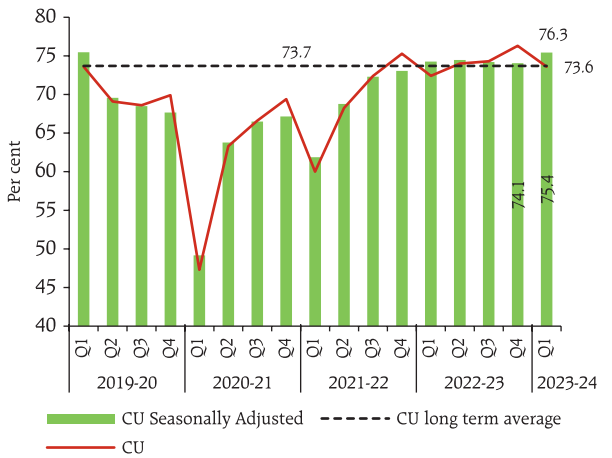
With this growth-inflation configuration going forward, the MPC decided to remain on high vigil on price pressures, with a preparedness to undertake appropriate actions, should the recurrence of food price shocks and the incidence of global spillovers accumulate within the system and impart persistence to inflation formation in the months ahead. With inflation ruling above the upper tolerance level for two successive months, priority has been assigned to maintaining a disinflationary stance and the alignment of inflation outcomes with the target. In this eventful and turbulent milieu, the MPC decided to monitor the pass-through of the cumulative rate increases it had undertaken since May 2022 and maintain status quo on the policy rate. Persevering with its stance of withdrawal of accommodation, it noted that the strength of underlying fundamentals of the Indian economy and the improving consumer and business outlook contribute to its policy decisions. In the words of Governor Shri Shaktikanta Das, "*the Indian economy is forging ahead in a challenging global environment…Our commitment to ensure financial stability reinforces our emphasis on price stability and anchoring of inflation expectations. This would keep inflation risk premium low and improve our competitiveness, productivity and growth potential.*"

Annex 1: Major Takeaways from the RBI's Enterprise Surveys

Key takeaways from the Reserve Bank's quarterly enterprise surveys[30] conducted during Q2:2023-24 are:

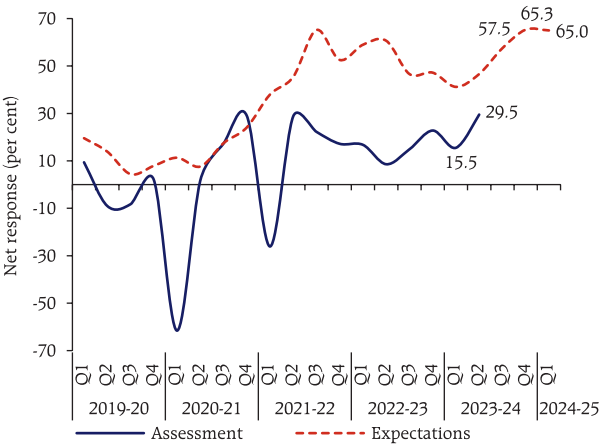
- Businesses sustained the positive sentiments on robust demand conditions.
- Capacity utilisation (CU) in the manufacturing sector, on a seasonally adjusted basis, increased to 75.4 per cent in Q1 from 74.1 per cent in the previous quarter. Manufacturers' optimism on demand conditions is expected to support high CU in the ensuing quarters (Chart A1 and A2).
- Overall business sentiment in the manufacturing, services and infrastructure sectors remained positive for the remaining quarters of the current financial year (Chart A3 and A4).

Chart A1: Capacity Utilisation in Manufacturing Sector



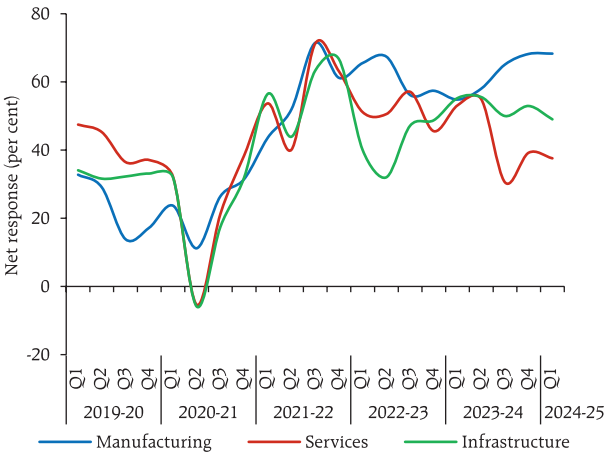
Source: Order Books, Inventories and Capacity Utilisation Survey, RBI.

Chart A2: Manufacturers' Sentiments on Capacity Utilisation



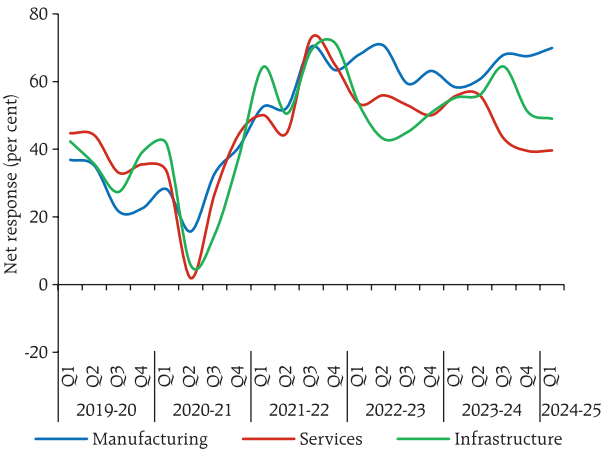
Source: Industrial Outlook Survey, RBI.

Chart A3: Sentiments on Production/Turnover



Sources: IOS & SIOS, RBI.

Chart A4: Sentiments on Overall Business Situation



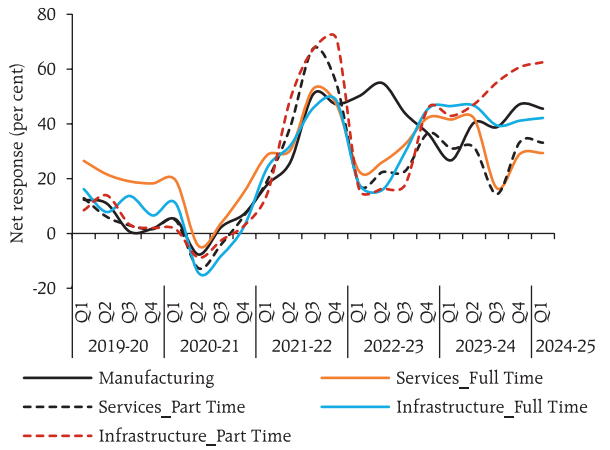
Sources: IOS & SIOS, RBI.

(Contd..)

[30] https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=56520.

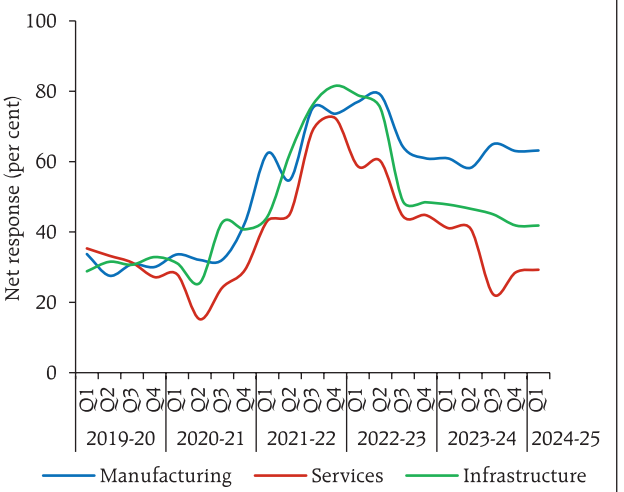
Annex 1: Major Takeaways from the RBI's Enterprise Surveys *(Concld.)*

Chart A5: Sentiments on Employment Situation



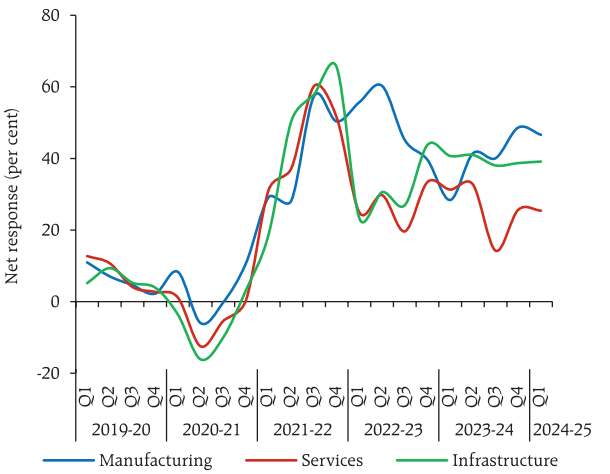
Sources: IOS and SIOS, RBI.

Chart A6: Sentiments on Input Cost



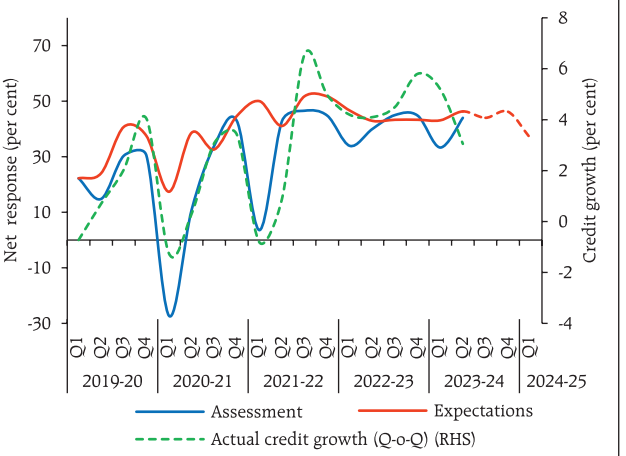
Sources: IOS and SIOS, RBI.

Chart A7: Sentiments on Selling Price



Sources: IOS and SIOS, RBI.

Chart A8: Senior Loan Officers' Expectations on Credit Demand



Source: Bank Lending Survey (BLS), RBI.

- After moderation in Q3:2023:24, employment situation is expected to improve in Q4:2023-24 across sectors (Chart A5).
- Input cost pressures are likely to persist for manufacturing sector. Services and infrastructure companies expect lower cost pressure from current level and movement in selling price growth is likely to be in sync with input cost pressure (Chart A6 and A7).
- Senior loan officers anticipate robust demand for bank loans in second half of 2023-24 (Chart A8).

Measuring Uncertainty: An Indian Perspective

by Michael Debabrata Patra, Renjith Mohan, Joice John and Indranil Bhattacharyya^

Drawing on responses from the survey of professional forecasters (SPF), a measure of uncertainty is constructed, incorporating both common and idiosyncratic sources of risk. Uncertainty was high during 2008 till 2013-14 but it started to decline thereafter and remained subdued till 2019-20. It increased in the wake of the COVID-19 pandemic but ebbed from 2022. Common temporal uncertainty is the major contributor to macroeconomic uncertainty.

Introduction

In the tradition of forward-looking central banks making informed monetary policy decisions by gauging expectations embedded in projections made by professional forecasters, the Federal Reserve Bank of Philadelphia's survey[1] has been a pioneer, with a long history spanning more than 50 years (Croushore and Stark, 2019). Like central banks in many jurisdictions that have incorporated such gauges into their decision-making processes, the Reserve Bank of India (RBI) launched its Survey of Professional Forecasters (SPF) on a quarterly basis in Q2:2007-08 as a pilot initiative. The survey was subsequently transformed into a bimonthly survey from 2014-15 (the 28th round of the survey) to align it with the monetary policy cycle of the RBI. The panellists include economists and experts in banking entities, financial consultancies, credit agencies, asset management companies, brokerage firms and non-financial private corporate firms who generate regular macroeconomic forecasts. The 84th round of the survey was conducted in September 2023. The survey has come a long way and in the past 16 years, it has established itself as a reliable barometer of expectations relating to macroeconomic variables relevant for the formulation of monetary policy.

The survey's questionnaire has remained largely unchanged, presently seeking forecasts for twenty four annual and nineteen quarterly indicators of national accounts, wholesale and retail inflation, banking and policy rates, fiscal and external sector indicators (Annex). The survey itself elicits voluntary participation; the 84th round received responses from 41 panellists. Anonymity of individual forecasts is preserved. A rich history of forecasts has accordingly formed across time and space of quantitative point and interval forecasts of macroeconomic indicators. Within this data set, probability forecasts for annual gross domestic product (GDP) growth and consumer price index (CPI) headline inflation are sought for pre-defined class intervals. The survey's results are mainly disseminated in terms of medians for the point forecasts, and the diversity or disagreement in forecasts among the participating panellists is reflected in ranges and quartiles[2] in a web-based article disseminated in the Reserve Bank's website[3]. Measures of dispersion across individual forecasts and estimated probability distributions serve as informative tools to evaluate the uncertainty perceived by the forecasters (RBI, 2014; Bordoloi *et al.*, 2019; 2021). Forecast errors collected from each round of the survey provide insight into understanding the inherent uncertainty surrounding them. This paper is dedicated to the participants of the RBI's SPF.

^ The authors are from the Reserve Bank of India. The views expressed in this article are those of the authors and do not represent the views of the Reserve Bank of India.

[1] National Bureau of Economic Research (NBER) and American Statistical Association (ASA) had instigated the survey in 1968 and then Philadelphia Fed. assumed control from 1990 onwards.

[2] First and third quartiles are only published for annual horizon forecasts and not for quarterly forecasts.

[3] Available at https://www.rbi.org.in/scripts/BimonthlyPublications.aspx?head=Survey%20of%20Professional%20Forecasters%20-%20Bi-monthly.

Uncertainty makes policy making vulnerable to costly errors; yet it is a fact of life for policy makers. Accordingly, this amorphous concept of uncertainty needs to be factored into analytical frameworks underlying decision-making. In this article, we use the SPF data to construct a measure of uncertainty. We argue that it is superior to other measures as it incorporates information on both common[4] and idiosyncratic[5] uncertainty. We also analyse the causal impact of uncertainty on macroeconomic aggregates, based on this measure.

The rest of the article is structured in the following manner. Section II briefly discusses different approaches to measuring uncertainty. The methodology used for measuring uncertainty based on SPF data is set out in Section III. The validation of the measure and empirical results relating to the impact of uncertainty on macroeconomic aggregates are reported in Section IV. Concluding observations are set out in Section V.

II. Measures of Uncertainty

Uncertainty pervades every aspect of human behaviour. For instance, it can cause spikes in precautionary savings by households which, in turn, can dampen their consumption expenditure and economic activity (Kimball, 1990; Eberly, 1994). Investment decisions and hiring of labour by firms can get postponed during uncertain times due to lack of animal spirits (Bernanke, 1983; Pindyck, 1993; Bertola and Caballero, 1994). Uncertainty also raises risk premia and increases the cost of borrowing (Arellano *et al.*, 2010; Christiano *et al.*, 2014). Paradoxically, increased uncertainty can also have a positive impact if economic agents are nimble enough to adjust to it (Oi, 1961; Hartman, 1976; Abel, 1983).

One suite of approaches measures uncertainty from i) financial markets data; ii) data on news articles and internet searches; and iii) forecasts. The financial markets approach assumes that asset prices encapsulate all types of risks and factors affecting the economy at any point of time. In this regard, a ubiquitous proxy is the implied or realised volatility in stock markets such as the CBOE Volatility Index (VIX) (Bloom, 2009; Gilchrist *et al.*, 2014). The limitation of this approach is that the changes in asset prices or the VIX might be due to leverage or financial stress and not necessarily because of macroeconomic uncertainty (Bekaert *et al.*, 2013).

Measuring uncertainty by leveraging news text uses the frequency of certain keywords appearing in news articles to create an index of economic policy uncertainty (EPU) (Baker *et al.*, 2016; Ghirelli *et al.*, 2019). In this strand, automated computation of EPU index has been attempted by using the Wasserstein Index Generation (WIG)[6] model (Xie, 2020). The important limitation of this measure is that it assumes that news reporters and editors are fully aware of all uncertainty events and report them diligently.

Internet searches on economic and financial events of importance are also employed for measuring uncertainty. Errors due to human intervention are sought to be obviated through natural language processing (NLP) and machine learning (ML) methods as well as data on internet-based search intensity available through Google Trends (Dzielinski, 2012; Azqueta-Gavaldon, 2017; Castelnuovo and Tran, 2017; Saltzman and Yung, 2018; Tobback *et al.*, 2018; Bontempi *et al.*, 2021). These measures have also been developed in the Indian context, based on 70 keywords pertaining to fiscal, monetary and trade-

[4] Common uncertainty is the variation in uncertainty across different economic variables and different forecasters that are common to all.

[5] Idiosyncratic component is the degree of disagreement among professional forecasters on their views about the future economic state.

[6] It is an unsupervised machine learning technique requiring a small data set and incorporates deeper methods from machine learning research, including word embedding, Wasserstein Dictionary Learning, and Adam algorithm.

related policies that figure prominently in policy discussions and financial news coverage (Pratap and Priyaranjan, 2023). As in the case of news articles-based approaches, this measure may not comprehensively cover all the sections/agents in the economy.

Yet another approach is to measure the common uncertainty that is observed in many economic and financial variables based on *predictability* (Jurado *et al.*, 2015). This measure reflects uncertainty that is based on a set of objective statistical forecasts of various macro and financial variables. As they focus only on common and not idiosyncratic uncertainty, the role of private information and heterogeneous agents is absent in this approach.

An alternative measure relies on extracting uncertainty from the cross-sectional disagreement among economic agents, calculated as the dispersion in point forecasts. This approach models the disagreement among professional forecasters (Bachman *et al.*, 2013; Scotti, 2016). The underlying assumption is that inter-personal dispersion is an acceptable proxy for inter-temporal uncertainty. The inherent belief is that professional forecasters consider all possible information about the expected future path of the economy in generating their forecasts. When forecasters disagree with each other about the future economic outlook, the divergence in their forecasts can be used to measure uncertainty; however, this measure is partial as it misses the volatility of aggregate (common) shocks, which is an important component of uncertainty (Lahiri and Sheng, 2010).

We address some of these limitations by developing a comprehensive measure of economic uncertainty for India by incorporating information gleaned from the RBI's SPF. Our measure is based on two components: (i) common uncertainty (Jurado *et al.*, 2015; Jo and Sekkel, 2019); and (ii) idiosyncratic uncertainty (Bachman *et al.*, 2013; Scotti, 2016; Jo and Sekkel, 2019). While the common component is estimated as the perceived variability of future aggregate shocks, the idiosyncratic component is estimated as the disagreement among professional forecasters across two different layers *viz.*, among forecasters and among different variables.

III. Methodology

Our index of macroeconomic uncertainty for India draws on the rich information on various forecasts embedded in the SPF characterised by (i) the conditional time-varying variance of the forecast errors for various macroeconomic indicators; and (ii) the cross-sectional disagreement of professional forecasters calculated as the deviation in individual point forecasts.

Guided by the related literature (Rossi and Sekhposyan, 2015; Scotti, 2016; Ozturk and Sheng, 2018; Jo and Sekkel, 2019), the first component of our measure is derived from the stochastic variances in errors of the professional forecasters that are aggregated by using a dynamic factor model (DFM). The second component is the within-sample variations in forecasts for different macroeconomic and financial variables that are aggregated by using a DFM to capture idiosyncratic uncertainty (Lahiri and Sheng, 2008; 2010; Ozturk and Sheng, 2018; Jo and Sekkel, 2019). Our economy-wide measure of uncertainty is an unweighted sum of these two components.

We use one-year ahead median forecasts and their ranges relating to 9 macroeconomic variables *i.e.*, output growth; inflation; credit growth; fiscal deficit; the policy repo rate; the yield on 10-year central government securities (G-sec), the 91-day treasury bill (t-bill) rate; the current account deficit (CAD); and the exchange rate over the period 2008 to 2023.

For estimating common temporal uncertainty, we first identify the one-year ahead forecast errors relating to each of the 9 macro variables. For inflation, the policy rate and the exchange rate, quarterly forecasts up to 3 quarters ahead are available for

the entire sample period. Hence, for these variables, the 3-quarter ahead forecast errors are calculated and linearly extrapolated to estimate the one-year ahead forecast errors. The fixed-period forecast errors are converted to fixed-horizon forecast errors by employing the following transformation (Dovern *et.al*, 2012)

$$er_{it} = \frac{(12-\tau)}{12}.er_{iT} + \frac{\tau}{12}.er_{i(T+1)} \quad ...(1)$$

where er_{it} is the one-year ahead forecast error at time t; τ is the number of months into the current year; er_{iT} is the current year forecast and $er_{i(T+1)}$ is the next year's forecast for the ith macro variable. The errors (er_{iT}) are then standardised by using the mean of actual values of different variables over the sample period to obtain standardised error series (e_{it}).

In the next stage, a time-varying stochastic volatility model is used on the e_{it} series to estimate the time-varying variance in each of the variables. This allows the estimation of a shock to the second moment that is independent of innovations. The following specification is used:

$$e_{it} = \varepsilon 1_{it} \ , \ \varepsilon 1_{it} \ \sim N\left(0, \sigma 1_{it}^2\right) \quad ...(2)$$

$$\sigma 1_{it}^2 = \exp\left(h1_{it}\right) \quad ...(3)$$

$$h1_{i(t+1)} = \varphi.h1_{it} + \eta 1_{it} \ , \ \eta 1_{it} \ \sim N\left(0, \sigma 1_{i\eta}^2\right) \quad ...(4)$$

where $\sigma 1_{it}^2$ is the stochastic variance of the ith macro variable in the set of 9 variables (V). We estimate this model by using Markov Chain Monte Carlo (MCMC) methods (Nakajima, 2011).

The common temporal uncertainty (U_t^1) is estimated by using a DFM on the estimated stochastic variances ($\sigma 1_{it}^2, \forall\, i \in V$), *i.e.*,

$$\sigma 1_{it}^2 = \lambda.U_t^1 + \zeta 1_{it} \quad ...(5)$$

Disagreement is measured by using the range (maximum *minus* minimum) of forecasts of the 9 macro variables that are standardised by using the median forecast of different variables ($r_{it}, \forall\, i \in V$). A measure of within variance ($\widehat{\sigma 2}_{it}^2$) is derived from the assumption that the range contains 3-sigma variations. The following specification is used:

$$\widehat{\sigma 2}_{it}^2 = \exp\left(\widehat{h2}_{it}\right) \quad ...(6)$$

$$\widehat{h2}_{it} = h2_{it} + \varepsilon 2_{it}, \ \varepsilon 2_{it} \ \sim N\left(0, \sigma 2_i^2\right) \quad ...(7)$$

$$\sigma 2_{it}^2 = \exp\left(h2_{it}\right) \quad ...(8)$$

where $\sigma 2_{it}^2$ is the time varying disagreement of the ith macro variable in V. This is also estimated by using MCMC methods.

The time varying cross-section disagreement (U_t^2) is estimated by using a DFM on the estimated stochastic variances ($\sigma 2_{it}^2, \forall\, i \in V$), *i.e.*,

$$\sigma 2_{it}^2 = \lambda.U_t^2 + \zeta 2_{it} \quad ...(9)$$

The index of uncertainty for India (U_t) is then estimated as

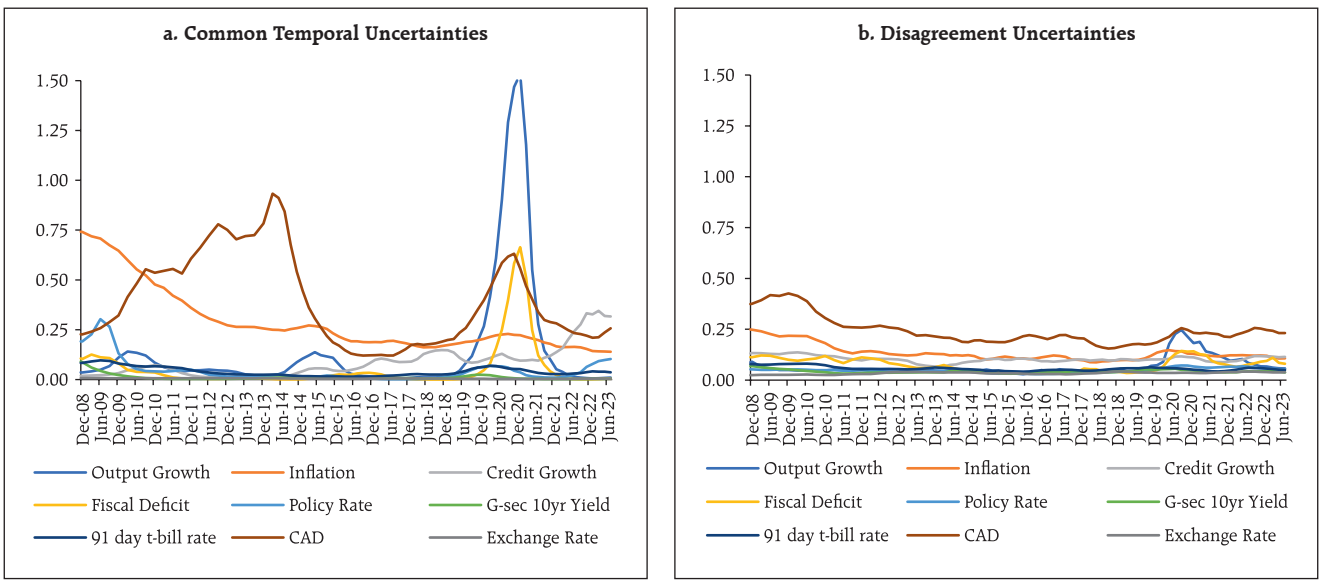
$$U_t = U_t^1 + U_t^2 \quad ...(10)$$

IV. Validation and Results

Variable-specific uncertainties originating from the common temporal and disagreement (idiosyncratic) components for the 9 variables provide interesting insights (Chart 1).

First, the common temporal uncertainties are much more pronounced than disagreements. Second, inflation uncertainties, which were elevated during the post- global financial crisis (GFC) period, have ebbed since September 2015. Third, growth-related uncertainties, which remained moderate during the pre-COVID period, became accentuated after the outbreak of the pandemic. Fourth, external uncertainties (represented by variations in the CAD) increased after the GFC and peaked around 2013-14, moderating thereafter only to reappear during the pandemic. Fifth, macro policy related uncertainties remained low throughout the sample period except during 2020-21 when they increased due to the pandemic-induced fiscal expansion and monetary accommodation. Sixth, credit growth related uncertainties seem to have emerged since 2022.

Chart 1: Variable-specific Uncertainties



Source: Authors' calculations.

Variable-specific uncertainties are found to be correlated. Output growth uncertainty is highly correlated with fiscal policy related uncertainty (0.93), reflecting the role of fiscal policy as an automatic stabiliser. Inflation uncertainty is highly correlated with monetary policy uncertainty (0.73) with spillovers. Monetary policy uncertainty is highly correlated with the uncertainties related to the 91-day t-bill rate (0.83) and 10-year G-sec yield (0.73), indicative of spillovers from monetary policy to bond markets. Uncertainty in the CAD is correlated with that of output growth (0.25), inflation (0.40), the fiscal deficit (0.30) and 91-day t-bill rate (0.38). Monetary and fiscal policy uncertainties are also found to be correlated (0.36), indicating the role of common shocks. Significant correlations among variable-specific uncertainties indicate the presence of an unobserved common component. This justifies the use of a DFM for extracting a common macroeconomic measure latent in variable-specific uncertainties.

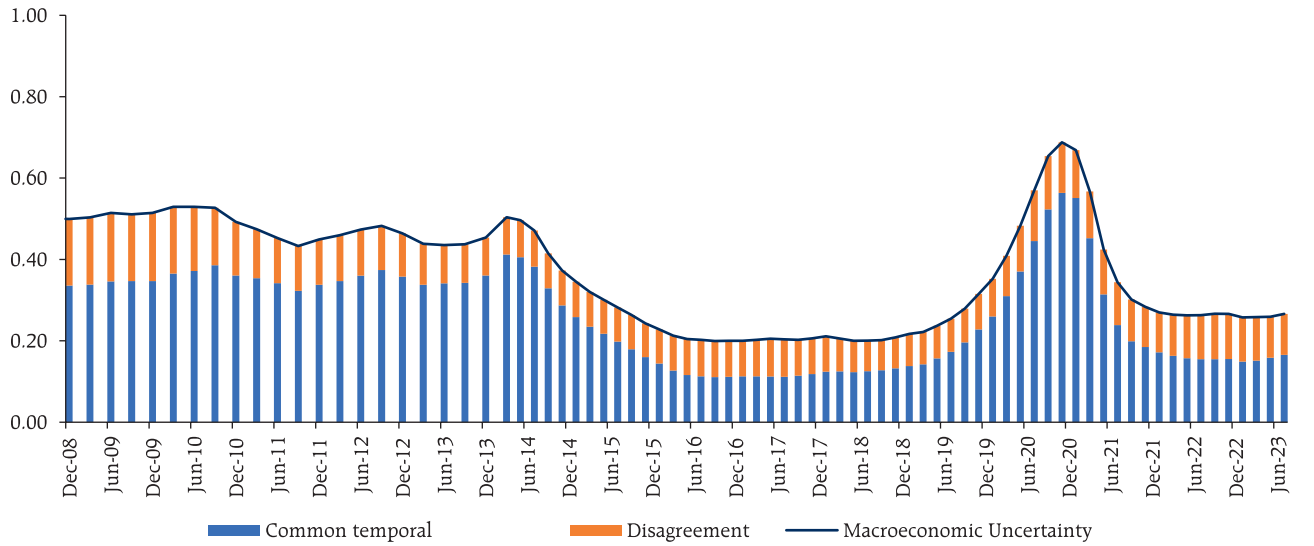
Macroeconomic uncertainty was high in the post-GFC period till 2013-14 (Chart 2). It started to decline from early 2014-15 and remained subdued till 2019-20. The period of low uncertainty coincided with the adoption of the flexible inflation targeting (FIT) framework in India. By 2020, we observe a rise in uncertainty induced by the COVID-19 pandemic. It subsided by 2022 but to a level higher than what was witnessed during the pre-COVID period. The common temporal uncertainty is the major contributor to macroeconomic uncertainty throughout the sample period. Thus, unforeseeable shocks have driven macroeconomic uncertainty in the past one and a half decades.

Next, we assess the role of uncertainty on macroeconomic variables by using a 3-variable vector autoregression (VAR) model with inflation (seasonally adjusted quarter-on-quarter changes in the consumer price index), the output gap[7] and the policy repo rate as endogenous variables, and uncertainty as an exogenous variable.[8] The dynamic multiplier effects

[7] Estimated based on Patra *et al.* (2021)

[8] The VAR is found to be stable. The residual autocorrelations are absent. The lag-length is identified using Schwarz Bayesian criterion.

Chart 2: Macroeconomic Uncertainty

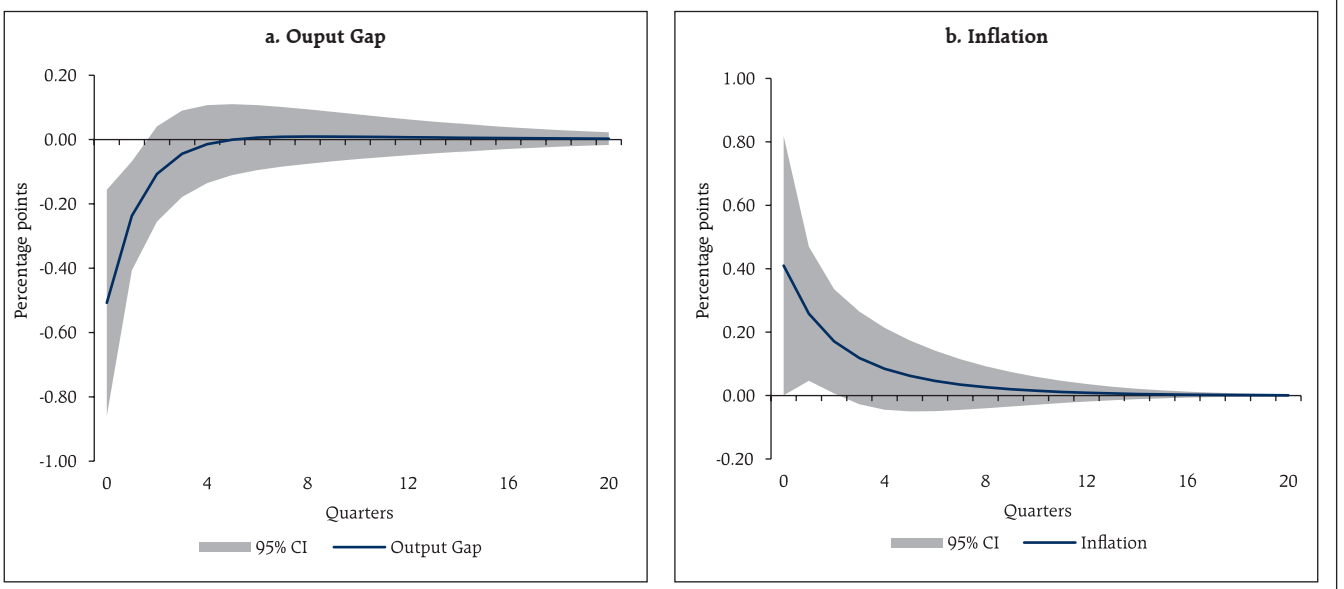


Source: Authors' calculations.

show that higher uncertainty leads to depressed demand conditions and higher inflation (Chart 3).

The empirical evidence suggests that high uncertainty is equivalent to a stagflation shock under which output falls and inflation rises. This aggravates the policy dilemma for the monetary authority. On the one hand, it cannot afford to allow the further weakening of demand by responding to the inflationary impact of an uncertainty shock through aggressive policy tightening. On the other hand, a tepid policy response to rising inflation runs the risk of de-anchoring inflation expectations and jeopardising price stability, eventually undermining aggregate demand.

Chart 3: Dynamic Multiplier Effects of 0.1 Unit Uncertainty Shock



Source: Authors' calculations.

V. Conclusion

We live in an age of high uncertainty; it permeates us like adrenaline coursing through our veins. This uncertainty makes policy making vulnerable to costly errors; yet it is a fact of life that needs to be factored into analytical frameworks underlying decision-making. In fact, uncertainty is the only certainty there is and knowing how to live with it is the only security. Hence, measuring uncertainty is the pragmatic approach we adopted in this paper so as to comprehend it and factor in its implications. By doing so, we hope we will achieve more lucid communication of policy challenges and the associated trade-offs. Measuring it through the lens of professional forecasters is, in our view, superior to all other measures available in the literature as it combines both common and idiosyncratic uncertainty. Based on this measure, it is found that uncertainty was high during the post-GFC period till 2013-14 but started to decline thereafter and remained subdued till 2020, coinciding with the adoption of FIT in India. Thereafter, uncertainty increased in the wake of the COVID-19 pandemic before ebbing from 2022. Common temporal uncertainty has been the major contributor to macroeconomic uncertainty throughout the sample period, suggesting the incidence of unanticipated shocks that affects us all. During periods of heightened uncertainty our measure turns out to be a very valuable lead indicator – higher uncertainty causes a decline in output while stoking inflation pressures. This, in turn, poses a policy dilemma – boost output by easing monetary policy but risk aggravating inflation or contain inflation by conducting restrictive monetary policy but at the cost of depressing already weak demand? This trade-off is timeless but our view is that in the absence of a measure of uncertainty that is explicitly incorporated into analytical frameworks, policy actions and stances can turn out to be inefficient and oscillating in space and time – either too restrictive, throttling growth or too lax unhinging inflation expectations. In the final analysis, measuring uncertainty warrants close attention and its non-linear and time-varying effects on macroeconomic variables should be accounted for in the most pragmatic way so as to imbue precision into policy making. Forewarned is forearmed.

References

Abel, A.B. (1983). Optimal investment under uncertainty. *American Economic Review*,*73*(1):228.

Arellano, C., Bai, Y., and P.Kehoe (2010), Financial markets and fluctuations in uncertainty. *Federal Reserve Bank of Minneapolis Working Paper.*

Azqueta-Gavoldon, A. (2017), Developing news-based Economic Policy Uncertainty Index with unsupervised machine learning, *Economic Letters*, September, 47-50.

Bachmann, R., Elstner, S., & Sims, E. R. (2013). Uncertainty and economic activity: Evidence from business survey data. *American Economic Journal: Macroeconomics*, *5*(2), 217-249.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The quarterly journal of economics*, *131*(4), 1593-1636.

Bekaert, G., Hoerova, M., & Duca, M. L. (2013). Risk, uncertainty and monetary policy. *Journal of Monetary Economics*, *60*(7), 771-788.

Bernanke, B.S. (1983). Irreversibility, uncertainty, and cyclical investment. *Quarterly Journal of Economics*, 98(1):85–106.

Bertola, G., and R.J. Caballero (1994). Irreversibility and aggregate investment. *Review of Economic Studies*, 61(2):223–246.

Bloom, N. (2009). The impact of uncertainty shocks. *Econometrica*, *77*(3), 623-685.

Bontempi, M.E., Frigeri, M., Golinelli, R., and M. Squadrani (2021). EURQ: A new web search-based uncertainty index. *Economica*, 88(352):969–1015.

Bordoloi, S., Kavediya, R., Roy, S. and Goyal, A. (2019). Changes in Macroeconomic Perceptions: Evidence from the Survey of Professional Forecasters, *Reserve Bank of India Bulletin, November 2019*, LXXIII (11), 15-26.

Bordoloi, S., Kavediya, R., Roy, S. and Dutta, A.K. (2021). Uncertainty and Disagreement among Professional Macroeconomic Forecasters, *Reserve Bank of India Bulletin, November 2021.*

Castelnuovo, E. and T.D. Tran (2017). Google it Up! a Google trends-based uncertainty index for the United States and Australia. *Economic Letters*, 161:149–153.

Christiano, L.J., Motto, R., and M. Rostagno (2014), Risk shocks. *American Economic Review*,104(1):27–65.

Croushore, D., and Stark, T., (2019), Fifty Years of the Survey of Professional Forecasters, *Economic Insights (Fourth Quarter 2019), Federal Reserve Bank of Philadelphia.*

Dovern, J., Fritsche, U., & Slacalek, J.. (2012). Disagreement Among Forecasters in G7 Countries, *The Review of Economics and Statistics*, vol. 94(4), pages 1081-1096, November.

Dzielinski, M. (2012). Measuring economic uncertainty and its impact on the stock market. *Financial Research Letters*, 9(3):167–175.

Eberly, J.C. (1994). Adjustment of consumers' durables stocks: evidence from automobile purchases. *Journal of Political Economy*, 102(3):403–436.

Ghirelli, C., Pérez, J.J., and A. Urtasun (2019). A new economic policy uncertainty index for Spain. *Economic Letters*, 182:64–67.

Gilchrist, S., Sim, J. W., & Zakrajšek, E. (2014). *Uncertainty, financial frictions, and investment dynamics* (No. w20038). National Bureau of Economic Research.

Hartman, R. (1976). Factor demand with output price uncertainty. *American Economic Review*, 66(4):675–681.

Jo, S., & Sekkel, R. (2019). Macroeconomic uncertainty through the lens of professional forecasters. *Journal of Business & Economic Statistics*, *37*(3), 436-446.

Jurado, K., Ludvigson, S. C., & Ng, S. (2015). Measuring uncertainty. *American Economic Review*, *105*(3), 1177-1216.

Kimball, M.S. (1990). Precautionary saving in the small and in the large. *Econometrica*, 58(1):53–73.

Lahiri, K., & Sheng, X. (2008). Evolution of forecast disagreement in a Bayesian learning model. *Journal of Econometrics*, *144*(2), 325-340.

Lahiri, K., & Sheng, X. (2010). Measuring forecast uncertainty by disagreement: The missing link. *Journal of Applied Econometrics*, *25*(4), 514-538.

Nakajima, J. (2011). Time-varying parameter VAR model with stochastic volatility: An overview of methodology and empirical applications. *Monetary and Economic Studies*, 29, 107–142.

Oi, W.Y. (1961). The desirability of price instability under perfect competition. *Econometrica*, 29:58.

Ozturk, E. O., & Sheng, X. S. (2018). Measuring global and country-specific uncertainty. *Journal of international money and finance*, *88*, 276-295.

Patra, M. D., Behera, H., & John, J. (2021). 'Is the Phillips Curve in India Dead, Inert and Stirring to Life or Alive and Well?. *RBI Bulletin, November.*

Pindyck, R.S. (1993). A note on competitive investment under uncertainty. *American Economic Review*, 83(1):273–277.

Pratap, B., and Priyaranjan, N. (2023). Macroeconomic effects of uncertainty: a Google trends-based analysis for India. *Empirical Economics*, 65, 1599–1625. https://doi.org/10.1007/s00181-023-02392-z

Rossi, B., & Sekhposyan, T. (2015). Macroeconomic uncertainty indices based on nowcast and forecast error distributions. *American Economic Review*, *105*(5), 650-655.

Reserve Bank of India (2014), Survey of Professional Forecasters 2014-15, *RBI Bulletin, December.*

Scotti, C. (2016). Surprise and uncertainty indexes: Real-time aggregation of real-activity macro-surprises. *Journal of Monetary Economics*, *82*, 1-19.

Saltzman, B. and J. Yung (2018). A machine learning approach to identifying different types of uncertainty. *Economic Letters*, 171:58–62.

Tobback, E., Naudts, H., Daelemans, W., de Fortuny, E.J. and D.Martens (2018), Belgian economic policy uncertainty index: improvement through text mining. *International Journal of Forecasing*, 34(2):355–365.

Xie, F. (2020). Wasserstein index generation model: automatic generation of time-series index with application to economic policy uncertainty. *Economic Letters*, 186:108874.

Annex: List of Macroeconomic Indicators covered in SPF

Annual Forecasts	Quarterly Forecasts
Growth of Real GDP, PFCE, GFCF, Nominal PFCE, Gross Capital Formation and Real GVA & its components (Agriculture, Industry & Services), Gross Saving Rate, Fiscal Deficit (Central & Combined), Bank Credit Growth, 10-Year G-Sec Yield, Yield on 91-day T-Bill, Merchandise Exports and Imports Growth, Current Account Balance, Overall BoP, Headline Inflation and Core Inflation (excluding Food and Beverages, Pan, Tobacco and Intoxicants and Fuel and Light), WPI Inflation, WPI: Non-food Manufactured Products Inflation	Growth of Real GDP, PFCE, GFCF, Nominal PFCE and Real GVA and its components (Agriculture, Industry & Services), GFCF rate (per cent of nominal GDP), IIP Growth, Merchandise exports and imports, Exchange Rate, Crude Oil price (Indian Basket), Policy Repo Rate, Headline Inflation and Core Inflation (excluding Food and Beverages, Pan, Tobacco and Intoxicants and Fuel and Light), WPI Inflation, WPI: Non-food Manufactured Products Inflation

Source: SPF, Reserve Bank of India.

Impact of G-Sec Yield Movements on Bank Profitability in India

*by Radheshyam Verma^ and Rakesh Kumar^*

In the backdrop of rising yields in government securities (G-sec) in the recent past, this paper attempts to empirically estimate its impact on bank profitability. We found that short-term yields and the slope of the yield curve had a negative impact on trading income for the period Q1:2015-16 to Q1:2022-23. The impact of movements in yields on net interest margins (NIMs) and operating profit, however, was found to be positive. The impact was found to vary across the size of banks. Overall, the banking sector appears to be well prepared in the current phase of hardening of yields as the timely creation of investment fluctuation reserve (IFR) provides adequate buffers to withstand trading losses.

I. Introduction

In the current rising interest rate environment, when banks are key conduits of financial intermediation, it is very pertinent to examine its impact on bank profitability. Interest rate plays a major role in shaping bank profitability. The hardening of G-sec yield is one such market risk that banks confront in an environment of rising inflation and monetary policy normalisation process. There may be some disproportionate impact of the reversal of the monetary policy stance on bank profitability. Bigger banks[1], by harnessing their economies of scale, are in a better position to withstand changing policy environment. On the other hand, smaller banks are more vulnerable as compared to bigger banks and their lending behaviour respond more significantly to changes in monetary policy (Naqvi and Pungaliya, 2023). Also, the impact of monetary policy is larger on smaller banks who are generally liquidity constraint (Kashyap and Stein, 2000).

With the significant impact of monetary policy on financial market, the response of bank profits to interest rates is of key importance from the financial stability perspective. However, very limited studies are available on this subject in India which focuses on bank profitability in general while no literature is available which looked at the impact of interest rate on profitability of banks. Against this backdrop, the study attempts to assess the implication of rising yields with the reversal of interest rate cycle on bank profits. Furthermore, the study also empirically tests the impact of rising yields on different components of profits of scheduled commercial banks (SCBs). Finally, impact of treasury yield was separately looked at for the top quartile banks to assess the robustness of the results.

The remainder of the paper has been organised in the following fashion. Section II provides key stylized facts about the investment strategy of banks and takes deep dive into earning pattern of SCBs. Section III gives a brief literature review on this subject broadly covering international studies as there is very limited literature available for India. Section IV focuses on data and empirical analysis using bank level panel fixed effects model. Section V sets out the conclusion and way forward.

II. Stylised Facts

a. Investment Strategy of Banks

Investment portfolio in favour of government securities benefits SCBs by providing stability and returns. The government securities are risk free instrument as sovereign may not default as easily as it can happen with private corporates. The G-secs

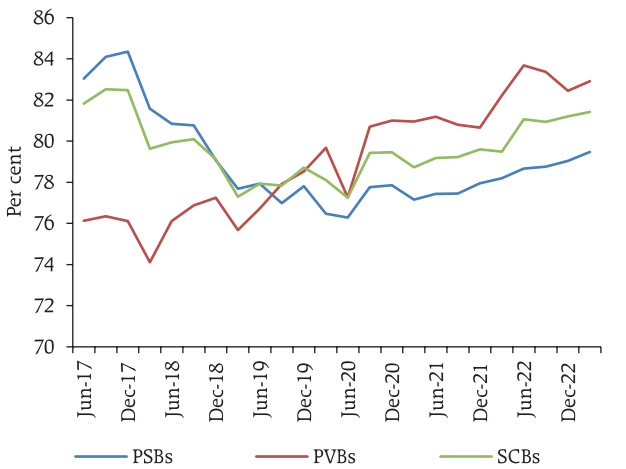
^ The authors are from Financial Stability Department. The authors are thankful to Smt. Kaya Tripathi for her encouragement and guidance in preparing this article. The authors are also grateful to the Division of Reports & Knowledge Dissemination and anonymous referee for their constructive comments. The authors benefitted from Dr. Snehal S. Herwadkar and Shri Prem Mohan with the insightful discussion on the subject. The views expressed in this article are those of the authors and do not represent the views of the Reserve Bank of India.

[1] Top quartile of sample banks in terms of trading portfolio.

attract zero risk weight and are not constrained by any concentration limit under Basel guidelines. The held for trading (HFT) portfolio of banks are mandated for marked-to-market valuation on a monthly or lesser frequency while available for sale (AFS) portfolio are marked-to-market (MTM) on a quarterly or lesser frequency. Thus, despite holding the safest securities in the investment portfolio, balance sheets are exposed to market risks. As per the regulatory guidelines, the realised gains/losses from the HFT and AFS portfolio are transferred to profit and loss account of banks, thereby reflecting immediately in the profitability of banks in the same quarter.

The interlinkages of government securities and banks' investment portfolio has always been strong due to the Statutory Liquidity Ratio (SLR) prescriptions for banks under Section 24 of Banking Regulation (BR) Act. Accordingly, SCBs remained the largest holders of government securities [including T-Bills and State Development Loans (SDLs)] accounting for 37.5 per cent share as of end-March 2023, followed by insurance companies (25.2 per cent), provident funds (9.8 per cent) and the Reserve Bank (9.2 per cent).[2] The investment of SCBs in G-Secs (including T-Bills and SDLs) as a percentage of their total investment was 81.4 per cent as at end-March 2023. The corresponding figure for public sector banks (PSBs) was at 79.5 per cent against 82.9 per cent for private sector banks (PVBs). Historically, PSBs have maintained higher investments in G-Secs as compared to PVBs. However, a reversal in trend is visible since September 2019 due to a decline in credit demand resulting in the deployment of funds towards SDLs by PVBs in pursuit of higher and stable returns (Chart 1).

Chart 1: Investment in SLR Securities as per cent of Total Investment



Note: PSBs – Public Sector Banks; PVBs – Private Sector Banks; SCBs – Scheduled Commercial Banks.
Sources: RBI Supervisory Returns.

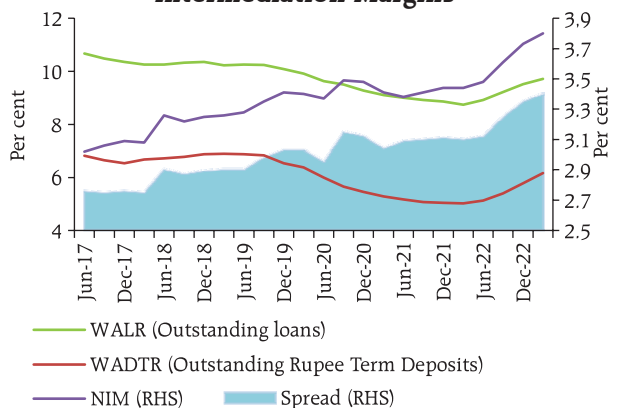
b. Rising Interest Rates and Net Interest Margins (NIMs) of Banks

Typically, monetary policy shocks account for a significant fraction of the volatility of the yield curve, especially at shorter maturities, which are in turn transmitted at the longer end. For an emerging market economy like India, synchronised increase in policy rates by the United States (US) and other advanced economies has a spillover impact on domestic financial markets. With large exposure of banks' balance sheets to Government securities, there exists a direct impact of rising yields on the trading book of banks. Apart from the direct impact on the trading book of banks, the empirical literature suggests that higher yields with steeper yield curve are associated with higher NIMs (Alessandri and Nelson, 2015; Borio *et al*, 2017; Claessens *et al*, 2018). Banks are generally reluctant to raise deposit rates as interest rates rise unless they witness shortage of structural liquidity. At the same time, with repricing of loans in the external benchmarking framework[3], higher rates are passed to existing and new loans based on contractual repricing such as floating rate

[2] RBI Annual Report 2022-23.

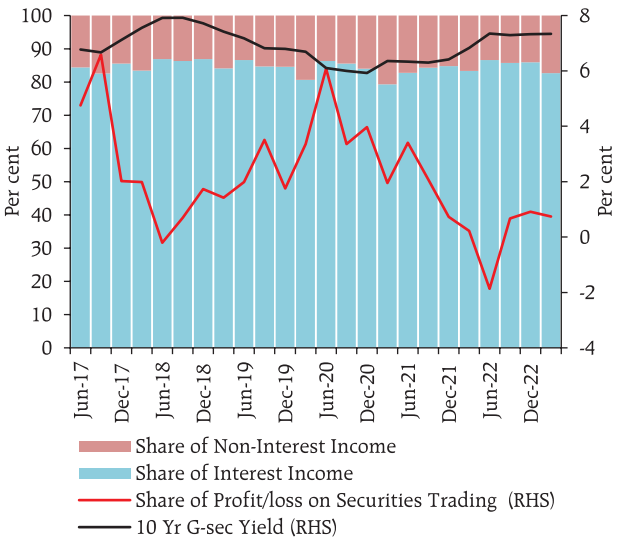
[3] As at end-March 2023, the share of floating rate loans in total loans of SCBs constituted 72 per cent (RBI, 2023b). The proportion of outstanding floating rate loans linked to external benchmarks increased from 9.1 per cent in March 2020 to 48.3 per cent in December 2022 and these loans have now the largest share in total floating rate loans (RBI 2023a).

Chart 2: Lending and Deposit Rate and Intermediation Margins



Note: 1. WALR- Weighted Average Lending Rate; WADTR - Weighted Average Domestic Term Deposit Rate; and NIM -Net Interest Margin.
2. Spread refers to the difference between the ratio of interest income to interest earning assets and the ratio of interest expense to interest bearing liabilities.
Sources: DBIE; and RBI Supervisory Returns.

Chart 3: Banks' Earnings and G-sec Yields



Note: Shares as per cent of total income.
Sources: CEIC; and RBI Supervisory Returns.

loans. However, there is also a practice of elongation of repayment period as per the contractual agreement between the lender and the borrower. Thus, an increase in interest rates contributes to rising NIMs, as interest income increases faster than interest expense (Chart 2).

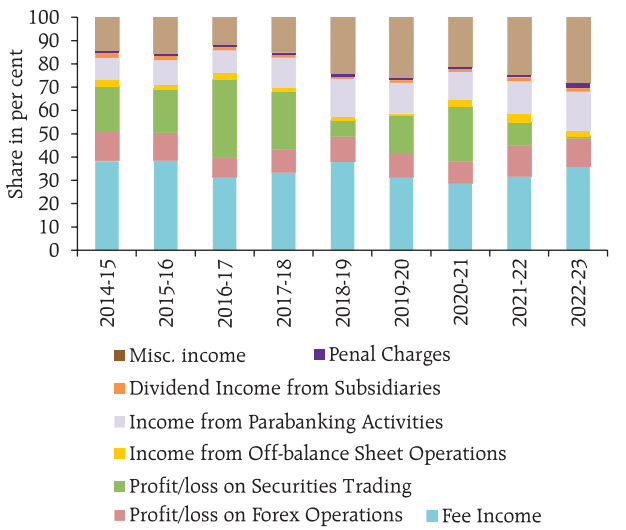
Nonetheless, the effect of changes in market interest rates may significantly vary from bank to bank, depending on their degree of maturity transformation and the use of risk management techniques to hedge interest rate risk in their trading book through derivatives. Further, as banks transform short-term liabilities into longer-term assets, their NIMs are also impacted by slope[4] of the yield curve positively. Since, banks usually lend for longer terms than they borrow so part of this profit comes from the difference between long-term and short-term interest rates (*i.e.* the slope of the yield curve). If the yield curve is normal, a steeper slope will mean a larger margin and higher profits for the banks. Several international studies showed that the level and slope of the yield curve have been found to affect NIM and trading income in the opposite direction, which is consistent with banks hedging interest rate risk through derivatives (Alessandri and Nelson, 2015; Borio et al, 2017). In the Indian context, the yield on both long-term government securities and short-term rates have been rising in recent quarters. The various episodes of rising and falling yields have directly impacted the trading income of the Indian banks (Chart 3).

The average share of non-interest income in total income of SCBs during 2015-23 has been 14.9 per cent. Within non-interest income, the average share of profits emanating from securities trading during this period has been 17.0 per cent. Other major sources of non-interest income being fee income, income from para-banking activities, income from forex operations, among others (Chart 4). Hence, despite large swings in trading income on account of changes in interest rate cycle, impact on overall profit of banks has been much less.

As at end-March 2023, the market value of investments (*i.e.* AFS + HFT portfolio) of SCBs

[4] Difference between long term yield and short-term yield of similar kind of security.

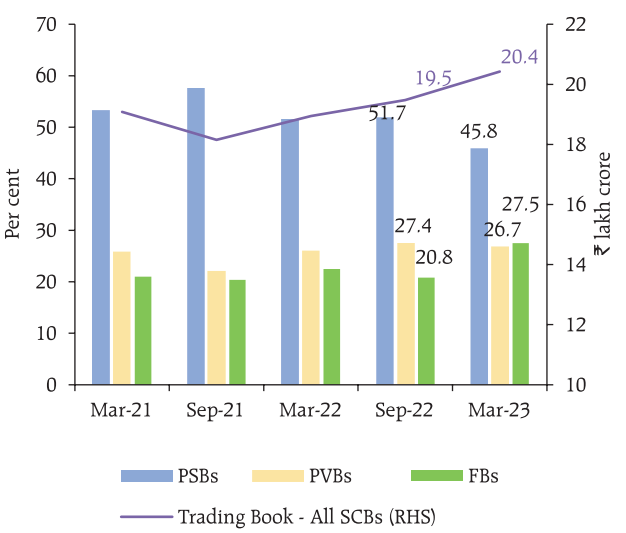
Chart 4: Components of Non-interest Income of SCBs



Source: RBI Supervisory Returns.

stood at ₹20.4 lakh crore. 92.5 per cent of these investments were classified as available for sale (AFS) (Chart 5). More than 45 per cent of the total trading book portfolio of SCBs belonged to PSBs, followed by foreign banks (27.5 per cent) and private sector banks (26.7 per cent) (RBI, 2023).

Chart 5: Trading Book Portfolio of Banks



Source: Financial Stability Report, June 2023.

III. Literature Review

The narrative on changes in the interest rate and bank profitability can be traced back to the post-war period when Samuelson (1945) argued that an increase in market interest rates will, *ceteris paribus*, boost bank profits as banks often attempt to finance a part of their interest-earning assets with non-interest-bearing liabilities. This effect is stronger for banks that rely more on such funding, so a parallel upward shift of the yield curve should boost their net interest income by a greater amount.

One strand of literature developed on measuring the inexorable impact of monetary policy on the yields and profitability of banks. Interest rates can also affect bank behaviour through risk-taking channels. Loose monetary policy can stimulate widespread risk-on sentiments wherein banks also indulge in higher risks taking in search of higher yields, which may be reinforced by its effects on asset prices, leverage, and credit standards (Borio and Zhu, 2012; Adrian and Shin 2009; Maddaloni and Peydr, 2011). On the other hand, the tightening of monetary policy by central banks raises the short-term rates and flattens the yield curve, thus depressing banks' income. This effect is, however, fairly short-lived, and somewhat attenuated by hedging. In the short run, banks might lose/gain in the scenario of rising interest rates. However, higher rates have positive effect on bank profits in the long run (Alessandri and Nelson, 2015; Busch and Memmel, 2015).

Higher credit risk is linked to periods of declining economic activity, prompting banks to increase their NIMs to cover their cost of capital due to the increased risk exposure in such conditions (Aliaga-Diaz and Olivero, 2011; Egly *et al*, 2017).

Return on assets (RoAs) of banks is closely tied to longer-term rates and is slower to adjust to changes in market rates, resulting in banks' NIMs getting

higher when the yield curve is steeper for a sustained period because in the event of repricing of assets and liabilities, a steeper yield curve provides higher rates on assets than on liabilities. In addition, for a given yield curve slope, an increase in both short-term and long-term interest rates is expected to temporarily reduce net interest income, reflecting the more rapid adjustment of yields on liabilities than yields on assets (English, 2002).

On the other hand, level and slope of the yield curve have been found to affect trading income and NIM in the opposite direction, which is consistent with banks hedging interest rate risk through derivatives (Alessandri and Nelson, 2015; Borio et al, 2015). Bikker and Vervliet (2017) found that the low interest rate environment impaired bank performance and compressed NIMs. Nonetheless, banks were able to maintain their overall level of profits, due to lower provisioning. However, they found that to compensate for their lower interest income banks did not expand high risk trading activities.

A steeper yield curve should have a positive effect on banks' net interest income. This is because if all banks' liabilities were at market rates, the only lasting component of the gains would be the term premium: over time, surprises aside, market rates would catch up with those implicit in the yield curve and hence in forward rates (Borio *et al,* 2017). Further, as pointed out by Alessandri and Nelson (2015), a hedging interpretation may be attached to the negative coefficient on slope. The maturity profile of instruments held for hedging will often match that of the underlying exposure intended to be hedged. Against a positive sign on the slope coefficient in the net interest income equation, they found a negative sign on the slope coefficient in the trading equation to the extent that the bank intends to hedge across the maturity spectrum.

Higher interest rates also lead to increase in loan loss provisions due to its impact on debt servicing costs and higher default probabilities (Borio *et al.*, 2017). Bikker & Vervliet (2017) also confirm that loan loss provisions are lowered in response to reduction in interest rates due to lower expected loan losses. Literature has also found higher interest rates leading to decrease in non-interest income on account of their negative impact on securities' valuations (Borio *et al.*, 2017).

This issue remains significant for policy makers, however, the literature on this subject is very limited for India. There are a few studies on India discussing drivers of bank profitability (Almaqtari, et al, 2018; Kumar and Bird 2020), however, their discussion from the point of view of impact of interest rates is very scanty. In order to fill this gap, we use bank-wise data to assess the impact of treasury yields on major components of profit of banks in India.

IV. Empirical Findings

a. Data and Summary Statistics

The paper uses quarterly data for the period Q1:2015-16 to Q1:2022-23 covering 42 banks (PSBs and PVBs). We have left out foreign banks from our analysis as they constitute mere 6.3 of total assets of banking system as at end-March 2022. As various bank mergers occurred during the sample period, it resulted in an unbalanced panel. If only currently existing banks are included in the sample to make it a balanced panel, it will lead to survival bias. Given the need for relatively high frequency data to analyse the impact of G-sec yields on bank profitability, the paper uses off-site monitoring and surveillance database (OSMOS)[5] for various banking sector indicators, which are available 2015 onwards on quarterly frequency. T-Bill rate, index of industrial production (IIP)[6] and consumer price index (CPI) (combined) inflation are

[5] Off-site monitoring and surveillance (OSMOS) system comprises a set of periodic returns furnished by banks to the Reserve Bank of India.

[6] Despite its limitations, IIP has been widely used in the literature to date the business cycle and capable of efficiently dating the major turning points in economic activity (Saini et al, 2021).

sourced from database on Indian economy (DBIE), RBI while bank specific indicators such as trading income, total income, operating profit, NIM, leverage, gross non-performing asset (GNPA) ratio, share of current account and saving account (CASA) deposits in total deposits, cost-income ratio, spread, liquid assets to total assets ratio, non-interest income to total income ratio, credit-deposit ratio and asset size have been sourced from the OSMOS system. To remove the outlier values, banking sector indicators data have been winsorized at 5 and 95 per cent. Three months moving average have been taken to smoothen the data relating to IIP growth. Summary statistics of variables used in the paper are presented in Annex 1. A Table on description of variables used in the paper has been given in Annex 2. Correlation matrix has been provided in Annex 3.

b. Methodology and Discussion of Results

To assess the impact of yield movements on bank profitability, fixed effect panel regression model has been estimated with four set of regression specifications with dependent variables - trading income/total income, NIM, operating profit/total assets and GNPA ratio. Usage of fixed effects model in case of unbalanced panel is quite common as the mechanics of fixed effects estimation with an unbalanced panel are not much more difficult than with a balanced panel (Wooldridge, 2016). The fixed effects panel model has been defined as per the following regression model:

$$y_{nt} = \beta_0 + \alpha_n + \beta x_{nt} + \gamma z_t + \varepsilon_{nt}$$

where y_{nt} denotes the dependent variable (bank profitability), β_0 is the intercept term on the explanatory variables, α_n is fixed effects term, β is a k × 1 vector of parameters of main variables of interest *i.e.* 91 days T-Bill rate and slope, and other bank specific control variables, γ is a k × 1 vector of parameters of macro-economic control variables to be estimated, and vector of observations is x_{nt}, which is 1 × k, t = 1 …, T; n = 1, …, N (here T=29, N=42). This paper uses short-term treasury yield as main variable of interest as it is considered a good proxy for the monetary policy stance (Alessandri and Nelson, 2015). Robust standard errors clustered by banks was estimated to correct possible serial correlation of the error terms and heteroskedasticity issues.

In Table 1, regression results have been presented with trading income/total income and NIM as dependent variables. As expected, the short-term treasury yields (yield on 3-month T-Bills) were found to have negative impact on the trading income. This reflects hardening of yields leading to mark-to-market losses in the trading book of banks particularly their AFS and HFT portfolio as HTM portfolio is not marked-to-market. Trading income is also affected by hedging activities undertaken through derivative instruments intended to manage interest rate risk generated in the banking book. Slope was taken as proxy of hedging activity of banks. It was also found to affect trading income negatively. Interaction of T-bill rate along with dummy of top quartile banks (*i.e.* banks in terms of largest AFS and HFT portfolio) had a coefficient size much lower as compared to the regression with T-bill rate with total sample of banks. This shows that large banks can take larger interest rate positions and can hedge interest rate risk in a better manner.

The maturity profile of instruments held for hedging often matches that of the underlying exposure intended to be hedged. So, against a negative sign on the slope coefficient in the trading equation to the extent that the bank intends to hedge across the maturity spectrum, a positive sign on the slope coefficient on the NIM is expected (Alessandri and Nelson (2015). In our model too both short-term yield and slope were found to have positive impact on net interest margin (NIM) *albeit* slope was not found to be significant. This suggests that the financial

intermediation channel helps banks to attain higher profit even during the upward interest rate cycle as lending rate adjust faster than the deposit rates. Although, external benchmarking of lending rates has somewhat corrected this distortion in the monetary policy transmission. However, favourable interest rates offered on small saving instruments at times compete with deposit rates offered by banks, thereby causing some distortion in the smooth transmission (RBI, 2021). Further, it is argued that increases in rates may initially compress banks' margins, and it is only in the long term, once repricing becomes possible, that higher interest rates contribute to higher NIMs (Alessandri and Nelson, 2015; Borio *et al.,* 2017 and Cruz-Garcia, *et al.* (2019).

In case of larger banks, the impact of rise in interest rates on NIM was found to be marginally higher, reflecting better management of their asset-liability profile. Inflation was found to have positive and significant impact on NIM which is in line with Bolt *et al.* (2012). In order to check for persistence, lagged dependent variable of NIM was taken as explanatory variable. Its positive sign showing persistence was found to be in line with literature. From the perspective of cost of funds, variables such as liquid assets to total assets and share of CASA deposits to total deposits were chosen. Cost to income ratio reflects operating efficiency of banks, while spread indicates intermediation margins. Cost to income ratio and liquid assets to total assets ratio were found to affect NIM negatively and found to be significant. Loan delinquencies were also found to be negatively associated with NIM as it leads to higher provisioning. The dummy variable for bank mergers was also found to affect interest margins of banks positively with strengthening of balance sheet of banks and efficiency gains. Other explanatory variables of interest such as share of current and saving account (CASA) deposits in total deposits and spread were also found to have positive impact on NIMs as CASA deposits are low-cost deposits as compared to term deposits and spread being difference between effective interest earned and interest payable.[7]

Table 1: Estimation Results: Trading Income/ Total Income and NIM – Various Specifications

Variables	Dependent Variable: Trading income/total income		Dependent Variable: NIM	
(1)	(2)	(3)	(4)	(5)
NIM_{t-1}			0.487*** (0.02)	0.484*** (0.02)
$T\text{-}bill_{t-1}$	-1.015*** (0.14)		0.019** (0.01)	
$T\text{-}bill_{t-1}$*top quartile banks		-0.134*** (0.024)		0.021** (0.01)
$Slope_{t-1}$	-1.968*** (0.18)	-0.194*** (0.079)	0.015 (0.01)	0.009 (0.01)
Leverage	0.223** (0.11)	0.014*** (0.005)		
Inflation	-0.017 (0.06)	-0.118** (0.058)	0.012** (0.004)	
Covid dummy	1.171*** (0.27)			
GNPA ratio			-0.008*** (0.002)	-0.010*** (0.002)
CASA share			0.008*** (0.002)	0.006*** (0.002)
Merger dummy			0.198*** (0.05)	0.209*** (0.05)
Cost income ratio			-0.004*** (0.001)	-0.004*** (0.001)
Spread			0.396*** (0.02)	0.397*** (0.02)
Liquid assets to total assets			-0.007*** (0.002)	-0.008*** (0.002)
Constant	9.314*** (1.3)	3.487*** (0.237)	0.433*** (0.12)	0.654*** (0.08)
R-squared within	0.164	0.079	0.818	0.817
No. of observations	833	880	1070	1071
Bank Fixed Effect	Yes	Yes	Yes	Yes

Note: 1. Figures in parentheses refers to robust standard errors clustered by banks.
2. ***, ** and * indicate level of significance at the 1 per cent, 5 per cent and 10 per cent, respectively.
Source: Authors' calculations.

In Table 2, operating profit/total assets and GNPA ratio have been taken as dependent variables. At the

[7] We have also explored the non-linear relationship between G-sec yield and bank profitability by introducing squared term of G-sec yield in the regression specification, but the relationship was not found to be significant as the sample period is not very long with enough episodes to capture the non-linear movements in variables and for brevity the insignificant variable was dropped from the regression equation.

Table 2: Estimation Results: Operating Profit/Total Assets and GNPA Ratio –Various Specifications

Variables	Dependent Variable: Operating Profit/ Total Assets		Dependent Variable: GNPA Ratio	
(1)	(2)	(3)	(4)	(5)
GNPA ratio$_{t-1}$			0.935*** (0.011)	0.927*** (0.011)
T-bill$_{t-1}$	0.013*** (0.004)		0.094*** (0.028)	
T-bill$_{t-1}$*top quartile banks		0.006* (0.003)		0.130*** (0.045)
GNPA Ratio	-0.004*** (0.001)	-0.004*** (0.001)		
CASA share	0.003*** (0.001)			
Cost income ratio	-0.009*** (0.001)	-0.011*** (0.001)		
Non-interest income to total income	0.013*** (0.001)	0.011*** (0.001)		
Spread	0.057*** (0.008)	0.064*** (0.006)		
Liquid assets to total assets	-0.002 (0.001)			
Inflation	0.003 (0.002)			
Leverage	0.009** (0.004)			
Covid dummy	-0.004 (0.011)	-0.005 (0.006)		
Credit-deposit ratio $_{t-1}$			0.024*** (0.008)	0.029*** (0.008)
Asset size			1.018** (0.427)	0.456 (0.358)
IIP $_{t-2}$			-0.009 (0.002)	-0.001 (0.002)
AQR dummy			0.557*** (0.093)	0.584*** (0.092)
Observations	880	1,165	1,083	1,083
R-squared within	0.544	0.561	0.886	0.885
Number of banks	42	42	42	42
Bank Fixed Effect	Yes	Yes	Yes	Yes

Note: 1. Figures in parentheses refers to robust standard errors clustered by banks.
2. ***, ** and * indicate level of significance at the 1 per cent, 5 per cent and 10 per cent, respectively.
Source: Authors' calculations.

overall level, operating profit of banks was found to be positively associated with short-term treasury yields. This may be attributable to interest income and other non-interest income (such as fee and commission, income from forex operations, etc.) overwhelming the treasury income. This underscores the importance of interest income in the profitability of Indian banks, as during the last six years (2017-18 to 2022-23) the average share of interest income and trading income in total income was 84.5 per cent and 2.2 per cent, respectively. However, surprisingly coefficient of treasury yield for larger sized banks was found to be comparatively smaller and significant only at 10 per cent level. It may be attributable to higher share of interest income in total income of smaller banks. Control variables having a bearing on operating profits such as GNPA ratio, CASA ratio, cost-income ratio, non-interest income to total income, spread, liquid assets to total assets and Tier I leverage ratio were found to have expected signs.

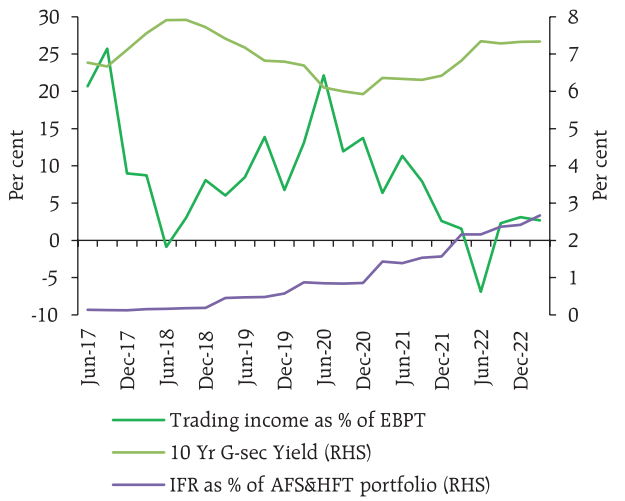
Higher interest rates are expected to lead to higher loan losses as with higher interest rates the probability of default on the existing stock of loans rises by increasing debt service burdens. It may also induce less risk-taking on new loans through the so-called risk-taking channel (Borio and Zhu, 2012; Borio *et al* 2017). Our findings suggest that rise in treasury yields lead to rise in GNPA ratio which is in line with the literature. However, in case of banks placed in top quartile increase in interest rates led to larger rise in GNPA ratio (Table 2). Further, the positive relation between credit-deposit ratio and GNPA ratio shows that excessive credit growth may be associated with high GNPAs.

c. Is Banking Sector Better Prepared This Time?

Macroprudential measures have provided cushion to banks for dealing with rising yield scenario. In October 2020, Reserve Bank allowed banks to exceed the ceiling up to an overall limit of 22 per cent of the NDTL from 19.5 per cent[8] of NDTL to be considered for held to maturity. Furthermore, the limit was extended to 23 per cent of NDTL in April 2022. This dispensation was made available up to March 31, 2024 with the provision to restore to 19.5 per cent

[8] Banks were permitted to exceed the limit of 25 per cent of total investments under the held to maturity (HTM) category, provided the excess comprises only of statutory liquidity ratio (SLR) securities and total SLR securities held in the HTM category are not more than 19.5 per cent of net demand and time liabilities (NDTL).

Chart 6: IFR and Treasury Profits: SCBs



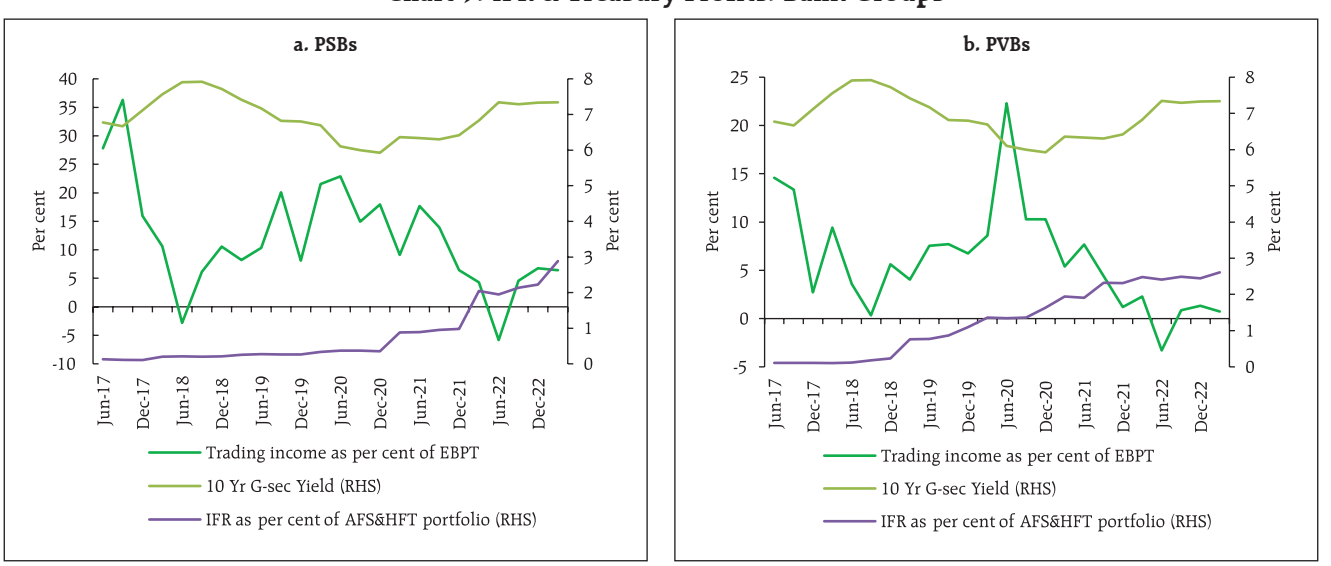
Note: IFR: Investment Fluctuation Reserve; EBPT: Earning before Provisioning and Taxes; AFS: Available for Sale; and HFT: Held for Trading.
Source: RBI Supervisory Returns; and authors' calculations.

from June 30, 2024 in phased manner. The enhanced limit not only provided greater headroom to banks for investment in the SLR securities, but also enabled banks to better manage their investment portfolios by raising limits of SLR securities under the held to maturity (HTM) category.

The investment fluctuation reserve (IFR)[9] is created by transferring the gains realised on sale of investments. It enables banks to maintain an adequate reserve to protect against increase in yields on their balance sheet in the future. In the wake of the guidelines and with falling yields and resultant higher trading profits resulting in higher transfer of funds to IFR, the IFR has reached 2.2 per cent of HFT and AFS portfolio by end-March 2022 at the system level (Chart 6). However, with sharp rise in G-Sec yields and fall in bond prices in Q1:2022-23, banks recorded treasury losses in their trading book to the tune of 4.9 per cent of their operating profit. However, at the system level, SCBs managed to maintain their IFR above 2 per cent which reached 2.7 per cent by March 2023.

As compared to PSBs, PVBs were more proactive in provisioning towards IFR. PVBs crossed 2.0 per cent of their HFT and AFS portfolio in September 2021, while PSBs reached IFR of 2 per cent in March 2022. Despite the hardening of G-Sec yields, PSBs and PVBs were able to manage IFR above 2 per cent (Chart 7a and b).

Chart 7: IFR & Treasury Profits: Bank Groups



Sources: RBI Supervisory Returns; and authors calculations.

[9] As per RBI guidelines (April 2, 2018), all banks were advised to create an IFR with effect from the year 2018-19 and transfer net profit on sale of investment to IFR, until the amount of IFR reaches at least 2 per cent of the Held for Trading (HFT) and Available for Sale (AFS) portfolio, on a continuing basis. Where feasible, this should be achieved within a period of 3 years.

V. Conclusion

The current study investigates the impact of changes in domestic treasury yield on the profitability of banks in India. The empirical analysis suggests that the short-term yield and slope have a differentiated impact on trading income (negative) and net interest margin (positive). In the case of larger banks, the impact of short-term yield on trading income was found to be smaller as compared to the full sample of banks. NIM was found to be a bit more responsive to the short-term rate in the case of larger banks. The results suggest that larger banks may have managed the impact of rising yields better.

With the systemic impact of interest rates on financial markets, the MTM losses have been a major source of concern for both banks and regulators. The macroprudential measures such as the creation of IFR have provided cushion to the banking sector against the current episode of hardening of yields. Going forward, strengthening of risk management practices and internal controls by banks remains of paramount importance. Deepening of interest rate derivatives market also assumes significance in mitigating the adverse movements in interest rates on bank portfolios by encouraging the participation of banks for hedging and neutralising large changes in yields.

References

Adrian, T., and H. S. Shin. (2009), "Money, Liquidity and Monetary Policy", *American Economic Review*, 99(2): 600–05.

Alessandri, P. and B. D. Nelson (2015), "Simple Banking: Profitability and the Yield Curve", *Journal of Money, Credit and Banking*, 47(1): 143–175.

Aliaga-Diaz, R., and M. P. Olivero (2011), "The cyclicality of price- cost margins in banking: An empirical analysis of its determinants", *Economic Inquiry*, 49:26–46.

Almaqtari, F.A., E. A. Al-Homaidi, M. I. Tabash and N. H. Farhan (2018), "The Determinants of Profitability of Indian Commercial Banks: A Panel Data Approach", *International Journal of Finance and Economics*, https://doi.org/10.1002/ijfe.1655.

Bikker, J.A. and T.M. Vervliet (2017), "Bank Profitability and Risk-taking under Low Interest Rates", *International Journal of Finance & Economics.* 23:3–18.

Bolt, W., De Haan, L., Hoeberichts, M., Van Oordt, M., and Swank, J. (2012), "Bank Profitability during Recession", *Journal of Banking and Finance.* 36: 2552–2564.

Borio, C., & Zhu, H. (2012), "Capital Regulation, Risk-taking and Monetary Policy: A Missing Link in the Transmission Mechanism?" *Journal of Financial Stability*, 8:236–251.

Borio, C., L. Gambacorta, and B. Hofmann (2017), "The Influence of Monetary Policy on Bank Profitability", *International Finance*, 20(1):48-63.

Busch, R. and C. Memmel (2015), "Banks' Net Interest Margin and the Level of Interest Rates", *Bundesbank Discussion Paper No.* 16/2015.

Claessens, S, N. Coleman and M. Donnelly (2018), ""Low-For-Long" Interest Rates and Banks' Interest Margins and Profitability: Cross-country Evidence," *Journal of Financial Intermediation*, 35 (2018):1–16.

Cruz-García, P., J. F. D. Guevara and J. Maudos (2019), "Determinants of Bank's Interest Margin in the Aftermath of the Crisis: the Effect of Interest Rates and the Yield Curve Slope," *Empirical Economics*, 56(1): 341-365.

Egly, P. V., D. W. Johnk and A. V. Mollick (2018), "Bank Net Interest Margins, the Yield Curve, and the 2007–2009 Financial Crisis", *Review of Financial Economics*, 36:12–32.

English, W.B. (2002), "Interest Rate Risk and Bank Net Interest Margins", *BIS Quarterly Review*, December, pp. 67-82.

Kashyap, A.K and J.C. Stein (2000), "What Do a Million Observations on Banks Say about the Transmission of Monetary Policy?" *American Economic Review*, 90 (3): 407-428.

Kumar, V. and R. Bird (2020), "Factors Influencing the Profitability of Banks in India and China", *Applied Economics Letters*, DOI: 10.1080/13504851.2020.1869153.

Maddaloni, A. and J. L. Peydr (2011), "Bank Risk-Taking, Securitization, Supervision, and Low Interest Rates: Evidence from the Euro-Area and the US Lending Standards", *Review of Financial Studies*, 24: 2121–65.

Montes, C.P. and Perez, A. F. (2018), "The Impact of the Interest Rate Level on Bank Profitability and Balance Sheet Structure", *Revista de Estabilidad Financiera*, Banco de España, November.

Naqvi H. and R. Pungaliya (2023), "Bank size and the transmission of monetary policy: Revisiting the lending channel", *Journal of Banking & Finance*,146: 1-17.

Reserve Bank of India (2021) "Monetary Policy Report", April.

Reserve Bank of India (2023a) "Annual Report 2022-23", May.

Reserve Bank of India (2023b) "Financial Stability Report", June.

Saini, S., W. Ahmad and S. Bekiros (2021), "Understanding the credit cycle and business cycle dynamics in India", *International Review of Economics & Finance* 76(1).

Samuelson, P. A. (1945), "The Effect of Interest Rate Increases on the Banking System", *American Economic Review*, 35(1):16-27.

Wooldridge, J.M. (2016), "Introductory Econometrics – A Modern Approach", 6th Edition, Cengage Learning, Boston.

Annex 1: Descriptive Statistics

Variable	Number of observations	Mean	Std. dev.	Min	Max
NIM	1166	3.17	0.69	2.27	4.42
Trading income	1163	2.72	2.24	0.15	7.12
EBPT	1166	0.49	0.19	0.22	0.82
GNPA	1166	8.14	5.28	1.80	17.24
T-Bill	1260	5.49	1.52	3.07	7.94
Slope	1260	1.45	1.06	-0.20	3.27
Leverage	881	6.54	1.92	4.26	9.84
Inflation	1260	4.80	1.35	2.20	7.30
CASA	1166	34.98	8.25	23.24	47.74
Cost-income ratio	1165	51.67	8.65	40.11	67.75
Non-interest income	1165	12.87	3.84	7.34	19.24
Spread	1169	2.86	0.52	2.14	3.74
Liquid assets ratio	1166	17.30	4.01	11.82	24.58
C-D ratio	1166	74.77	8.89	60.21	89.02
Asset	1166	5.23	0.47	4.43	5.92
IIP	1260	3.87	12.80	-35.56	58.31

Note: Banking sector indicators after 5 per cent winsorisation from each side.

Annex 2: Description of Variables

NIM	Net interest income as percentage of average assets.
Slope	Difference between 10-year G-sec yield and 91 days T-Bill rate.
Leverage	Tier I capital to Total Exposure
Inflation	CPI (combined) y-o-y inflation
Covid dummy	Periods strongly affected by covid-19 *i.e.* Q1:2020-21 to Q4:2021-22 has been taken as 1; otherwise, zero
GNPA Ratio	Gross NPAs to Gross Advances
CASA share	Share of Current Account and Saving Account (CASA) deposits in total deposits
Merger dummy	The period in which a bank was merged with bank under consideration 1; otherwise, zero
Cost-income ratio	Non-Interest Expense / Net Total Income
Spread	Interest Income / Interest Earning Assets - Interest Expense / Interest Bearing Liabilities
Liquid assets to total assets	(Cash funds + Dues from banks and financial institutions (FIs) in India + Dues from overseas banks and FIs)/ Total Assets
Non-interest income to total income	Non-interest income / total income
Credit deposit ratio	Loan and advances/Deposit
IIP	y-o-y IIP growth
Trading Income	Profit/(loss) on securities trading
Operating Profit/ Assets	Earnings before provision and taxes / Total Assets
Assets	Total Assets of a bank
AQR Dummy	Asset quality review (AQR) of banks was undertaken by the Reserve Bank of India in July-September 2015 for improved recognition of NPAs which led to sharp rise in GNPAs. To account of its impact, AQR dummy was used with Q3:2015-16 to Q2:2016-17 as 1; otherwise, zero.

Annex 3: Correlation Matrix

	NIM	Trading income	EBPT	GNPA	T-Bill	Slope	Leverage	Inflation	CASA	Cost-income ratio	Non-interest income	Spread	Liquid assets ratio	C-D ratio	Asset	IIP
NIM	1.00															
Trading income	-0.34***	1.00														
EBPT	0.74***	-0.04	1.00													
GNPA	-0.63***	0.24***	-0.53***	1.00												
T-Bill	-0.19***	0.02*	-0.13***	0.03	1.00											
Slope	0.20***	-0.22***	0.09***	-0.04	-0.92***	1.00										
Leverage	0.79***	-0.23***	0.68***	-0.71***	-0.16***	0.15***	1.00									
Inflation	0.11***	-0.16	0.04**	-0.12***	-0.39	0.52***	0.08***	1.00								
CASA	0.17***	0.03***	0.14***	0.29***	-0.29***	0.29***	-0.02***	0.08***	1.00							
Cost-income ratio	-0.36***	-0.06	-0.75***	0.28***	0.03***	0.00***	-0.41***	0.02**	-0.06**	1.00						1.00
Non-interest income	0.31***	0.21***	0.59***	-0.16***	-0.35***	0.28***	0.33***	0.06***	0.36***	-0.46***	1.00					
Spread	0.74***	-0.25	0.49***	-0.25***	-0.20***	0.21***	0.41***	0.08***	0.26***	-0.22***	0.23***	1.00				
Liquid assets ratio	-0.19**	0.20***	-0.19	0.26	-0.01***	-0.04	-0.12***	-0.11	0.21***	0.20***	0.04***	-0.08***	1.00			
C-D ratio	0.59***	-0.26***	0.57***	-0.58***	0.05***	-0.02***	0.74***	0.01**	-0.12***	-0.39***	0.29	0.22	-0.42***	1.00		
Asset	-0.13**	0.14***	0.12	0.30***	-0.14***	0.13***	-0.16***	0.06***	0.62	-0.28***	0.38***	0.00***	0.02***	0.00	1.00	
IIP	0.06	0.12***	0.06	-0.03	-0.34	0.37***	0.06*	0.26**	0.08	-0.04***	0.12	0.07	0.02	-0.06	0.03	

Note: ***, ** and * indicate level of significance at the 1 per cent, 5 per cent and 10 per cent, respectively.

Production Weighted Rainfall Index and Agriculture Production: Relationship Re-visited

by Shivangee Misra, Rajendra Raghumanda and Sanjay Singh^

To assess the impact of Southwest monsoon (SWM) rainfall on agriculture activities, the Reserve Bank of India staff has been preparing Production Weighted Rainfall Index (PRN) which takes into account the state wise rainfall and their respective contributions in all-India foodgrain production. The PRN has proved to be a better rainfall indicator over IMD index for projecting kharif foodgrain production. This article attempts to modify the PRN (Modified PRN) for better monitoring of SWM rainfall as well as forecasting of kharif foodgrain production.

Introduction

Rainfall is a crucial aspect of agricultural production, especially in India, where nearly half of the net sown area is rain-fed. Other major drivers of production apart from rainfall include irrigation infrastructure, technological innovations, usage of high yield varieties of seeds, improved fertilisers, soil moisture level and temperature among others. Despite the rapid expansion in irrigation infrastructure in the recent years, the net irrigated area in India is only marginally higher than half of the total net sown area.[1] India Meteorological Department (IMD)[2] classifies the annual rainfall in India into four seasons: i) Winter (January to February), ii) Pre-Monsoon (March to May), iii) Southwest monsoon (SWM) (June to September), and iv) Post monsoon (October to December). Among these, SWM receives around 75 per cent of the annual rainfall and assumes great importance for the agricultural activities in the country. Along with being a major source for irrigation, SWM is also essential for maintaining the optimum level of storage in the reservoirs which facilitates irrigation during the entire year. A normal monsoon supports the crop production and boosts the rural consumption. Whereas, a deficit or an erratic monsoon can lower the productivity and affect the cropping pattern. Among the three seasons of agriculture in India, *kharif*, which accounts for around 50 per cent of the total foodgrain production of the country, has the highest dependency on SWM rainfall. Better SWM rainfall improves the prospects of *kharif* crops, however, excess rainfall during monsoon season may damage the crops and hence is detrimental to the *kharif* production. The excess rainfall during SWM, however, may lead to improved reservoir levels and might augur well for *rabi* production. Thus, analysing the impact of SWM rainfall - the quantum, spatial and temporal dynamics of it, on the *kharif* foodgrain production has always remained an area of concern.

Given the importance of rainfall in the Indian economy, the Reserve Bank monitors the progress of rainfall, particularly the SWM very closely. The IMD's rainfall index for the country is the weighted aggregation of sub-division wise rainfall wherein weights are based on geographical areas. To capture the impact of rainfall from the point of view of agricultural activities in a better way, the Reserve Bank has been compiling Production Weighted Rainfall Index (PRN), wherein state wise rainfall is aggregated based on the state wise share in total foodgrain production. RBI has been publishing PRN in the Monetary Policy Report and the State of the Economy article of the RBI Bulletin issues, released during and around the SWM season. The PRN addresses the concern that, despite IMD rainfall index falling in the normal range at the country level, the states with higher foodgrain

^ The authors are from Department of Statistics and Information Management. The authors are thankful to Dr. O. P. Mall and Dr. A. R. Joshi for their encouragement and guidance in preparing this article. The views expressed are those of the authors and do not represent the views of the Reserve Bank of India.

1 Land Use Statistics, 2019-20.

2 https://internal.imd.gov.in/press_release/20220414_pr_1572.pdf

production capacity might receive lower rainfall as compared to the lower foodgrain producing states, leading to a lower foodgrain production than normal and *vice versa*. For example, in 2022, PRN stayed below the IMD index for the first three months of the SWM season,[3] reflecting the lower rainfall received by major foodgrain producing states in the northern and eastern parts of India. The methodology for construction of PRN which is explained in the subsequent section, broadly follows Cummings *et al.* (1969) and Arif (1988).

Though, a higher value of PRN indicates better rainfall which generally leads to better agriculture prospects, excess rainfall beyond a threshold might result in the incidence of crop damage, diminishing of nutrients and soil erosion, *etc.*, resulting in lower agriculture production (which is empirically proven in the subsequent section of this article) *i.e.*, if rainfall is below a threshold, the relationship between the foodgrain production and the rainfall index is positive, whereas if the rainfall is above the threshold, the relationship changes and becomes negative. While PRN is an improvement over IMD index, it is unable to differentiate the impact of excess rainfall on crop production with that of normal or below normal rainfall. Furthermore, there may be a case when PRN turns out to be normal despite deficit rainfall in some major foodgrain producing states and *vice versa*. This might arise due to the shortfall, in key foodgrain producing states, being offset by high rainfall in other major foodgrain producing states. Hence, to address the above mentioned shortcomings of PRN, this article attempts to modify the PRN [named as modified PRN (MPRN)] by using one-sided winsorisation at state-level, wherein, if a state receives rainfall more than a pre-decided threshold, the actual rainfall for the state is restricted to that threshold for the calculation of PRN. This article also empirically examines the usefulness of MPRN in the projection of *kharif* foodgrain production which is largely influenced by the SWM.

The remainder of the study proceeds as follows. Section II briefly presents the major literature explored for the study. The data being used for the study and methodology for calculation of PRN and MPRN is explained in Section III. The empirical results have been discussed in Section IV. Finally, Section V concludes by summarising inferences that emanated from the study.

II. Review of Major Literature

Various studies have been undertaken to examine the impact of several factors, such as, rainfall, weather, technological innovations, *etc.*, on the production of crops. Cummings *et al.* (1969) analysed the impact of New Agricultural strategy and provided an estimate of the foodgrain production for the year 1968-69, by taking into consideration the effects of rainfall and the role of technology. Similarly, the quantum of foodgrains produced in India was analysed by incorporating the spatial and temporal distribution of monsoon rainfall (Arif, 1988). Further, studies done on rainfall forecast and foodgrain production (Bhatia, 1997) emphasise on the importance of crop level production forecasting using crop-wise production weighted rainfall index. Another study finds the relationship of agricultural growth with deviation of rainfall from previous year and irrigation growth (Kumar *et al.*, 2019). The impact of climate change on major crops of Pakistan was assessed by analysing the factors, such as, maximum temperature, minimum temperature, relative humidity, sunshine and rainfall (Ali *et al.*, 2017). The potential impact of rising temperature on wheat yield is studied for the north Indian plains (Kuriachen *et al.*, 2022). Gupta *et al.* (2023) found statistically significant impact of SW rainfall on *kharif* production, though the impact has moderated over time. Singh *et al.* (2020) examined the impact of timing of arrival of monsoon on crop yields using district-level panel data. In India, technological innovations in crop forecasting have been a continuous

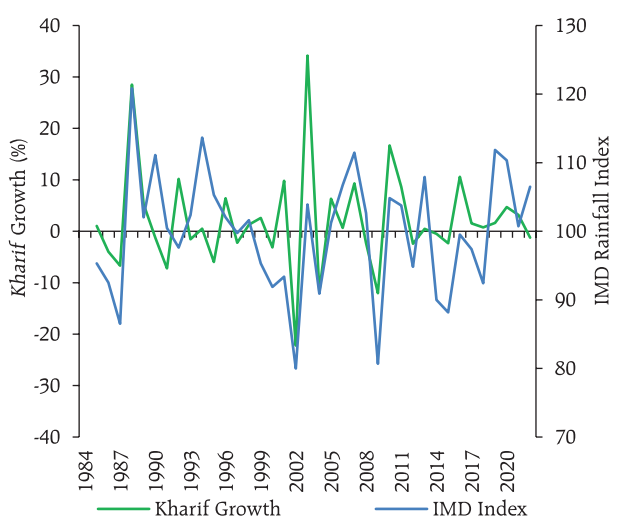
[3] State of the Economy article of the RBI Bulletin, October 2022.

phenomenon. Crop forecasting using remote sensing data, started in late 1980s, however, it became fully operational through a national level programme - FASAL (Forecasting Agriculture output using Space, Agro-meteorology and Land-based observations) since 2006 (Ray *et al.*, 2014). It involves econometric models to forecast area and production before crop sowing season. It aids in validating the estimates of the output along with the other sources. Due to this scientific advancement, the agriculture production estimates were believed to be more reliable since 2000s. This is also evident from the co-movement of *kharif* foodgrain production growth with the IMD rainfall index after 2002-03 (Chart 1).[4]

III. Data and Methodology

Given the better alignment of *kharif* foodgrain production estimates with rainfall since 2002-03, the timeframe to study the impact of SWM rainfall on *kharif* production was taken as 2002-03 to 2022-23 (Chart 1).

Chart 1: Growth of *Kharif* Foodgrain Production and IMD Index



Source: IMD, Ministry of Agriculture & Farmers Welfare and RBI Staff calculations.

[4] Directional concordance between *kharif* foodgrain production and IMD rainfall index improves by 28 per cent for the period 2002-2022 as compared to 1985-2001. Also, the correlation coefficient of foodgrain production's deviation from trend and IMD rainfall index increases from 0.5 to 0.7.

The PRN and MPRN have been constructed by using the following formulas:

a. Production weighted Rainfall Index (PRN):

$$PRN_t = \frac{\sum_i P_{it} * A_{it}}{\sum_i P_{it} * L_{it}}$$

where, A_{it} Actual Rainfall of ith state during the year/month 't' and L_{it}: Long Period Average (LPA) Rainfall[5] of ith state for the year/month 't'. P_{it}: Foodgrain production share of ith state during the year/month[6] 't'. The state-wise foodgrain production share is derived based on the average share of latest five years. The state wise production share of foodgrains is given in the Annexure 1.

b. Modified Production weighted Rainfall Index (MPRN):

A one-sided winsorisation was applied on the actual state-wise rainfall to get MPRN. Accordingly, PRN is modified as follows to get MPRN:

$$MPRN_t = \frac{\sum_i P_{it} * A'_{it}}{\sum_i P_{it} * L_{it}}$$

where A'_{it}: Truncated actual rainfall of ith state during the year/month 't' which is derived as:

$$A'_{it} = \begin{cases} A_{it}, & A_{it} < (L_{it} * Threshold) \\ (L_{it} * Threshold), & A_{it} \geq (L_{it} * Threshold) \end{cases}$$

According to IMD, rainfall in the range of 96-104, above 104-110 and above 110 per cent of LPA rainfall is categorised as normal, above normal and excess rainfall, respectively, at all-India level. The above normal or excess rainfall may not be favourably impacting the agriculture activity and hence for this study various thresholds starting from 105 have been considered for constructing the MPRN. Results for the

[5] The latest LPA rainfall *i.e.* 50-year average rainfall for 1971-2020 is used for computing all three indices *viz.* IMD rainfall index, PRN and MPRN for the entire sample period considered.

[6] Since, state-wise foodgrain share is derived based on annual production, the state-wise foodgrain production share remains same across months of the year.

Table 1: Rainfall Indices during SW Monsoon - Descriptive Statistics

(Per cent)

	*Kharif**	IMD	PRN	MPRN 105	MPRN 110	MPRN 115
Mean	2.1	99.3	97.2	86.0	87.6	89.1
Median	0.7	101.2	100.2	88.1	89.6	90.8
Maximum	34.1	111.9	109.5	92.8	94.7	96.3
Minimum	-22.2	80.0	78.1	72.7	73.6	74.3
Std. Dev.	11.2	9.4	10.2	6.0	6.4	6.7
No. of Obs.	21	21	21	21	21	21

*foodgrain production growth.
Source: IMD, Ministry of Agriculture & Farmers Welfare and RBI Staff calculations.

alternative threshold settings in the range of 105 to 110 per cent and 115 per cent are presented in this article.

Descriptive statistics of IMD, PRN and MPRN show that due to one-sided truncation, the average value of MPRN is considerably lower than IMD and PRN, indicating that the definition of normal rainfall, which is based on IMD index, may not be applicable for MPRN (Table 1).

To examine the impact of SWM rainfall on *kharif* foodgrain production, the following regression model was used:

$$Production_t = \gamma_1 * Rainfall\ Index_t + \varepsilon_t \qquad ...(1)$$

where, $Production_t$ is the deviation of the actual *kharif* foodgrain production from its trend, and $Rainfall\ Index_t$ is the IMD/ PRN/ MPRN for the SWM season in the year 't'. The trend of *kharif* production was alternatively taken as time trend – deterministic trend and the Hodrick Prescott(HP) filter based trend – stochastic trend with a smoothing parameter λ=100. Deviation of foodgrain production from its trend eliminates the impact of gradual improvement in production on account of factors, such as, greater use of technology, high yielding variety of seeds, *etc.*, and hence is left with the short-run movement wherein rainfall could be a major driver.

Since rainfall in different months of the monsoon season may have differential impact on the agriculture activities, the temporal characteristic was factored-in by modifying the above model as:

$$Production_t = \sum_{j=1}^{4} \gamma_j * Rainfall\ Index_{j,t} + \varepsilon_t \qquad ...(2)$$

where, $Rainfall\ Index_{j,t}$ is the IMD/PRN/MPRN for the jth month (j: June, July, August and September) of the 't^{th}' SWM year.

Furthermore, the possible adverse impact of excess rainfall that is the rainfall being left out while computing the MPRN on crop production, was factored-in by taking the difference of MPRN from PRN as another explanatory variable in the Model (1). The modified regression equation transformed as:

$$Production_t = \gamma_1 * MPRN_t + \gamma_2 * DMPRN_t + \varepsilon_t \qquad ...(3)$$

where, $DMPRN_t$ is the difference of MPRN at a pre-decided threshold from PRN in the year 't' (*i.e.*, $DMPRN_t = PRN_t - MPRN_t$).

Given the differences in mean and variance of rainfall indices – the explanatory variables used in this study (Table 1), the associated coefficients of above regression models may not be directly comparable. Hence, to make them comparable, all the explanatory as well as dependent variables were standardised by using standard normal transformation. Therefore, all the above three models became regression through the origin (*i.e.* regression without intercept).

IV. Empirical Results

The correlation between SWM rainfall and the growth rate in *kharif* foodgrain production was found to be highly positive. Among the three indices, MPRN has slightly higher correlation. Though all the monsoon months have positive correlation with *kharif* foodgrain production, July has the highest, indicating that the July rainfall is crucial for the sowing activities and also for the early growing stage of the crops (Table 2).

Estimates of the regression model (1) using both the time trend and HP filter trend show that all the

Table 2: Correlation of Rainfall Indices with Growth Rate of *Kharif* Foodgrain Production

Month	IMD	PRN	MPRN 105	MPRN 106	MPRN 107	MPRN 108	MPRN 109	MPRN 110	MPRN 115
Jun	0.12	0.12	0.21	0.21	0.21	0.21	0.21	0.21	0.20
Jul	**0.59**	**0.66**	**0.67**	**0.67**	**0.66**	**0.66**	**0.66**	**0.66**	**0.65**
Aug	0.16	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.20
Sep	0.44	0.36	0.16	0.16	0.16	0.16	0.16	0.17	0.17
SWM	**0.60**	**0.60**	**0.67**	**0.67**	**0.67**	**0.67**	**0.67**	**0.66**	**0.65**

Source: RBI Staff calculations.

three rainfall Indices have positive and significant impact on the deviation of *kharif* foodgrain production from the trend. MPRN is found to have the highest impact on *kharif* production with significantly better in-sample fit (measured by Adj. R-square) followed by PRN and IMD. The MPRN at threshold value of 105 proves to be the best fit among all the threshold settings. Moreover, the Adj. R-square was observed to be declining sequentially when the threshold was increased beyond 105, indicating that rainfall above 105 per cent of LPA could start having adverse impact on *kharif* foodgrain production. Impact of temporal distribution of SWM rainfall on *kharif* production, which was captured in the model (2) with month-wise rainfall, reveals that the rainfall in the July month (the month accounting for around half of the *kharif* sowing) has the highest impact on output prospects followed by that in June, September and August, indicating that the adverse impact of delay in onset or subdued performance of monsoon in June on agriculture prospects may be somewhat mitigated if the monsoon picks-up in the subsequent month. Unlike IMD and PRN, MPRN shows that rainfall in all the four months of the monsoon season has significant implication for *kharif* foodgrains (Tables 3 and 4).

Table 3: Regression Estimates of Total SWM and Month-Wise Rainfall - Time Trend

	IMD	PRN	MPRN 105	MPRN 106	MPRN 107	MPRN 108	MPRN 109	MPRN 110	MPRN 115
	Total SW Rainfall (Model 1)								
Rainfall Index	0.720 (0.002)	0.742 (0.002)	0.851 (0.00)	0.849 (0.00)	0.847 (0.00)	0.844 (0.00)	0.842 (0.00)	0.839 (0.00)	0.824 (0.00)
Adj-R-Square	*0.519*	*0.550*	***0.725***	*0.722*	*0.717*	*0.713*	*0.708*	*0.703*	*0.679*
LM Test (P-value)	*0.577*	*0.802*	*0.895*	*0.898*	*0.900*	*0.899*	*0.898*	*0.895*	*0.884*
DW Statistic	*2.148*	*2.075*	*2.100*	*2.096*	*2.094*	*2.094*	*2.095*	*2.097*	*2.101*
No. of Obs.	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*
	Monthly Rainfall (Model 2)								
Rainfall(June)	0.423 (0.043)	0.360 (0.089)	0.422 (0.008)	0.418 (0.009)	0.415 (0.01)	0.413 (0.011)	0.410 (0.012)	0.406 (0.013)	0.392 (0.02)
Rainfall(July)	**0.427** (0.108)	**0.523** (0.014)	**0.620** (0.001)	**0.618** (0.002)	**0.616** (0.002)	**0.613** (0.002)	**0.611** (0.002)	**0.609** (0.002)	**0.597** (0.003)
Rainfall(August)	0.154 (0.175)	0.181 (0.23)	0.267 (0.049)	0.268 (0.051)	0.269 (0.054)	0.270 (0.055)	0.270 (0.057)	0.272 (0.058)	0.272 (0.071)
Rainfall (September)	0.337 (0.087)	0.241 (0.081)	0.304 (0.014)	0.299 (0.016)	0.295 (0.019)	0.291 (0.021)	0.287 (0.023)	0.283 (0.026)	0.268 (0.04)
Adj-R-Square	*0.475*	*0.511*	***0.688***	*0.684*	*0.679*	*0.674*	*0.669*	*0.663*	*0.635*
LM Test (P-value)	*0.658*	*0.680*	*0.989*	*0.991*	*0.994*	*0.996*	*0.998*	*0.998*	*0.994*
DW Statistic	*2.110*	*1.992*	*1.881*	*1.887*	*1.896*	*1.907*	*1.917*	*1.928*	*1.968*
No. of Obs.	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*

Note: 1. Figure in parenthesis is the associated p-value.
2. Standard errors are heteroscedasticity and autocorrelation consistent (HAC).
Source: RBI Staff calculations.

Table 4: Regression Estimates of Total SWM and Month-Wise Rainfall - HP Filter Trend

	IMD	PRN	MPRN 105	MPRN 106	MPRN 107	MPRN 108	MPRN 109	MPRN 110	MPRN 115
	Total SW Rainfall (Model 1)								
Rainfall Index	0.702 (0.002)	0.730 (0.002)	0.845 (0.00)	0.843 (0.00)	0.840 (0.00)	0.838 (0.00)	0.835 (0.00)	0.832 (0.00)	0.817 (0.00)
Adj-R-Square	*0.493*	*0.533*	***0.713***	*0.710*	*0.706*	*0.702*	*0.698*	*0.692*	*0.667*
LM Test (P-value)	*0.637*	*0.855*	*0.951*	*0.951*	*0.951*	*0.949*	*0.946*	*0.943*	*0.933*
DW Statistic	*2.126*	*2.064*	*2.091*	*2.090*	*2.089*	*2.090*	*2.092*	*2.095*	*2.097*
No. of Obs.	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*
	Monthly Rainfall (Model 2)								
Rainfall(June)	0.432 (0.043)	0.371 (0.08)	0.446 (0.006)	0.443 (0.007)	0.440 (0.007)	0.437 (0.008)	0.434 (0.009)	0.430 (0.01)	0.414 (0.016)
Rainfall(July)	**0.398** (0.116)	**0.496** (0.011)	**0.595** (0.001)	**0.594** (0.001)	**0.592** (0.001)	**0.589** (0.001)	**0.587** (0.001)	**0.585** (0.001)	**0.573** (0.002)
Rainfall(August)	0.148 (0.181)	0.172 (0.223)	0.265 (0.043)	0.266 (0.045)	0.266 (0.047)	0.267 (0.048)	0.268 (0.049)	0.269 (0.051)	0.270 (0.062)
Rainfall (September)	0.337 (0.085)	0.252 (0.066)	0.300 (0.012)	0.296 (0.014)	0.292 (0.016)	0.288 (0.018)	0.284 (0.02)	0.280 (0.023)	0.265 (0.036)
Adj-R-Square	*0.444*	*0.483*	***0.671***	*0.668*	*0.663*	*0.658*	*0.653*	*0.647*	*0.617*
LM Test (P-value)	*0.733*	*0.700*	*1.000*	*1.000*	*1.000*	*0.999*	*0.997*	*0.995*	*0.982*
DW Statistic	*2.099*	*1.969*	*1.957*	*1.963*	*1.972*	*1.982*	*1.992*	*2.001*	*2.032*
No. of Obs.	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*	*21*

Note: 1. Figure in parenthesis is the associated p-value.
2. Standard errors are heteroscedasticity and autocorrelation consistent (HAC).
Source: RBI Staff calculations.

One-year ahead projections[7] carried out by using model (1) suggest that MPRNs have lower forecast errors as compared to PRN and IMD in all the cases. Relative Root Mean Square Percentage Error (RMSPE)[8] of MPRN over IMD indicate that there is significant improvement in the forecasting performance of the model. Among the MPRNs with different thresholds selected under study, the MPRN at threshold 105 outperforms all the others. In the last 5 years, the RMSPE for *kharif* foodgrain production using MPRN (threshold 105) is lower by 21.3 per cent and 38.3 per cent, than the RMSPE based on IMD under time trend and HP trend, respectively (Table 5.1).

Incorporating the month-wise rainfall dynamics in the model [regression model (2)] in place of total rainfall during SWM season does not help in improving the forecasting performance for the last 5 years (Table 5.2).

Further, the model which factors in the adverse impact of excess rainfall [model (3)] seems to be improving the overall in-sample fit (Adj. R Square) when compared to the model only with annual rainfall [model (1)]. MPRN at 105 stands out to be having the best in-sample fit. The negative and statistically significant regression coefficient of the excess rainfall suggests unfavourable output conditions for *kharif* foodgrain production. As the threshold setting for excess rainfall increases, the negative impact of the excess part also magnifies (Annexure 2). The adverse impact comes out to be significant at 10 per cent and 5 per cent level of significance under time trend and HP trend, respectively. The forecast performance for *kharif* foodgrain production seem to be improving only marginally when compared to model (1) in the case of Time Trend. However, no such improvement was observed in the case of HP trend (Table 5.3).

[7] The projections are generated recursively, *i.e.*, the model was first estimated using data till time 't', then using the estimated model and the rainfall index observed for time 't+1', foodgrain production for time 't+1' was projected.

[8] $RMSPE = \sqrt{\frac{1}{n}\sum_{t=1}^{n}\left\{\left(\frac{P_t - \hat{P}_t}{P_t}\right) * 100\right\}^2}$, where P_t is the actual *kharif* production in year 't' and $\hat{P}_t$ is the estimated *kharif* production for year 't'.

Table 5: Out-of-Sample RMSPE in the Last Five Years (FY2019 to FY2023)

(Per cent)

	Time Trend	HP Filter -Trend
RMSPE of IMD	6.72	4.89
5.1: Relative RMSPE over IMD: Annual Rainfall (Model 1)		
PRN	85.9	74.9
MPRN105	**78.7**	**61.7**
MPRN106	79.4	62.6
MPRN107	80.0	63.5
MPRN108	80.6	64.3
MPRN109	81.1	65.1
MPRN110	81.6	65.9
MPRN115	84.3	69.6
5.2: Relative RMSPE: Monthly Rainfall (Model 2) over Annual Rainfall (Model 1)		
IMD	107.7	109.0
PRN	119.8	128.9
MPRN105	110.8	110.7
MPRN106	110.9	111.0
MPRN107	111.0	111.2
MPRN108	111.0	111.3
MPRN109	111.1	111.4
MPRN110	111.1	111.6
MPRN115	111.4	112.3
5.3: Relative RMSPE: Model 3 Over Model 1		
MPRN105+DMPRN105	100.1	104.4
MPRN106+DMPRN106	99.9	103.7
MPRN107+DMPRN107	99.8	103.1
MPRN108+DMPRN108	99.7	102.6
MPRN109+DMPRN109	99.7	102.3
MPRN110+DMPRN110	99.7	101.9
MPRN115+DMPRN115	100.7	102.3

Source: RBI Staff calculations.

V. Conclusion

An assessment of the impact of the quantum, spatial and temporal distribution of SWM rainfall on the production of *kharif* foodgrains reaffirms the positive and statistically significant impact of SWM rainfall on *kharif* production prospects. Among the SWM months, July rainfall has the highest impact on production followed by June, September and August, indicating that the adverse impact of delay in onset or subdued performance of monsoon in June may be somewhat mitigated if the monsoon picks-up in the subsequent month.

The MPRN derived by applying a one-sided winsorisation on the actual state-wise rainfall was constructed for various thresholds starting from 105. While PRN performs better than IMD index in terms of better in-sample fit and lower forecast error, MPRN proves to be a further improvement over PRN. As the threshold of MPRN increases after 105, the in-sample fit of the model decreases and the impact gradually diminishes, indicating that rainfall around 105 per cent of LPA has the highest and significant impact on *kharif* foodgrain production. Also, MPRN at 105 has better forecasting performance over PRN, IMD and MPRN with other thresholds. Incorporating the temporal distribution of SWM rainfall (based on month-wise rainfall index) over annual rainfall, however, does not help in improving the forecasting performance of production at least in the last five years. Further, the excess rainfall was found to have a significant and negative impact on *kharif* foodgrain production.

References

Ali, S., Liu, Y., Ishaq, M., Shah, T., Abdullah, Ilyas, A., & Din, I. U. (2017). Climate change and its impact on the yield of major food crops: Evidence from Pakistan. *Foods*, *6*(6), 39.

Arif, R. R. (1988). Kharif production and monsoon rainfall: An empirical study. *Reserve Bank of India Occasional Papers*, *9*(4), 375-393.

Bhatia, M. S. (1997). Rainfall forecast and Kharif foodgrains in 1997. *Economic and Political Weekly*, 2289-2294.

Cummings Jr, R. W., & Ray, S. K. (1969). 1968-69 Foodgrain Production: Relative Contribution of Weather and New Technology. *Economic and Political Weekly*, *4*(39), A163-A174.

Gupta, K., Kumar, S., & Gulati, S. (2023). Agriculture's Dependency on Monsoon Rainfall in India. RBI Bulletin, August, 99-114.

Kumar, M. D., Ganguly, A., & Sivamohan, M. V. K. (2019). What Drives Annual Agricultural Growth Rates in India?. *Economic and Political Weekly*, *54*(1), 33-36.

Kuriachen, P., Devi, A., Sam, A. S., Kumar, S., Kumari, J., Suresh, A., & Jha, G. K. (2022). Wheat yield responses to rising temperature: insights from northern plains of India. *Theoretical and Applied Climatology*, *150*(3-4), 1157-1172.

Ray, S. K. (1981). Weather, prices and fluctuations in agricultural production. *Indian Economic Review*, *16*(4), 251-277.

Ray, S. S., Mamatha Neetu, S., & Gupta, S. (2014). Use of remote sensing in crop forecasting and assessment of impact of natural disasters: operational approaches in India. *Crop monitoring for improved food security.*

Singh, H., Negi, D. S., & Birthal, P. S. (2020). Uncertain monsoon, irrigation and crop yields: Implications for pricing of insurance products. *Indira Gandhi Institute of Development Research Working paper*, No. 2020-018.

Annexure 1: State-wise share in total foodgrain and *kharif* foodgrain production

(Per cent)

States\Year	Total foodgrain share of states					*Kharif* foodgrain share of states				
	2002-03	2007-08	2012-13	2017-18	2020-21	2002-03	2007-08	2012-13	2017-18	2020-21
Andhra Pradesh	6.10	8.36	4.06	4.27	3.64	7.65	9.27	3.74	4.13	3.25
Arunachal Pradesh	0.14	0.11	0.14	0.13	0.12	0.26	0.19	0.27	0.23	0.23
Assam	2.23	1.50	2.05	1.94	1.77	3.60	2.16	3.12	2.99	2.86
Bihar	6.34	4.71	6.20	5.98	4.95	6.22	3.80	6.24	6.09	4.58
Chhattisgarh	1.87	2.73	2.97	2.09	2.65	3.30	4.74	5.41	3.82	5.05
Goa	0.08	0.06	0.05	0.04	0.03	0.16	0.10	0.06	0.05	0.04
Gujarat	2.04	3.56	2.74	2.69	2.89	3.03	3.31	2.80	2.72	2.55
Haryana	7.05	6.63	6.31	5.68	5.89	3.45	4.04	3.78	3.78	3.88
Himachal Pradesh	0.64	0.68	0.58	0.52	0.49	0.67	0.83	0.63	0.60	0.59
Jammu and Kashmir	0.76	0.68	0.71	0.55	0.51	1.05	0.88	1.06	0.77	0.74
Jharkhand	1.08	1.80	1.77	2.11	1.57	2.02	3.20	3.08	3.62	2.53
Karnataka	3.81	5.28	4.22	4.14	4.68	5.59	7.27	6.00	6.02	7.42
Kerala	0.40	0.23	0.20	0.18	0.20	0.67	0.35	0.29	0.28	0.31
Madhya Pradesh	6.15	5.23	9.21	11.74	10.57	4.26	3.26	4.71	8.01	6.51
Maharashtra	6.20	6.58	4.27	4.65	5.07	8.85	7.84	6.00	5.44	5.70
Manipur	0.20	0.18	0.13	0.25	0.22	0.39	0.35	0.07	0.13	0.08
Meghalaya	0.13	0.10	0.10	0.13	0.11	0.23	0.15	0.16	0.20	0.19
Mizoram	0.07	0.01	0.02	0.03	0.03	0.14	0.01	0.03	0.05	0.05
Nagaland	0.22	0.21	0.23	0.19	0.18	0.40	0.37	0.44	0.36	0.34
Odisha	2.04	3.53	3.11	2.51	3.06	3.54	5.93	5.44	4.46	5.45
Punjab	13.44	11.62	11.10	11.12	9.79	10.57	9.12	9.26	9.83	8.76
Rajasthan	4.31	6.96	7.14	7.00	7.81	2.11	6.44	5.38	5.62	6.58
Sikkim	0.06	0.05	0.04	0.03	0.03	0.09	0.08	0.08	0.07	0.06
Tamil Nadu	2.54	2.85	2.18	3.76	3.48	4.33	4.54	3.61	5.99	5.76
Telangana	-	-	3.20	3.31	4.10	-	-	4.29	3.52	4.10
Tripura	0.35	0.27	0.28	0.3	0.28	0.53	0.38	0.43	0.43	0.41
Uttar Pradesh	21.82	18.24	19.74	18.02	18.7	14.06	12.32	14.22	12.32	13.26
Uttarakhand	0.89	0.78	0.71	0.67	0.64	0.87	0.74	0.69	0.65	0.63
West Bengal	8.88	6.95	6.44	5.92	6.44	11.81	8.2	8.61	7.77	8.02
Others	0.13	0.1	0.08	0.07	0.07	0.14	0.11	0.09	0.08	0.06
All India	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Ministry of Agriculture & Farmers Welfare.

Annexure 2: Regression Estimates of Model (3)

	Time Trend		HP Filter Trend	
	Coefficient	**Adj. R Sq.**	**Coefficient**	**Adj. R Sq.**
DMPRN105	-0.260 (0.071)	**0.744**	-0.284 (0.034)	**0.738**
DMPRN106	-0.269 (0.066)	0.742	-0.294 (0.031)	0.737
DMPRN107	-0.274 (0.063)	0.739	-0.300 (0.029)	0.734
DMPRN108	-0.278 (0.060)	0.735	-0.304 (0.027)	0.731
DMPRN109	-0.280 (0.058)	0.731	-0.307 (0.025)	0.727
DMPRN110	-0.282 (0.056)	0.726	-0.309 (0.024)	0.722
DMPRN115	-0.288 (0.045)	0.700	-0.314 (0.015)	0.694

Note: Figure in parenthesis is the associated p-value.

Source: RBI Staff calculations.

Housing Finance Companies and the COVID-19 Pandemic: Does Size Matter?

by Nandini Jayakumar, Rajnish Kumar Chandra, Brijesh P., and Prayag Singh Rawat^

Housing Finance Companies (HFCs) play an important role as the second largest lender in the housing finance space and one of the largest borrowers of the financial system. The HFC sector weathered multiple challenges in the last few years, with the COVID-19 pandemic striking the most recent blow. We empirically examine the heterogeneous impact of the pandemic by studying the relationship between credit growth of HFCs and their size and find that vis-á-vis big HFCs, credit disbursements by smaller HFCs declined in the post-COVID period.

Introduction

In India, housing and real estate have come to be recognized as key drivers of broader economic and community development, employment and asset creation, and wealth accumulation. A host of 250 ancillary industries, either directly or indirectly, derive their livelihoods from the real estate sector (RBI, 2014). In terms of employment, housing and real estate is the second largest employment provider, next to agriculture, and as per estimates, was slated to have employed over 67 million by 2022 (GoI, 2018). Housing also accounts for a preponderant share in total institutional indebtedness of households, ranging from 61 per cent in urban areas to around 22 per cent in rural areas (NSO, 2021).

Housing policies in India have undergone a paradigm shift, with the role of the government evolving from a 'provider' to that of a 'promoter'. In the post-independence period, government played a leading role in the wholesale provision of public housing. Since 2000, with the advent of economic liberalization, however, government has preferred a more market-oriented approach, playing the role of a facilitator. Specifically, they have sought to mitigate housing shortage by providing access to affordable finance and developing the housing finance market (NHB, 2021). At present, Pradhan Mantri Awaas Yojana (PMAY) - with its two verticals, Urban (PMAY-U) and Gramin (PMAY-G) - is the cornerstone of affordable housing policies in India. This umbrella initiative was launched in 2015 with the mission of "Housing for All" by 2022[1] and aimed to build around four crore homes[2]. A study based on 2011 census data estimated rural housing shortage to be 140 million (Singh, Swaminathan, & Ramachandran, 2013). Urban housing shortage is estimated to be 29 million in 2018, 54 per cent higher than in 2012 (Roy & ML, 2020). The scarcity in residential real estate, in general, became more evident in recent times when pandemic-induced uncertainty fueled demand for homeownership (NHB, 2022). The low mortgage-to-GDP ratio in India (around 11 per cent) *vis-à-vis* other Asian economies (ranging from 20 to 30 per cent) is also an indicator of the untapped potential of the sector (KPMG, CII, 2022). With increased urbanization and rising per capita income, this ratio is expected to grow, thereby propelling the sector to a higher growth trajectory (RBI, 2019).

In India, among primary lending institutions (PLIs) operating in the housing finance space, scheduled

^ The authors are from the Division of Non-Banking Financial Studies, DEPR. This article is prepared under the guidance of Gopinath Prahlada Char Tulasi, Adviser. The authors thank National Housing Bank (NHB) for their valuable inputs. The views expressed in this article are those of the authors and do not represent the views of the Reserve Bank of India.

[1] The initial timeline for PMAY-G and PMAY-U was 2022, which has now been extended to March 2024 and December 2024, respectively.

[2] https://pib.gov.in/PressReleasePage.aspx?PRID=1883183
https://pmay-urban.gov.in/eventgalleryslider/MjdKS3FUNjY3/1_Crore_and_more

commercial banks (SCBs) dominate the segment with around two-third market share in March 2022. Housing finance companies (HFCs), which are specialized lending institutions registered under the National Housing Bank (NHB) Act, 1987, are the second-largest player, with around one-third market share (RBI, 2022)[3]. They act as an important alternative financing channel to the housing and real estate sector and are especially instrumental in providing affordable finance to marginalized and new to credit borrowers (Karmali & Rodriguez Ruiz, 2022). On the borrowing side, HFCs interlinkages with rest of the financial institutions make them systemically important from the financial stability perspective. At end-September 2022, after non-bank financial companies (NBFCs), HFCs were the second largest net borrowers of funds from the financial system (FSR,RBI, 2022). In recent times, HFC sector has also been in the throes of rapid change. In the aftermath of the IL&FS crisis in 2018 which sent the NBFC sector into a tailspin, the liquidity woes of non-banks (including HFCs) were exacerbated, culminating in the default by DHFL, a prominent HFC, in June 2019. Subsequently, in a bid to strengthen the oversight of HFCs, the Government amended the NHB Act, 1987 in August 2019, thereby bringing HFCs under the regulatory purview of the Reserve Bank. They are now regulated as a specialised category of NBFCs. Another major development has been the merger of Housing Development Finance Corporation (HDFC) with HDFC Bank on July 1, 2023, resulting in considerable reduction in the size of the HFC sector.

Given the important economic role played by HFCs, their systemic importance to the financial system and latest developments in the sector, it is of interest to see how HFCs have fared in recent times. In this regard, this article empirically examines how the HFC sector has performed in the aftermath of the COVID-19 pandemic and whether smaller HFCs were affected disproportionately by this shock. We contribute to the nascent literature on HFCs in India by using the supervisory data filed by HFCs on a quarterly basis with NHB for the period between June 2016 and September 2022.

The rest of the article is divided into the following sections. Section II gives an institutional background of HFCs and enumerates the recent changes in the regulatory framework governing the sector. In Section III, we provide an overview of the sector, covering, *inter alia*, its oligopolistic characteristics, balance sheet, loan portfolio, profitability, and asset quality. Section IV outlines the data and methodology. The empirical estimation and results are discussed in Section V, which also includes robustness checks. Section VI concludes with the way forward.

II. Institutional background and recent regulatory developments in the HFC sector

II.1 Institutional background

As alluded to above, the housing sector is amongst the most important sectors for overall socio-economic development, and therefore, it has received sustained policy support through both demand and supply-side interventions by the government. As a first step toward formalization of housing finance, the central government set up Housing and Urban Development Corporation (HUDCO) as a wholesale lender to finance housing and urban infrastructure activities. Housing finance market gained further traction with the emergence of HDFC as India's first private company focused on retail housing finance. The success of HDFC prompted the emergence of several HFCs, either as private sector initiatives or in partnership with government, banks, and insurance companies (Tiwari & Rao, 2016). An important development in the housing policy framework was the establishment

[3] Other PLIs include Scheduled State Cooperative Banks, Scheduled Urban Cooperative Banks, Small Finance Banks, Regional Rural Banks, Apex Cooperative Housing Finance Societies (ACHFs) and Agriculture and Rural Development Banks (ARDBs).

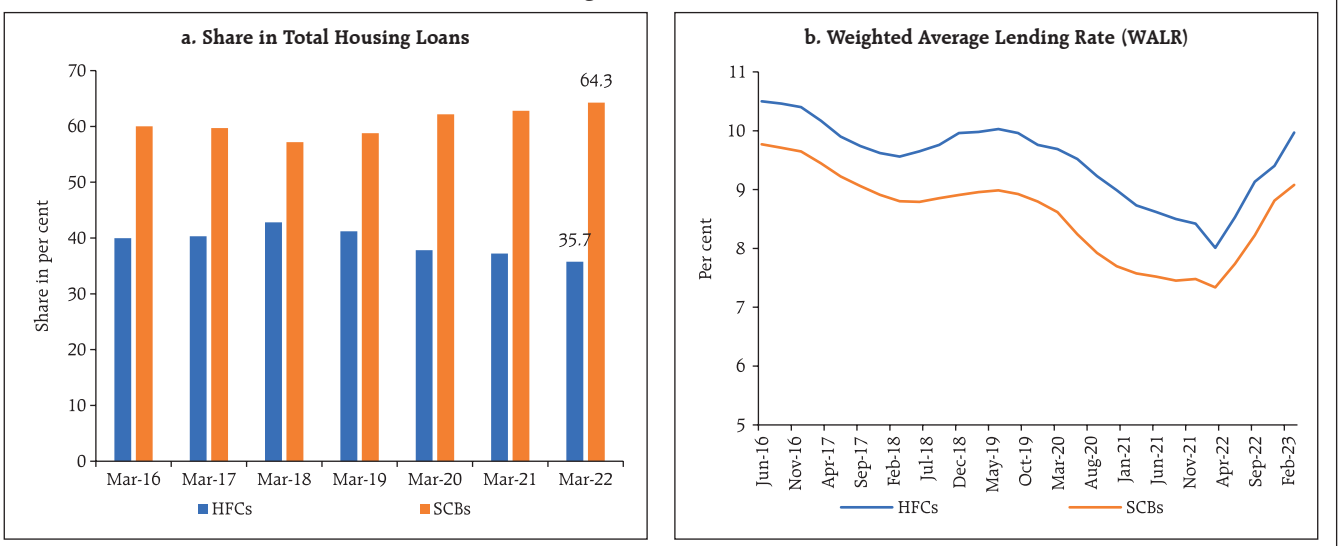
of NHB in 1988 as an apex housing finance institution with the mandate of promoting *"a sound, healthy, viable and cost-effective housing finance system to cater to all segments of the population…"*. NHB was also vested with the regulation and supervision of HFCs. In the early stages, HFCs played a more dominant role in providing housing finance, accounting for over two-thirds of housing finance disbursements by PLIs in 2000-01 (NHB, 2005). In the late 1990s however, buoyed by a low-interest rate regime, ample liquidity, favourable demand conditions and positive regulatory developments, banks began to consider housing finance an attractive business proposition (Thingalaya, Moodithaya, & Shetty, 2007). Over the years, banks steadily expanded their housing loan portfolio, leveraging their extensive branch network and low cost of funds, thereby overtaking HFCs in housing loan disbursements (Chart 1a and 1b) (NHB, 2021). Consequently, the domain of housing finance is presently governed by this dual set up, dominated by banks and HFCs.

Despite the dominance of banks, HFCs have carved out a niche for themselves as specialists in housing finance by acquiring in-depth knowledge about local markets, rules and regulations (UN-HABITAT, 2008). While retaining their specialization in providing housing loans, HFCs have also diversified their offerings by providing loans against property and lease rental discounting. Owing to their flexible eligibility requirements, HFCs are preferred for housing loans, particularly by middle- and lower-income segments. HFCs, therefore, continue to play an important role in stimulating the growth impulses of the housing sector.

II.2 Recent regulatory developments

The Committee on Financial Sector Assessment (CFSA), highlighting the conflict of interest faced by NHB in being both the regulator and refinancer of the housing sector, recommended that since HFCs are akin to NBFCs, their regulation should be transferred to the Reserve Bank. However, at the time, the Government was of the view that the housing market in India was in its infancy and therefore, vesting regulatory and developmental functions in a single authority, *viz.*, the NHB, would be advantageous for the market (CFSA, 2009). In 2019, however, the NHB Act, of 1987 was amended and the regulatory authority over HFCs was transferred to the Reserve Bank.

Chart 1: Housing Finance - SCB *vis-à-vis* HFC



Sources: 1. NHB.
2. DBIE.

The Reserve Bank sought to harmonise the regulations between HFCs and NBFCs in a phased manner. To that effect, the Bank gave a glide path for existing HFCs to comply with principal business criteria, net owned fund (NOF) requirements, maintenance of liquidity coverage ratio (LCR) and capital adequacy ratio (CRAR) among others. Further, regulations applicable to NBFCs on liquidity risk management framework, implementation of Ind-AS and other prudential norms were also extended to HFCs. HFCs failing to achieve prescribed regulatory requirements in the stipulated time would be required to convert their Certificate of Registration (CoR) from HFC to Investment and Credit Company (NBFC-ICC) if they wish to remain in business. Keeping in view the increasing interconnectedness of NBFCs (including HFCs) with other financial sector entities, the Reserve Bank implemented scale-based regulation in October 2022, where bigger entities are subject to more stringent regulation. Accordingly, HFCs are placed in the middle layer (HFC-ML), with the largest five HFCs in the upper layer (HFC-UL) in the current review period[4].

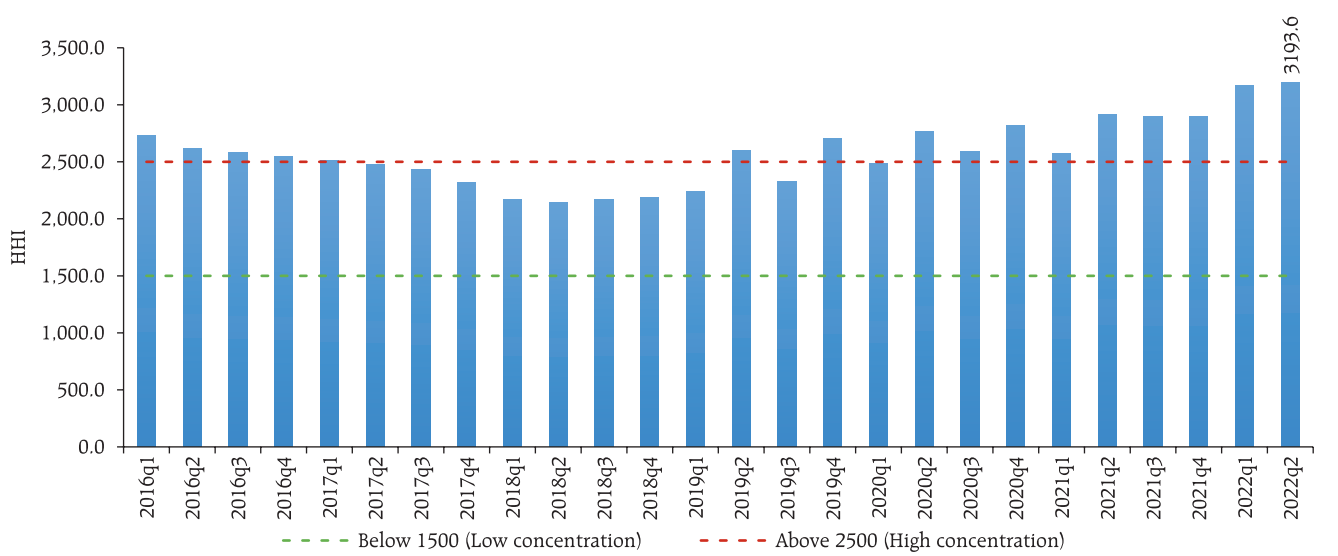
III. An Overview of the HFC Sector

The HFC sector in India is highly concentrated, as evidenced by the Herfindahl–Hirschman Index (HHI) (Chart 2). In terms of asset size, the largest HFC holds around 52 per cent and the five largest HFCs account for around 85 per cent of market share at end of September 2022[5]. This is largely attributable to the strong market position and extensive geographical presence of HDFC. Going forward, consequent to HDFC twins' merger, the concentration in the sector is expected to decrease.

III.1 Balance Sheet Analysis

The HFC sector weathered multiple challenges in the last few years, with the COVID-19 pandemic striking the most recent blow. However, with gradual resumption of economic activities, the sector demonstrated its resilience by growing in double-digits at end-March 2022. The demand for credit

Chart 2: HHI of the HFC Sector



Source: NHB.

[4] HDFC has not been included in HFC-UL in light of the merger process. In the latest list of NBFCs in the upper layer published by the Reserve Bank on September 14, 2023, HFCs in the upper layer (HFC-UL) have remained unchanged.

[5] This includes HDFC, but excludes one HFC-UL due to data unavailability.

Table 1: Consolidated Balance Sheet of the HFC Sector[6] (At end-March)

(in ₹ crore)

	2021	2022	Growth rates	
			Mar-21 over Mar-20	Mar-22 over Mar-21
Share Capital	32,701	35,452	2.1	8.4
Reserves and Surplus	1,84,518	2,07,907	20.7	12.7
Public Deposits	1,31,458	1,38,257	10.3	5.2
Total Borrowings	9,66,297	10,57,597	2.6	9.4
Other Liabilities	45,929	57,502	3.7	25.2
Total Liabilities/Assets	**13,60,903**	**14,96,715**	**5.5**	**10.0**
Loans and Advances	10,90,821	12,26,423	7.0	12.4
Investments	97,089	1,03,243	2.2	6.3
Cash and Bank Balances	42,212	35,245	-3.9	-16.5
Other Assets	1,30,782	1,31,805	-0.6	0.8

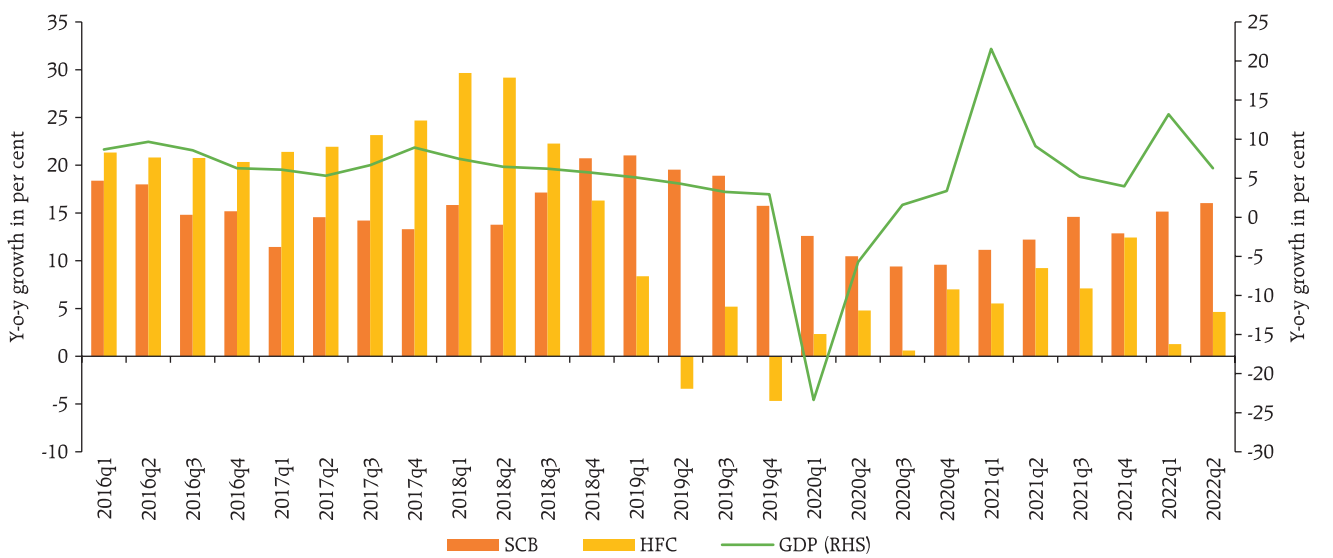
Source: NHB.

extended by HFCs also gained traction, mainly on account of low interest environment, higher savings rate and increased preference for home ownership in the post-COVID period. The consistent thrust from the government through affordable housing schemes, refinance and regulatory support also aided the revival of the sector (NHB, 2022).

Credit extended by HFCs was growing at a robust rate before the liquidity shock due to the IL&FS crisis spilled over to the HFC sector in September 2018. With a few major HFCs defaulting on their debt obligations in 2019, the liquidity stress exacerbated. On the other hand, SCBs stepped up their housing credit during this period, filling the credit gap created by a slowdown in HFC credit. The COVID-19 pandemic and subsequent nationwide lockdown in 2020 aggravated the already delicate business environment. In the post-pandemic period, with government policies and support from regulators, HFCs' credit growth witnessed revival (Chart 3).

On the liabilities side, HFCs predominantly rely on markets and banks for their funding requirements. At end-September 2022, borrowings from these two sources constituted around 68 per cent of the total resources mobilized. Post IL&FS episode, there has been a gradual decline in the share of market borrowings, reflecting waning market confidence. In the aftermath of the COVID-19 outbreak, low-interest rate environment resulted in an increase in borrowing from banks and a further moderation in

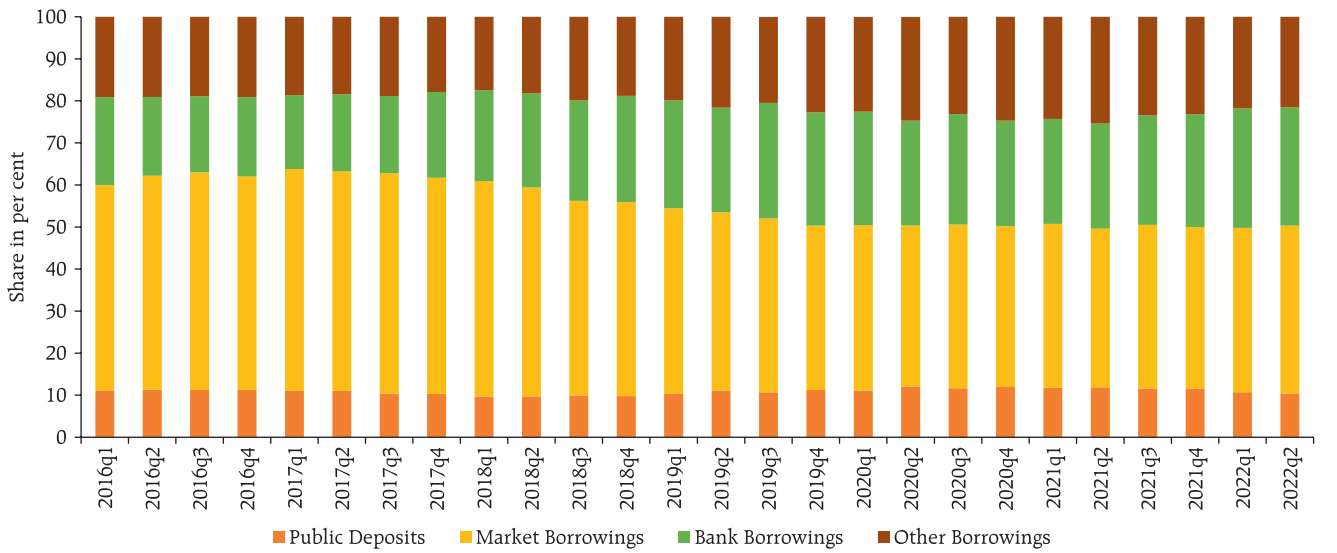
Chart 3: HFC Credit vs SCB Housing Credit



Source: NHB.

6 This table is not comparable with RTP 2021-22 due to the exclusion of two HFCs on account of their insolvency and subsequent resolution.

Chart 4: Resource Mobilisation by HFCs



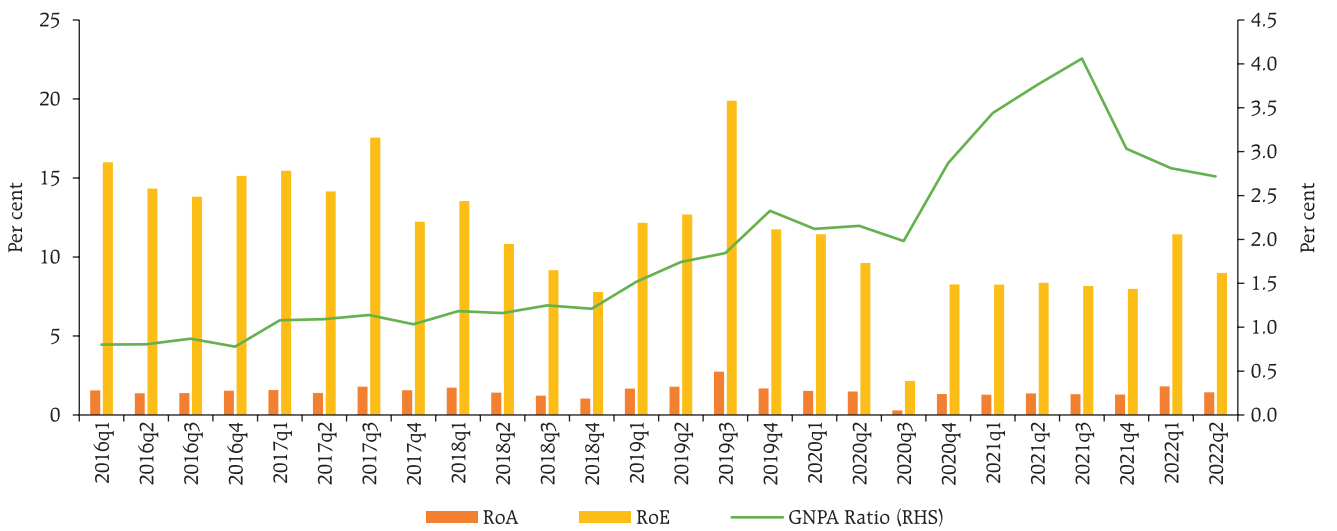
Source: NHB.

share of market borrowings. Other borrowings, which included, borrowings from the government and refinance support from NHB also grew during this period (Chart 4).

III.2 Soundness Indicators

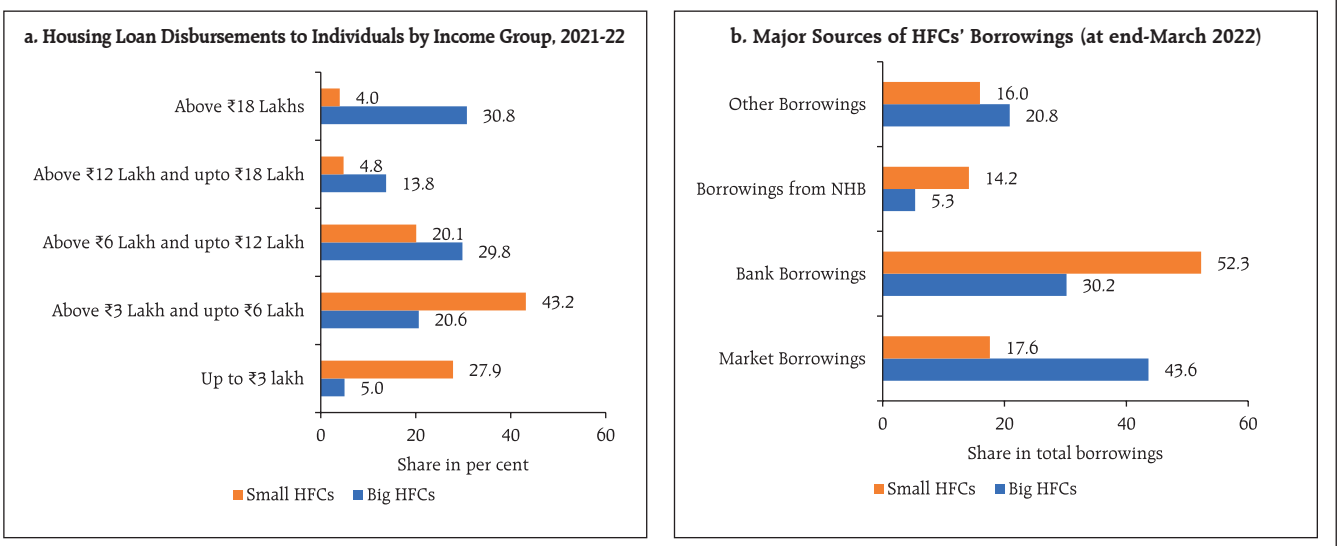
Overall asset quality of the sector witnessed an improvement at end-September 2022, over the previous year. Gross non-performing assets (GNPA) ratio declined mainly on the back of better recovery by HFCs, improvement in collections under the SARFAESI Act and economic revival (ICRA, 2022). Profitability indicators, return on assets (RoA) and return on equity (RoE) saw a marginal dip in Q2:2022-23 *vis-à-vis* Q1 of the same year (Chart 5).

Chart 5: Asset Quality and Profitability



Note: RoA and RoE ratios are annualised.
Source: NHB.

Chart 6: Lending and Borrowing Profile of HFCs, by Size



Source: NHB.

To sum up, the HFC sector continues to grow in the aftermath of the COVID-19 shock, exhibiting double digit credit growth and low GNPA ratio, aided by policy and regulatory support. In the next section, we discuss whether there was a heterogeneous impact of the pandemic on HFCs based on their size.

IV. Data and Summary statistics

Public availability of data on the HFC sector is limited. In this regard, our research makes a valuable contribution towards information dissemination. We utilise quarterly data obtained from NHB on operational and financial parameters of HFCs. The data spans from June 2016 to September 2022 and covers 58 HFCs. The panel is not balanced due to data availability and/or quality issues. Further, information is not available for all variables for all HFCs. However, the dataset covers around 98 per cent of the HFC universe in terms of asset size (at end-March 2022) and therefore, is representative of the sector. In addition, we also use variables to control for the macroeconomic environment, which are sourced from Database on Indian Economy (DBIE) of the Reserve Bank.

We study the relationship between credit growth of HFCs and their size. The former is defined as the four-quarter log difference of HFC credit, while the latter is a categorical variable, below-median (small) or above-median (big), depending on whether the natural log of total assets of a HFC in any given quarter is above or below the median value for that quarter (Gambacorta, 2005). Small HFCs primarily operate in semi-urban and rural geographies, focusing on middle- and low-income groups, underserved by banks and other large financial entities. Big HFCs, on the other hand, cater mostly to customers with stable income and have an urban focus (Chart 6a). They differ in terms of their borrowing profiles as well, with small HFCs relying more on bank borrowings and refinance support from NHB, unlike big HFCs which have greater access to market borrowings (Chart 6b). This difference in their customer mix and overall structure

of their lending and borrowing portfolios forms the basis of our exercise to assess the differential impact of COVID-19 on these two groups.

We also use the following HFC-specific variables as controls[7].

1. Liquidity Ratio, defined as the ratio of cash and bank balances to total assets. A higher ratio implies a greater ability of the HFC to meet its short-term obligations.
2. GNPA Ratio, defined as the share of non-performing loans in total credit extended. A deterioration in asset quality will adversely affect credit intermediation.
3. Capital ratio, defined by the ratio of share capital and reserves and surplus to total assets. A higher capital ratio is an important metric of solvency.
4. Funding Cost, defined as interest expenses to total borrowings. Higher cost may act as a dampener since HFCs rely on borrowed resources to extend credit.

As prevailing macroeconomic factors may simultaneously be related to HFC credit growth and their size, we control for the following macroeconomic variables in our regression specification to ensure that these factors do not confound the relationship of interest:

1. SCB housing credit growth, defined as their four-quarter growth rate in housing credit. As HFCs and SCBs compete in the housing credit space, more credit extended by SCBs can dampen the credit growth of HFCs. As discussed previously, over time, the share of HFCs in housing credit has declined and that of SCBs has increased.
2. GDP growth, with higher GDP growth reflecting higher demand for credit. We use lagged GDP growth to avoid the problem of reverse causality (Guo & Stepanyan, 2011).
3. All-India House Price Index (HPI), compiled by the Reserve Bank on quarterly basis, based on transaction-level data received from the housing registration authorities in ten major cities. In our regression framework, we take four-quarter per cent change in the level of HPI, which is expected to have a positive relationship with credit growth, due to, *inter alia*, positive wealth effect on the borrowers' side and easing collateral constraints on the lenders' side (Pouvelle, 2012).

We present summary statistics of key variables for both small and big HFCs in Table 2. We find that as expected, credit growth decelerated and GNPA ratio has increased for both categories in the post-COVID period (quarter-ending June 2020 to September 2022) as compared to the pre-COVID period (quarter-ending June 2016 to March 2020). We further note that the big HFCs maintain a higher liquidity ratio in the post-COVID period, in a bid to shore up liquidity buffers. While the capital position of smaller HFCs did not change materially, big HFCs buttressed their financial position by raising additional capital and strengthened their balance sheets (Table 2).

V. Empirical Strategy and Results

We have already documented in Section III how the HFC sector suffered a series of shocks, initially *via* the IL&FS crisis and then with the DHFL crisis. In this section, we seek to examine how the COVID-19 shock affected HFC sector. We are particularly interested to know if there was a differential impact of COVID-19 pandemic on HFCs based on their size.

[7] To reduce the impact of outliers, HFC-specific variables were winsorized at 5 per cent and 95 per cent levels.

Table 2: Summary Statistics of Important Variables

Variable	Pre-COVID	Post-COVID	Difference
a. Below-median (Small) HFCs			
Average Asset size (₹ crore)	403.75 [21.43]	460.75 [27.36]	57.001* [34.333]
Average Credit (₹ crore)	351.53 [19.20]	394.75 [23.92]	43.217 [30.428]
Credit growth (in log difference)	0.52 [0.03]	0.13 [0.02]	-0.390*** [0.036]
Liquidity Ratio (per cent)	7.24 [0.38]	7.38 [0.37]	0.133 [0.548]
Capital Ratio (per cent)	46.34 [1.45]	44.14 [1.45]	-2.204 [2.105]
GNPA Ratio (per cent)	1.99 [0.08]	3.33 [0.17]	1.341*** [0.173]
Funding Cost (per cent)	4.64 [0.14]	4.77 [0.17]	0.128 [0.223]
b. Above-median (Big) HFCs			
Average Asset size (₹ crore)	45693.62 [5221.90]	51019.12 [8139.83]	5325.504 [9257.076]
Average Credit (₹ crore)	37612.06 [4008.06]	41012.81 [6169.98]	3400.754 [7055.596]
Credit growth (in log difference)	0.3 [0.02]	0.1 [0.01]	-0.202*** [0.023]
Liquidity Ratio (per cent)	3.16 [0.22]	6.95 [0.35]	3.791*** [0.392]
Capital Ratio (per cent)	15.19 [0.45]	20.37 [0.62]	5.183*** [0.745]
GNPA Ratio (per cent)	2.05 [0.09]	3.17 [0.16]	1.120*** [0.169]
Funding Cost (per cent)	3.61 [0.12]	3.23 [0.12]	-0.383** [0.179]

Notes: 1. Significance levels: * < 10 per cent ** < 5 per cent *** < 1 per cent.
2. Standard errors in parentheses.

The specification of our regression framework is as follows:

$$\Delta \ln Credit_{i,t} = \beta_0 + \beta_1 Size_{i,t} + \beta_2 COVID_t + \beta_3 Size_{i,t} \text{ x } COVID_t + \beta_c X^c_{i,t-1} + \alpha_i + \gamma_t + \varepsilon_{i,t}$$

where, as enumerated before, our dependent variable is log difference of credit extended by HFC i in period t. β_0 is a fixed constant term for all HFCs across all periods. The explanatory variable $Size_{i,t}$ represents the size of HFC i in period t and is categorized as small or big, depending on whether the asset size of the HFC in that quarter is below or above the median value of that quarter. $COVID_t$ is a dummy variable that takes the value 1 in the period after COVID-19 pandemic hit, that is after March 2020 and 0, in the period before that. $X^c_{i,t-1}$ is the vector of HFC- specific and other macroeconomic and banking sector controls enumerated in the previous section and β_c is the vector of their coefficients. We take the lagged value of the controls to address any potential endogeneity concerns. Further, α_i denotes time invariant unobservable heterogeneities across HFCs that may affect credit growth and γ_t denotes time-varying characteristics which are constant across HFCs, such as macroeconomic or regulatory environment. The error terms $\varepsilon_{i,t}$ are adjusted for heteroscedasticity. The main coefficient of interest to us is the interaction between $Size_{i,t}$ and $COVID_t$. The coefficient β_3 captures the differential impact of the COVID-19 shock on smaller *vis-à-vis* bigger HFCs.

We estimate three specifications, with big HFCs as the base category. The first specification, reported in column (1), is a regression with HFC fixed effects but no controls. In column (2), we add HFC-specific and relevant macroeconomic controls to the regression specification in column (1) to see the impact of HFC characteristics and time variant macro characteristics on HFC credit growth. In column (3), we use both HFC-specific controls and time fixed effects. The results are reported in Table 3. We further discuss the results reported in columns (2) and (3).

The coefficient of the explanatory variable $Size_{i,t}$ indicates that in the pre-COVID period, compared to big HFCs, credit by small HFCs grew faster, perhaps by virtue of their smaller balance sheets (Pouvelle, 2012). The negative coefficient of the COVID-19 dummy shows the adverse effect of the pandemic on the sector overall. The main coefficient of interest, however, is the interaction between Size and the COVID-19 dummy. We find significant statistical evidence that in the post-COVID period, credit growth

Table 3: Differential Impact of COVID-19 on HFCs

	(1)	(2)	(3)
Variables	**Credit_gr**	**Credit_gr**	**Credit_gr**
Size_Below median	0.244*** (0.0676)	0.126** (0.0615)	0.109* (0.0613)
Covid_dummy	-0.249*** (0.0215)	-0.225*** (0.0334)	
Size_Below median x Covid_ dummy	-0.223*** (0.0388)	-0.171*** (0.0360)	-0.161*** (0.0337)
Liquidity Ratio		0.000487 (0.00243)	0.00191 (0.00236)
Capital Ratio		0.00979*** (0.00137)	0.0102*** (0.00134)
GNPA Ratio		-0.0281*** (0.00752)	-0.0252*** (0.00769)
Funding Cost		-0.0232*** (0.00380)	-0.0342*** (0.00564)
GDP		0.00153* (0.000791)	
HPI		0.0245*** (0.00500)	
SCB_housing credit		-0.0153*** (0.00337)	
Constant	0.315*** (0.0345)	0.339*** (0.0879)	0.149*** (0.0489)
HFC fixed effects	Y	Y	Y
Time fixed effects	N	N	Y
Observations	1,236	1,177	1,177
R-squared	0.492	0.588	0.624

Notes: 1. Robust standard errors in parentheses.
2. *** p < 0.01, ** p < 0.05, * p < 0.1.

by small HFCs is lower than the big ones. This shows the disproportionate shock of the COVID-19 pandemic on the smaller HFCs. We also find that among the HFC specific variables, high GNPA ratio and funding cost dampen credit growth and high capital ratio stimulates it. Among macroeconomic controls, we find that SCB housing credit, GDP growth rate and HPI have expected signs and are significant. In column (3), we add time fixed effects to control for all time variant characteristics which are constant across HFCs. This will absorb the effect of the macroeconomic controls in the second specification. The variable of interest remains highly significant in this more stringent specification as well, indicating the robustness of our result.

A major change experienced by the HFC sector in recent times, apart from liquidity shocks and the COVID-19 pandemic, is the merger of HDFC, the largest mortgage financier, with HDFC Bank. As discussed previously, HDFC accounted for over half the size of the sector at end- September 2022. In this regard, one can question if HDFC, by virtue of its size and dominance, is driving our results by its inclusion in the sample. To address this question, we employ the same framework excluding HDFC for robustness. Our results are presented in Table 4.

Upon exclusion of this major HFC, we do not find any change in our results, particularly the interaction coefficient, which is our variable of interest.

Table 4: Differential Impact of COVID-19 on HFCs (excluding HDFC)

	(1)	(2)	(3)
VARIABLES	**Credit_gr**	**Credit_gr**	**Credit_gr**
Size_Below median	0.238*** (0.0677)	0.120* (0.0616)	0.103* (0.0615)
Covid_dummy	-0.259*** (0.0223)	-0.234*** (0.0343)	
Size_Below median x Covid_ dummy	-0.214*** (0.0393)	-0.162*** (0.0365)	-0.152*** (0.0342)
Liquidity Ratio		0.000865 (0.00243)	0.00233 (0.00237)
Capital Ratio		0.00973*** (0.00137)	0.0101*** (0.00134)
GNPA Ratio		-0.0279*** (0.00753)	-0.0249*** (0.00770)
Funding Cost		-0.0235*** (0.00386)	-0.0341*** (0.00566)
GDP		0.00156* (0.000806)	
HPI		0.0251*** (0.00512)	
SCB_housing credit		-0.0156*** (0.00344)	
Constant	0.322*** (0.0353)	0.346*** (0.0894)	0.148*** (0.0495)
HFC fixed effects	Y	Y	Y
Time fixed effects	N	N	Y
Observations	1,210	1,152	1,152
R-squared	0.492	0.589	0.625

Notes: 1. Robust standard errors in parentheses.
2. *** p < 0.01, ** p < 0.05, * p < 0.1.

VI. Conclusion

In India, HFCs are an important financing channel to the housing and real estate sector and are instrumental in providing affordable finance to marginalized and new-to-credit borrowers. The sector exhibits oligopolistic characteristics, with the largest five HFCs accounting for around 85 per cent of the total assets at end-September 2022. In this regard, recent scale-based regulation introduced by the Reserve Bank seeks to regulate these bigger entities more stringently.

The COVID-19 pandemic struck a blow to the HFC sector, which was already reeling under difficulties. Nevertheless, as the economy began inching toward normalcy on the back of liquidity support from the government and regulatory forbearance, the sector also showed signs of revival. Balance sheet of HFC sector recovered and continues to remain sound in terms of asset quality and profitability. The impact of the pandemic, however, differed for bigger and smaller HFCs. We establish this heterogeneity by using quarterly data and find that *vis-á-vis* big HFCs, credit disbursements by smaller HFCs declined in the post-COVID period. Our results remain robust to various controls and validity checks.

In the wake of existing demand-supply gap in the housing sector, HFCs, as the second largest player in the housing finance space, are instrumental in providing accessible and affordable finance options to desiring borrowers. Apart from larger HFCs that dominate the sector, many small players also operate in this space and have developed geographical expertise and knowledge of local markets. They play an important role in promoting last-mile financial inclusion by providing access to housing finance to customers in tier-II and tier-III geographies and their strengthening will reinforce the 'Housing for all' agenda.

References

CFSA. (2009). *Report of the Committee on Financial Sector Assessment.* Reserve Bank of India.

FSR,RBI. (2022). *Financial Stability Report, December 2022.* Reserve Bank of India.

Gambacorta, L. (2005). Inside the Bank Lending Channel. *European Economic Review*, 1737-1759.

GoI. (2018). *Economic Survey 2017-18.* Ministry of Finance, Government of India.

Guo, K., & Stepanyan, V. (2011, March). *Determinants of Bank Credit in Emerging Market Economies.* Retrieved from International Monetary Fund (IMF): https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Determinants-of-Bank-Credit-in-Emerging-Market-Economies-24698

ICRA. (2022, August). *HFCs to witness improvement in growth and profitability in FY2023: ICRA.* Retrieved from ICRA Limited: https://www.icra.in/Media/OpenMedia?Key=400e56cf-efa6-4d10-b5db-e0fd0c192d8e

Karmali, N. M., & Rodriguez Ruiz, G. J. (2022, May). *The Growth and Performance of Affordable Housing Finance Lenders in India.* Retrieved from Policy Research Working Paper 10038, World Bank Group: https://documents1.worldbank.org/curated/en/099731505092231210/pdf/IDU0d6d905ed0a3d704e5b0800c0f4741914254c.pdf

KPMG, CII. (2022, November). *Role of NBFCs and HFCs in driving sustainable GDP growth in India.* Retrieved from KPMG: https://assets.kpmg.com/content/dam/kpmg/in/pdf/2022/11/role-of-nbfcs-and-hfcs-in-driving-sustainable-gdp-growth-in-india.pdf

NHB. (2005). *Report on Trend and Progress of Housing in India.* National Housing Bank.

NHB. (2021). *Report on Trend and Progress of Housing in India.* National Housing Bank.

NHB. (2022). *Annual Report 2021-22.* National Housing Bank.

NHB. (2022). *Report on Trend and Progress of Housing in India, 2021-22.* National Housing Bank.

NSO. (2021). *All India Debt & Investment Survey 2019 (NSS 77th Round).* National Statistical Office, MoSPI, GoI.

Pouvelle, C. (2012, April). *Bank credit, asset prices and financial stability: Evidence from French banks.* Retrieved from International Monetary Fund: https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Bank-Credit-Asset-Prices-and-Financial-Stability-Evidence-From-French-Banks-25874

RBI. (2014). *Real Estate and Housing - A Sensitive Sector or Samvriddhi Sector?* Retrieved from Speech delivered by Shri R. Gandhi, Deputy Governor on August 20, 2014 at the "NAREDCO CONCLAVE - Banking & Investment Reforms: Housing for all by 2022': https://rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=910

RBI. (2019). *Report of the Committee on the Development of Housing Finance Securitisation Market.* Reserve Bank of India.

RBI. (2022). *Report on Trend and Progress of Banking in India, 2021-22.* Reserve Bank of India.

Roy, D., & ML, M. (2020, December). *Housing for India's Low Income Urban Households: A Demand Perspective.* Retrieved from Indian Council for Research on International Economic Relations (ICRIER): https://icrier.org/publications/housing-for-indias-low-income-urban-households-a-demand-perspective/

Singh, S., Swaminathan, M., & Ramachandran, V. (2013). Housing Shortages in Rural India. *Review of Agrarian Studies*, 54-72.

Thingalaya, N., Moodithaya, M., & Shetty, N. (2007, December). *Housing Finance: A Study of Experiences of Commercial Banks.* Retrieved from Indian Institute of Banking and Finance Macro research initiatives: http://www.iibf.org.in/documents/reseach-report/Report-15.pdf

Tiwari, P., & Rao, J. (2016, April). *Housing Markets and Housing Policies in India, ADBI WP no.565.* Retrieved from Asian Development Bank Institute (ADBI): https://www.adb.org/sites/default/files/publication/182734/adbi-wp565.pdf

UN-HABITAT. (2008). *Housing Finance Mechanisms in India.* Retrieved from United Nations Human Settlements Programme: https://unhabitat.org/housing-finance-mechanisms-in-india.

COVID-19 Pandemic and the Resilience of India's R&D Expenditure

by Siddhartha Nath, Shruti Joshi and Sadhan Kumar Chattopadhyay^

Using a balanced panel data of 1,161 companies between financial years ending on March 2017 and March 2021, this study suggests that the likelihood of companies engaging in Research and Development (R&D) activities remained broadly unchanged in the immediate aftermath of COVID-19 pandemic-induced economic slowdown. The findings hold even after accounting for differences in company size, age, access to digital assets and promotional (product and marketing research) expenses. The resilience of R&D activities in the wake of a global shock (COVID-19) augurs well for sustained innovation and productivity growth for Indian companies over the long term during the post-COVID period.

Introduction

COVID-19 pandemic was once-in-a-century global crisis where 81 per cent of the countries have seen a contraction in their GDP. The pandemic resulted in a unique economic phenomenon that triggered simultaneous demand and supply side shocks across the globe. The fall in aggregate demand followed by the impaired productive capacity resulted in an economic slowdown of an unprecedented scale. This, in turn, proved to be a testing time for a large number of companies across the globe that suffered losses in revenues, customer base and profitability (Hu and Zhang, 2021; Shen *et al.*, 2020; Golubeva, 2021). The subsequent recovery and sustainability of businesses in the post-pandemic years would largely depend on their scale of innovation[1]. Stimulated by the COVID crisis, enterprises found new ways to survive and grow. For instance, many businesses moved towards digital provision of goods and services. Perceiving the chaos as an opportunity (Thukral, 2021), businesses employed creativity, innovation, and entrepreneurial spirit to solve problems and grasp opportunities in a changed environment (Ratten, 2020).

Evidence from past recessions suggest that high levels of uncertainty regarding potential output is associated with a fall in investment in tangible assets (Baker *et al.*, 2016) and a freezing of factor reallocation across sectors (Bernanke,1983). On the other hand, investments in knowledge-based intangible capital, including R&D, are generally found to be resilient to the crises due to their large sunk costs, usually acting as buffers to the transmission of cycles (López-García *et al.*, 2013). However, the R&D expenditure may turn out to be pro-cyclical if credit becomes constrained during a crisis, making firms cash starved (Aghion *et al.*, 2012). During COVID-19, central banks and governments across the world deployed polices to support their economies such as lowering key policy rates, quantitative easing, loan guarantee and fiscal stimulus.

Against the above backdrop, the aim of the paper is to examine if R&D expenditure by companies in India remained resilient to the recent COVID-19 pandemic shock. In addition to this, the paper also examines how the impact of COVID-19 on R&D activities possibly differed among firms with different firm characteristics such as age, size, assets and sector of economic activity. To articulate this objective, the study uses financial statements of companies operating in India as published by the Centre for Monitoring Indian Economy's (CMIE) Prowess database between the financial years ending in March 2017 and March 2021.

^ The authors are from the Department of Economic and Policy Research, Reserve Bank of India, Mumbai. The views and opinions expressed in this article are of the authors and do not represent the views of the Reserve Bank of India. The research support extended by Shashank Bhujade is greatly acknowledged.

[1] See Sustainable Development Goal 9 (SDG-9) by the United Nations.

The article is divided into the following sections. Section II deals with the literature review on this area. Section III and IV describe the data and empirical methodology used in the study, respectively. Section V presents the results and Section VI concludes.

II. Literature Review

Argente *et al.* (2018) investigates changes in innovation outcomes in the US consumer goods sector during 2007–13, a period of slowdown and recession induced by the Global Financial Crisis (GFC). Their findings suggest that there was a decline in the creation of new products during the recession. On the other hand, Schumpeterian growth models implied countercyclical R&D investment over the business cycle (Aghion *et al.*, 2012), with economic crises creating conditions for innovations by lowering factor prices and creating a stock of idle resources (Schumpeter, 1934). Gorzelany (2021) found that businesses impacted by COVID-19 were more able to innovate in terms of product and management than those unaffected by COVID-19. There is, however, not much literature on the short-term impact of COVID-19 on the R&D activities of companies in India.

There are, however, several studies available on the long-term determinants of R&D activities in India. Lall (1983) observed that the R&D activities of engineering firms are positively associated with the age of firms, size of firms, and exposure to foreign technologies through imports, FDI and licensing agreements. Kumar and Saqib (1996) found that export orientation, competitive pressure and vertical integration have a positive effect on firms' decision to undertake R&D activities. Katrak H (1997, 2002) analysed whether a firm's import of technology discourages in-house R&D expenditure. Analysis by Katrak (1997) found that larger firms have higher R&D output. Goldar and Renganathan (1998) found that firm size, rate of excise duty, and the extent of foreign ownership significantly affect firms' R&D intensity in the post-liberalised period. Kumar and Aggarwal (2005) found that multinational affiliates in India had a lower R&D intensity than domestic Indian firms during 1990s as Multinational Enterprises (MNEs) held captive assets to their parent companies offshore. Mishra (2007) found that market share and human capital increased the probability of R&D activities for Indian firms, whereas market power and export orientation did not have any significant impact on R&D intensity. Ghosh (2009) found that larger firms have a higher probability of conducting R&D activity but have a lower R&D intensity. The paper found that outward orientation has a positive effect on R&D efforts and firm age has an inverse relation with R&D activities. Pradhan (2011) examined R&D expenditures for SMEs in India from 1991 to 2008 and found that company age, profit margin, foreign ownership and imported raw materials significantly affect R&D activities by SMEs.

Based on the above studies, firm characteristics such as firm age, size, sector of economic activity, export orientation and FDI are found to be the significant determinants of R&D activity across firms in India. We observed that there is limited empirical literature analyzing the impact of COVID-19 shock on R&D activities of Indian firms. Our study fills this gap. In light of the available literature, we also account for the following firm characteristics in our estimates to understand whether the impact would vary across different firm-types. We categorise companies based on company size, age, sector of economic activity, promotional (product and marketing research) expenses and digitalization. This article examines how the average R&D expenditure varied amongst firms with these characteristics, followed by an econometric estimate of the impact of COVID-19 on R&D activities using a balanced panel data of 1,161 companies.

III. Data

We use consolidated annual financial statements of 1,072 manufacturing companies and 89 companies engaged in scientific and professional services operating in India from the Centre for Monitoring India Economy's (CMIE's) Prowess database for reporting periods between March 2017 and March 2021. We constructed a balanced panel data for these 1,161 companies for the period March 2017 to March 2021. The main variables which we capture from this data set are R&D expenditure, sector of economic activity, company's size, spending on promotional expenses, and access to digital assets.

In the prowess database, a company's main activity is provided according to the National Industrial Classification (NIC), 2008. We classify the companies into seven broad sectors based on NIC-2008 (Table 1).

R&D expenditure is reported under several heads in the Prowess database. First, as part of the consolidated financial statements, companies report their R&D expenditure as miscellaneous expenses under the total expenses. However, this item captures only the current expenses incurred and reported by the company on R&D. It does not include the capital expenditures on R&D. Alternatively, Indian companies disclose their total R&D expenditure on both current and capital accounts in their Director Reports. This information is captured as a separate item outside the consolidated financial statements in the Prowess database. We have used this information and constructed the company's R&D expenditures by adding up the expenses incurred on both the current and capital accounts for this study.

Table 1: Mapping between NIC 2008 2-digit Activity Code and Major Sectors

Industrial Sector	NIC 2008 2-digit codes	Services Sector	NIC 2008-2 digit codes
Food Products	10, 11, 12	Professional, Scientific and Technical Research Support (Prof-sci-tech)	69, 70, 71, 72, 73, 74
Leather-textile	13, 14, 15		
Chemicals	19, 20, 21		
Engineering	26, 27, 28, 29, 30		
Metal	24, 25		
Misc. Manufacturing	16, 17, 18, 22, 23, 31, 32		

Source: Authors' estimates and MOSPI, Government of India.

We use company's total income as an indicator of its 'size'. Total income includes, gross sales, rental income, income from consultancy, software services, *etc.* Gross sale is conventionally used as a proxy for a company's size (Horowitz, 1962; Hamberg, 1964; Pavitt, *et al,* 1987). Total income, however, may exceed a company's gross sale if a company rents out its unutilized stock of capital, or even temporarily switch to providing services to other companies. We first observe the pre-COVID average annual income for all the 8,503 companies available in the Prowess database between March 2017 and March 2021. Then we classify companies into the following four categories within each of the seven sectors: companies with average pre-COVID annual income less than the 20th per centile, between 20th-50th per centile, between the 50th-80th per centile and greater than the 80th per centile. We define the first category as the 'small firms', while the second and third categories jointly as the 'average firms' following Poschke (2018), Gaur and Kesavan (2015), Alfaro *et al.* (2019), Shapiro *et al* (1987), Pfann *et al.* (2000), and Kumar *et al.* (1999). Ranking of companies within a similar set of activities provides an advantage of overcoming the challenges arising from heterogeneity across sectors, and their relationships with actual levels of sales, asset sizes etc. Therefore, we preferred using company-size make it percentile within sectors in our empirical models over absolute values of sales, assets or any financial variables.

We define promotional expenses as the sum of expenses on selling and distribution, subscriptions, royalties paid, and technical know-how fees available from the Prowess database. We assume that the companies incur these expenses to remain competitive in the market and to promote newer features of their products (Rubinfeild and Pindyck, 1988). These expenses may also be incurred towards acquiring product designs, formulae, gaining knowledge of databases, *etc.* Therefore, these expenses could characterise a company's exposure to a broader set of innovation activities. Although the main variable of interest in our study continues to be the aggregate R&D expenditure by the companies, we use promotional expenses to define company characteristics over the longer horizon. For instance, first, we compute the average ratio of promotional expenses to the total expenses for all the 8,503 companies available in Prowess between March 2017 and March 2021. Then we divide these companies into two categories. First, the companies which reported promotional expenditure to total expenditure ratio less than the median promotional expenditure ratio, including the companies which did not report any promotional expenditure, and second, the companies which reported this ratio above the median. We define these categories within each of the seven sectors separately and based on their behaviour before COVID-19-induced shocks. Then from the master database, we extract the panel dataset of 1,161 companies.

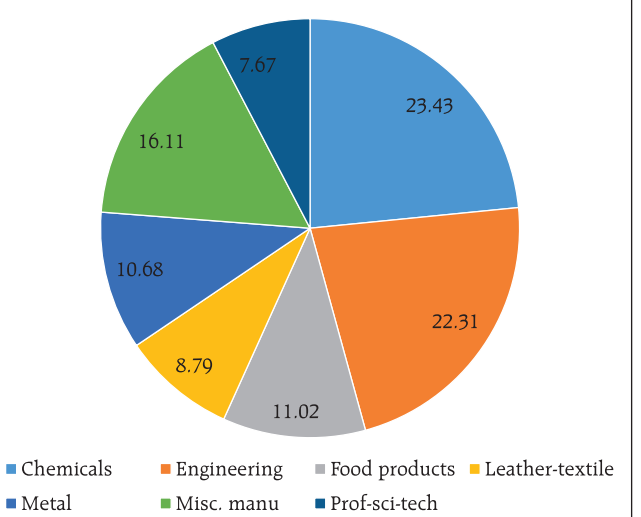
We define a company's access to digitalisation as the average ratio of the value of its digital assets to its net fixed assets across all the years since the period between March 2017 and March 2021. We define digital assets as the sum of the values of net software assets, computer and IT equipment, and communication equipment, as available in the Prowess database. We define two categories of companies based on their digital assets; first, companies which reported this ratio less than the median ratio for the sector, and second, the companies which reported this ratio above the median ratio for the sector, based on the master database of 8,503 companies.

A wide range of literature defines 'young firms' as firms which are younger than 6 years (see Audretsch *et al.* (2014) for discussion). Based on this discussion, we keep 2014 as the benchmark year for defining 'young firms', since the first wave of COVID occurred in 2020.

III.a. Data Description

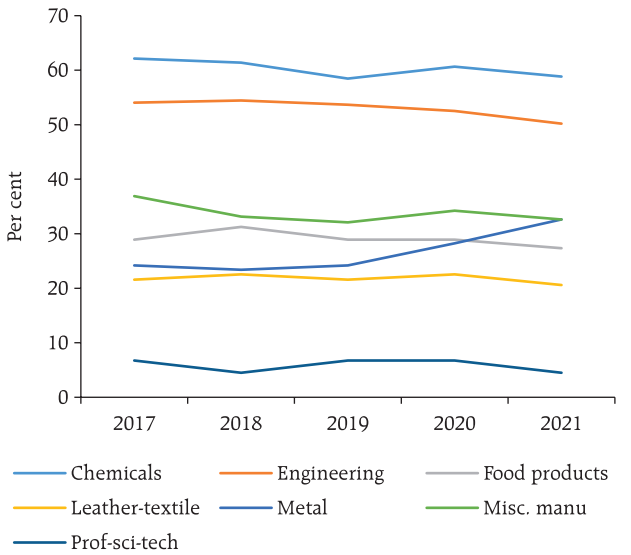
Chart 1 shows the distribution of 1,161 companies across seven broad sectors based on the sectoral classification. Around 92 per cent of the companies belong to the industrial sector spread across food products (11.0 per cent), chemicals (23.4 per cent), textiles (8.8 per cent), engineering (22.3 per cent), metal (10.7 per cent) and miscellaneous manufacturing (16.1 per cent). Remaining 7.0 per cent belong to the service sector.

Chart 1: Composition of CMIE Prowess Data: Distribution of Companies (Per cent)



Source: Authors' calculation based on CMIE Prowess database.

Chart 2: Firms Reporting R&D



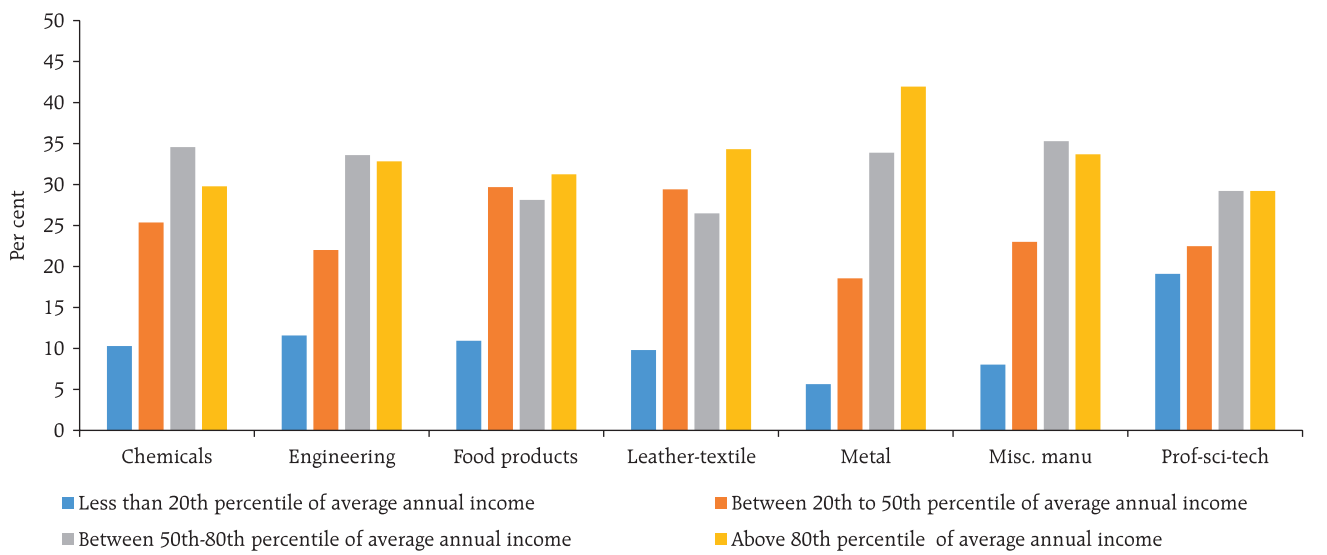
Source: Authors' calculations based on CMIE-Prowess.

Chart 2 shows the proportion of 1,161 companies reporting R&D expenditures. For instance, more than 60 per cent of the companies producing chemical products reported R&D expenditure, followed by about 50 per cent of the companies producing engineering goods, while only around 7 per cent of the companies engaged in professional, scientific and technical services reported R&D expenditure.

Chart 3 describes the distribution of companies based on their 'size' across the seven sectors. It shows that the category 'small firms' consists of less than 10 per cent of companies in our balanced panel data in all sectors except in the professional, scientific and technological services sectors[2]. This means, for a relatively large number of companies categorised as 'small firms' in our master data, the consolidated financial statements were not available for all the financial years ending between March 2017 and March 2021. Consequently, the shares of companies in two categories above the median size, *i.e.*, the 50th per centile were either close to or higher than 30 per cent each in our balanced panel data, higher than their shares in the original unbalanced panel data.

Chart 4 shows the distribution of 1,161 companies according to their promotional expenses across the seven broad sectors. Like 'size', the companies with above-median promotional expenses to total expenses

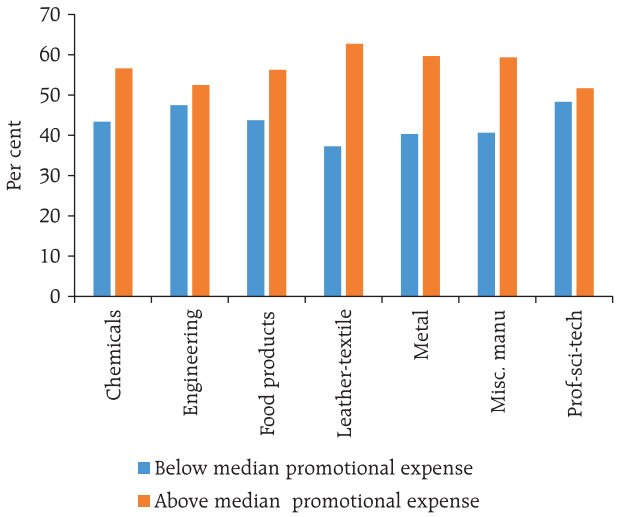
Chart 3: Distribution of firms across different size categories



Source: Authors' calculations based on CMIE-Prowess.

[2] The categories were defined based on 8,503 companies.

Chart 4: Distribution of Firms as per Promotional Expense as per cent of Total Expenses

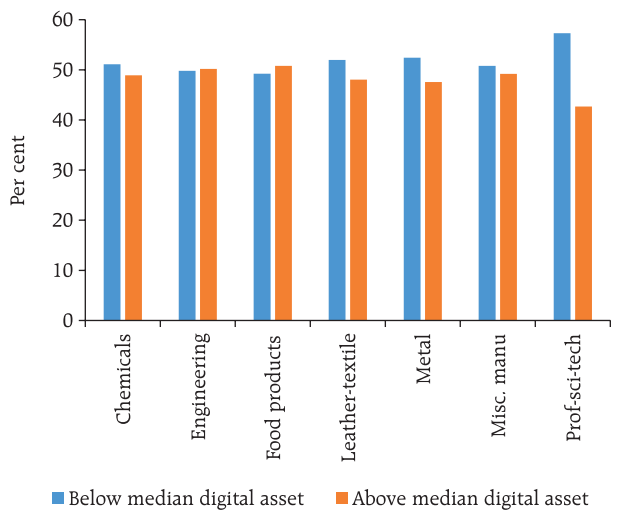


Source: Authors' calculations based on CMIE-Prowess.

ratio generally have a larger representation in our panel dataset.

Chart 5 shows the distribution of 1,161 companies according to their digital assets across the seven broad sectors. Like 'size', the companies with above-median digital assets to total assets ratio generally have a larger representation in our panel dataset.

Chart 5: Distribution of Compaines as per their Digital Assets as per cent of Total Net Fixed Assets



Source: Authors' calculations based on CMIE-Prowess.

Table 2: R&D Expenditure as Per Cent of Gross Income

Sector	All Companies		Average Companies	
	Pre-COVID	Post-COVID	Pre-COVID	Post-COVID
Chemicals	0.7	0.7	1.0	0.8
Engineering	1.0	0.9	0.8	1.0
Food-Products	0.1	0.1	0.05	0.04
Leather-Textile	0.1	0.1	0.1	0.1
Metal	0.3	0.3	0.1	0.1
Misc.manu	0.2	0.2	0.1	0.1
Pro-sci-tech	0.1	0.2	1.0	1.7
Total	**0.6**	**0.6**	**0.5**	**0.5**

Note: Includes all 1,161 companies, whether reporting R&D or not.
Source: Authors' calculations based on CMIE-Prowess.

Table 2 summarises R&D expenditure as percentage of gross annual income across the seven broad sectors. These aggregate ratios do not suggest any discernible change between pre-COVID and post-COVID years. COVID-19 led to a simultaneous demand and supply side shock which resulted in losses in revenues, customer base and profitability (Hu and Zhang, 2021; Shen *et al.*, 2020; Golubeva, 2021). This could have adversely impacted firms' innovation capabilities. The figures reported in Table 2 suggest that India's overall R&D expenditure may have been resilient to the COVID-19 shock. However, it may be noted that the aggregate figures can often be influenced by a few outliers or a set of companies with certain common characteristics (*e.g.* large firms, *etc.*). In those cases, a unit-level analysis, for example, at the company-level, comes with the advantage of analyzing the 'average' micro-level behaviour of observed units after controlling for certain characteristics, firm heterogeneity, and unobserved factors specific to sectors or periods of observation. To address this issue, we undertake an econometric analysis in the next section utilizing a balanced panel data of 1,161 companies to examine whether COVID-19 shock has induced any adverse effect on India's company-level R&D expenditure.

IV. Empirical Methodology

We adopt probit estimation to examine whether the likelihood of undertaking R&D activities by the companies in India remained resilient to COVID-19 pandemic. Our empirical analysis is based on a balanced panel dataset for 1,161 companies between March 2017 and March 2021. Working with balanced panel data for a smaller set of companies has certain advantages over the larger set of unbalanced panel data comprising all the companies. It provides a scope to understand the change in behaviour within a common set of companies when an exogenous shock hits. Secondly, the unbalanced panel data would consist of sudden entry and exit of companies into the sample. If this behaviour is not controlled for in the econometric model, this may induce biases (Nese and O'Higgins, 2007; Cader and Leatherman, 2011). A balanced panel data significantly reduces that possibility.

The probit estimation is given below:

$$Y_{it} = \alpha * YoungFirm_i + \beta * AverageFirm_i + \gamma * SmallFirm_i + \partial * LowDigitalAccess_i + \emptyset * LowPromotionalExpense_i + SectorDummies + \theta * Covid_t + Interactions + \varepsilon_{it}$$

In this regression, Y_{it} is a dummy variable which takes the value 1 if the ith company reported positive R&D expenditure in the tth year and takes the value 0 if that company did not report any R&D expenditure in the same year. Of the explanatory variables, $YoungFirm_i$ is a dummy variable which takes the value 1 if the ith company was incorporated in the registrar of companies after 2014. $AverageFirm_i$ is a dummy variable which takes the value 1 for the companies which lie between the 20th and 80th percentiles in the distribution of average annual income, while $SmallFirm_i$ is a dummy variable which takes the value 1 for the companies which lie below the 20th percentile in the same distribution. In the models, the large companies by annual income, which lie above the 80th percentile, therefore, serve as the reference group. The estimated coefficient for $SmallFirm_i$, for instance, would suggest, by how much, the probabilities of undertaking R&D expenditures by small companies would deviate from that of the large companies based on the whole sample period. $LowDigitalAccess_i$ is a dummy variable which takes value 1 for all the companies which reported digital assets to total assets ratio less than the median ratio within each sector. Similarly, $LowPromotionalExpense_i$ is a dummy variable which takes value 1 for all the companies which reported promotional expenses to total expenses ratios less than the median ratio within each sector. In these two cases, companies with high digital assets and high promotional expenses, respectively, would work as the reference group. We also control for the sectoral differences by introducing sectoral dummies for 6 sectors; food products, leather-textile, chemical products, engineering goods, metal products and companies engaged in scientific and professional services. In this case, the miscellaneous manufacturing sector serves as the reference sector.

The explanatory variables discussed so far are specific to the set of companies but do not change over the sample period. To capture the impact of the COVID-19 pandemic, we introduce a dummy variable $Covid$ which takes a value 1 for the financial year ending in March 2021 and takes a value 0 for the remaining years between March 2017 and 2020. We also interact $Covid_t$ with all the explanatory variables discussed so far. While the coefficient of the dummy variable $Covid_t$ would estimate the overall impact of COVID-19 pandemic on R&D expenditure by the companies, the interactions would estimate any differential impacts on companies based on these categories. For instance, the coefficient of interaction between $Covid_t$ and $SmallFirm_i$ would suggest if Covid had any impact on the R&D activities compared to the small set of companies in the pre-covid period.

The model is estimated using the standard maximum likelihood method by clustering the standard errors within sectors. We do not introduce company size, digitalisation and promotional expenditures in the same equation simultaneously, to avoid multicollinearity. Instead, we introduce each characteristic one by one in separate models. The company characteristics are defined based on a company's relatively long-term income, expenditure and asset positions. Therefore, any possibility of those characteristics being correlated with any uncontrolled shock to a company's R&D behaviour at a given point of time, captured through ε_{it}, would be minimised. This gives us confidence that the estimated coefficients would have the least bias on account of the well-known 'endogeneity' issues.

V. Results

The estimates suggest, for instance, that companies in chemical and engineering sectors have higher likelihood of engaging in R&D in general, as compared to miscellaneous manufacturing, which serves as the reference sector, since the probit coefficient of both chemical and engineering sectors are higher[3] (Table 3). The coefficients of the dummy variables representing these two sectors are positive and statistically significant in all the specifications. In contrast, it is less likely that the companies in the manufacturing of food products, leather-textile and metal sectors would engage in R&D activities. The dummy variable corresponding to scientific and professional services is estimated to have negative and statistically significant coefficients in all the specifications. This suggests that the companies engaged in these sectors are less likely to engage in R&D activities. This could be possible under a scenario when the companies engaged in scientific and professional services only provide R&D services to other sectors. Those R&D expenses would be incurred and undertaken by the beneficiary companies, instead of the companies in scientific and professional services.

[3] The probit coefficient is the z score and since the probability is calculated as a linear function of this z score then the coefficient with a higher z score may as well have a higher probability.

We find in model 1 that the companies incorporated after 2014 are associated with a higher likelihood of being engaged in R&D activities as opposed to older companies. This result is in line with Ghosh (2009) who finds that firm's age is inversely related to R&D intensity which could happen if old firms become complacent with time.

We find in model 2 that in comparison to large companies, small and average companies are less likely to engage in R&D. This result is in line with Schumpeter's hypothesis which argues that large firms are in a better position to undertake R&D projects. This could be because large firms can diversify the risks associated with R&D and spread the risks of R&D while also having better access to external finance (see Beck and Demirguc-Kunt (2006) for discussion). We find in models 3 and 4 that firms with low digital assets and low promotional expenses are less likely to engage in R&D. The use of digitally enabled technologies such as cloud computing, AI are associated with increase in likelihood of R&D. Similarly, greater the promotional expenses a firm undertakes, the higher is its likelihood of undertaking R&D.

The impact of COVID-19 on R&D expenditure by companies in India can be gauged from the coefficient of the dummy variable $Covid_t$. The estimated coefficient of $Covid_t$ is negative, suggesting some decline in the likelihood of R&D at company level, but is statistically insignificant in all the specifications. Moreover, we also find that the interactions of $Covid_t$ with each of the regressors are insignificant. This suggests that the COVID-19 pandemic may not have significantly impacted the likelihood of undertaking R&D activities by the companies in India. The statistical insignificance of the interacted variables suggests that this finding holds for different categories of companies based on their size, digital access, promotional activities and age. Hence, by comparing each interaction term with its reference category, the analysis suggests that COVID-19 did not have any immediate impact on the firm's R&D, compared to its pre-COVID level, based on our sample.

Table 3: COVID-19 and Impacts on Company-level R&D Expenditure: Probit Results

	(1)	(2)	(3)	(4)
ependent Variable: R&D Expenditure=1				
Food products	-0.14* (0.08)	-0.09 (0.08)	-0.15** (0.08)	-0.11 (0.08)
Leather-textile	-0.36*** (0.08)	-0.39*** (0.09)	-0.36*** (0.08)	-0.39*** (0.09)
Chemicals	0.68*** (0.06)	0.80*** (0.06)	0.68*** (0.06)	0.73*** (0.06)
Engineering	0.50*** (0.06)	0.58*** (0.06)	0.50*** (0.06)	0.57*** (0.06)
Metal	-0.26*** (0.08)	-0.37*** (0.08)	-0.27*** (0.08)	-0.28*** (0.08)
Scientific research	-1.13*** (0.11)	-1.13*** (0.12)	-1.12*** (0.11)	-1.13*** (0.12)
New firms	0.91* (0.52)	0.35 (0.52)	0.87* (0.51)	0.87* (0.49)
Average firms		-0.70*** (0.04)		
Small firms		-1.43*** (0.08)		
Low Digital access			-0.23*** (0.04)	
Low Promotional expenses				-0.61*** (0.04)
COVID	-0.04 (0.11)	-0.07 (0.13)	-0.03 (0.12)	-0.07 (0.11)
COVID Dummy Interactions				
Foodproducts	-0.02 (0.17)	-0.02 (0.17)	-0.02 (0.17)	-0.02 (0.17)
Leather-textile	-0.01 (0.19)	-0.02 (0.20)	-0.01 (0.19)	-0.00 (0.19)
Chemicals	-0.01 (0.14)	-0.02 (0.14)	-0.00 (0.14)	-0.01 (0.14)
Engineering	-0.05 (0.14)	-0.06 (0.14)	-0.05 (0.14)	-0.06 (0.14)
Metal	0.07 (0.17)	0.08 (0.18)	0.06 (0.17)	0.07 (0.18)
Scientific research	-0.12 (0.28)	-0.10 (0.28)	-0.12 (0.28)	-0.10 (0.28)
New firms	-0.72 (1.10)	-0.69 (1.11)	-0.68 (1.07)	-0.65 (1.04)
Average firms		0.04 (0.10)		
Small firms		0.14 (0.18)		
Low Digital Access			-0.03 (0.09)	
Low Promotional expenses				0.08 (0.09)
Constant	-0.41*** (0.05)	0.08 (0.06)	-0.29*** (0.05)	-0.18*** (0.05)
Observations	5805	5805	5805	5805
Pseudo R^2	0.101	0.169	0.106	0.135

Standard errors in parentheses

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

VI. Conclusion

This study seeks to examine the possible impacts of COVID-19 pandemic on the likelihood of R&D activities by companies in India. We used a balanced panel data consisting of consolidated financial statements of 1,161 companies from the CMIE Prowess database for the period between end-March 2017 and end-March 2021. Our estimates suggest no significant impact of COVID-19 pandemic on the likelihood of company-level R&D activities in India, even after considering their differences based on size, access to digitalization, promotional expenses, and age. Our findings suggest that the R&D activities by companies operating in India was broadly resilient to the economic shock induced by COVID-19 pandemic. The results are in line with López-García *et al.* (2013), who argue that investment in knowledge-based intangible capital, including R&D, is generally resilient to an economic crisis due to their large sunk costs borne at the initial stages of the investment.

References

Acs, Z. J., & Audretsch, D. B. (1987). Innovation, market structure, and firm size. *The review of Economics and Statistics*, 567-574.

Aghion, P., Askenazy, P., Berman, N., Cette, G., & Eymard, L. (2012). Credit constraints and the cyclicality of R&D investment: Evidence from France. *Journal of the European Economic Association*, *10*(5), 1001-1024.

Alfaro, L., Asis, G., Chari, A., & Panizza, U. (2019). Corporate debt, firm size and financial fragility in emerging markets. *Journal of International Economics*, 118, 1-19.

Argente, D., Lee, M., & Moreira, S. (2018). Innovation and product reallocation in the great recession. *Journal of Monetary Economics*, 93, 1-20.

Audretsch, D.B., Segarra, A. and Teruel, M. Why don't all young firms invest in R&D? (2014). Small Bus Econ 43, 751–766.

Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & finance*, *30*(11), 2931-2943.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The quarterly journal of economics*, *131*(4), 1593-1636.

Bernanke, B. S. (1983). Irreversibility, uncertainty, and cyclical investment. *The quarterly journal of economics*, *98*(1), 85-106.

Cader, H. A., & Leatherman, J. C. (2011). Small business survival and sample selection bias. *Small Business Economics*, *37*, 155-165.

Dorfman, N. S. (1987). *Innovation and market structure: Lessons from the computer and semiconductor industries*. Ballinger Publishing Company.

Gaur, V., Kesavan, S. (2015). The Effects of Firm Size and Sales Growth Rate on Inventory Turnover Performance in the U.S. Retail Sector. In: Agrawal, N., Smith, S. (eds) Retail Supply Chain Management. International Series in Operations Research & Management Science, vol 223. *Springer*, Boston, MA.

Ghosh, S. (2009). R&D in Indian manufacturing enterprises: what shapes it?. *Economics of Innovation and New Technology*, *18*(4), 337-352.

Goldar, B. N., & Renganathan, V. S. (1998). Economic reforms and R&D expenditure in industrial firms in India. *Indian Economic Journal*, *46*(2), 60.

Golubeva, O. (2021). Firms' performance during the COVID-19 outbreak: International evidence from 13 countries. Corporate Governance: *The International Journal of Business in Society*, *21*(6), 1011-1027.

Gorzelany-Dziadkowiec, M. (2021). Covid-19: Business innovation challenges. *Sustainability*, *13*(20), 11439.

Hall, B. H., J. Mairesse, and P. Mohnen. (2010). "Measuring the Returns to R&D." In Handbook of the Economics of Inovation 2, edited by B. H. Hall and N. Rosenberg, 1033–84. Amsterdam: North Holland Publishing.

Hamberg, D. (1964). Size of firm, oligopoly, and research: The evidence. *Canadian Journal of Economics and Political Science/Revue canadienne de economiques et science politique*, *30*(1), 62-75.

Horowitz, I. (1962). Firm size and research activity. *Southern Economic Journal*, 298-301.

Hu, S., & Zhang, Y. (2021). COVID-19 pandemic and firm performance: Cross-country evidence. *International review of economics & finance*, *74*, 365-372.

Katrak, H. (1997). Developing countries' imports of technology, in-house technological capabilities and efforts: an analysis of the Indian experience. *Journal of Development Economics*, *53*(1), 67-83.

Katrak, H. (2002). Economic liberalization and new product enterprises in the newly industrializing countries: an analysis of the Indian experience. *Journal of International Development*, *14*(2), 195-206.

Kumar, N., and Aggarwal, A. (2005). Liberalization, outward orientation and in-house R&D activity of multinational and local firms: A quantitative exploration for Indian manufacturing. *Research Policy*, *34*(4), 441-460.

Kumar, K., Rajan, R., & Zingales, L. (1999). What determines firm size?. NBER Working Paper 7208, July.

Kumar, N., and Saqib, M. (1996). Firm size, opportunities for adaptation and in-house R & D activity in developing countries: the case of Indian manufacturing. *Research Policy*, *25*(5), 713-722.

Lall, S. (1983). Determinants of R&D in an LDC: The Indian engineering industry. *Economics Letters*, *13*(4), 379-383.

López-García, P., Montero, J.M. and Moral-Benito, E., (2013). Business cycles and investment in productivity-enhancing activities: evidence from Spanish firms. *Industry and Innovation*, *20*(7), pp.611-636.

Mishra, V. (2007). The Determinants of R&D Expenditure of Firms: evidence from a cross-section of Indian firms. *Economic Papers: A journal of applied economics and policy*, *26*(3), 237-248.

Nese, A., & O'Higgins, N. (2007). Attrition bias in the Capitalia panel. *International Review of Economics*, *54*, 383-403.

Pavitt, K., Robson, M., & Townsend, J. (1987). The size distribution of innovating firms in the UK: 1945-1983. *The Journal of Industrial Economics*, 297-316.

Pfann, G. A., Biddle, J. E., Hamermesh, D. S., & Bosman, C. M. (2000). Business success and businesses' beauty capital. Economics Letters, 67(2), 201-207.

Pindyck, R. S., Rubinfeld, D. L., & Rabasco, E. (2013). *Microeconomia*. Pearson Educación.

Poschke, M. (2018). The firm size distribution across countries and skill-biased change in entrepreneurial technology. *American Economic Journal: Macroeconomics*, *10*(3), 1-41.

Pradhan, J. P. (2011). Regional heterogeneity and firms' innovation: The role of regional factors in industrial R&D in India. *Available at SSRN 1741127*

Ratten, V. (2020). Coronavirus and international business: An entrepreneurial ecosystem perspective. *Thunderbird International Business Review*, *62*(5), 629-634.

Schumpeter, J. A. (1976). II. Capitalism, Socialism, and Democracy, 1942.

Schumpeter, J., & Backhaus, U. (1934). The theory of economic development. In Joseph Alois Schumpeter: Entrepreneurship, Style and Vision (pp. 61-116). Boston, MA: Springer US.

Schumpeter, J. A., & Nichol, A. J. (1934). Robinson's economics of imperfect competition. *Journal of political economy*, *42*(2), 249-259.

Shapiro, D., Bollman, R. D., & Ehrensaft, P. (1987). Farm size and growth in Canada. *American Journal of Agricultural Economics*, *69*(2), 477-483.

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. *Emerging Markets Finance and Trade*, *56*(10), 2213-2230.

Thukral, E. (2021). COVID-19: Small and medium enterprises challenges and responses with creativity, innovation, and entrepreneurship. *Strategic Change*, *30*(2), 153-158.

Ziemnowicz, C. (1942). Joseph A. Schumpeter and innovation. *Socialism and Democracy*, *2*(1), 2-4.

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

Contents

No.	Title	Page
1	Select Economic Indicators	229
	Reserve Bank of India	
2	RBI – Liabilities and Assets	230
3	Liquidity Operations by RBI	231
4	Sale/ Purchase of U.S. Dollar by the RBI	232
4A	Maturity Breakdown (by Residual Maturity) of Outstanding Forwards of RBI (US$ Million)	233
5	RBI's Standing Facilities	233
	Money and Banking	
6	Money Stock Measures	234
7	Sources of Money Stock (M_3)	235
8	Monetary Survey	236
9	Liquidity Aggregates	236
10	Reserve Bank of India Survey	237
11	Reserve Money – Components and Sources	237
12	Commercial Bank Survey	238
13	Scheduled Commercial Banks' Investments	238
14	Business in India – All Scheduled Banks and All Scheduled Commercial Banks	239
15	Deployment of Gross Bank Credit by Major Sectors	240
16	Industry-wise Deployment of Gross Bank Credit	241
17	State Co-operative Banks Maintaining Accounts with the Reserve Bank of India	242
	Prices and Production	
18	Consumer Price Index (Base: 2012=100)	243
19	Other Consumer Price Indices	243
20	Monthly Average Price of Gold and Silver in Mumbai	243
21	Wholesale Price Index	244
22	Index of Industrial Production (Base: 2011-12=100)	248
	Government Accounts and Treasury Bills	
23	Union Government Accounts at a Glance	248
24	Treasury Bills – Ownership Pattern	249
25	Auctions of Treasury Bills	249
	Financial Markets	
26	Daily Call Money Rates	250
27	Certificates of Deposit	251
28	Commercial Paper	251
29	Average Daily Turnover in Select Financial Markets	251
30	New Capital Issues by Non-Government Public Limited Companies	252

No.	Title	Page
	External Sector	
31	Foreign Trade	253
32	Foreign Exchange Reserves	253
33	Non-Resident Deposits	253
34	Foreign Investment Inflows	254
35	Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals	254
36	Indices of Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) of the Indian Rupee	255
37	External Commercial Borrowings (ECBs) – Registrations	256
38	India's Overall Balance of Payments (US $ Million)	257
39	India's Overall Balance of Payments (₹ Crore)	258
40	Standard Presentation of BoP in India as per BPM6 (US $ Million)	259
41	Standard Presentation of BoP in India as per BPM6 (₹ Crore)	260
42	India's International Investment Position	261
	Payment and Settlement Systems	
43	Payment System Indicators	262
	Occasional Series	
44	Small Savings	264
45	Ownership Pattern of Central and State Governments Securities	265
46	Combined Receipts and Disbursements of the Central and State Governments	266
47	Financial Accommodation Availed by State Governments under various Facilities	267
48	Investments by State Governments	268
49	Market Borrowings of State Governments	269
50 (a)	Flow of Financial Assets and Liabilities of Households - Instrument-wise	270
50 (b)	Stocks of Financial Assets and Liabilities of Households- Select Indicators	273

Notes: .. = Not available.
– = Nil/Negligible.
P = Preliminary/Provisional. PR = Partially Revised.

No. 1: Select Economic Indicators

Item	2022-23	2021-22	2022-23		2023-24
		Q4	Q1	Q4	Q1
	1	2	3	4	5
1 Real Sector (% Change)					
1.1 GVA at Basic Prices	7.0	3.9	11.9	6.5	7.8
1.1.1 Agriculture	4.0	4.1	2.4	5.5	3.5
1.1.2 Industry	2.4	1.3	7.3	4.7	4.6
1.1.3 Services	9.5	4.9	16.3	7.4	10.0
1.1a Final Consumption Expenditure	6.4	5.8	16.5	2.7	4.9
1.1b Gross Fixed Capital Formation	11.4	4.9	20.4	8.9	8.0
	2022-23	2022		2023	
		Jul.	Aug.	Jul.	Aug.
	1	2	3	4	5
1.2 Index of Industrial Production	5.2	2.2	-0.7	6.0	10.3
2 Money and Banking (% Change)					
2.1 Scheduled Commercial Banks					
2.1.1 Deposits	9.6	9.2	9.5	12.0	12.3
				(12.9)	(13.2)
2.1.2 Credit #	15.0	14.5	15.5	14.6	14.9
				(19.5)	(19.7)
2.1.2.1 Non-food Credit #	15.4	15.1	16.0	14.7	15.0
				(19.7)	(19.8)
2.1.3 Investment in Govt. Securities	14.5	8.0	10.3	14.2	14.2
				(16.5)	(16.5)
2.2 Money Stock Measures					
2.2.1 Reserve Money (M0)	7.8	11.3	10.3	5.4	9.8
2.2.2 Broad Money (M3)	9.0	8.6	8.9	10.6	10.8
				(11.3)	(10.9)
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	5.6	5.1	5.2	5.8
				(5.2)	(5.7)
3.4 Credit-Deposit Ratio	75.8	72.9	73.3	74.6	75.0
				(77.1)	(77.5)
3.5 Incremental Credit-Deposit Ratio#	113.0	94.3	107.3	51.6	61.2
				(99.0)	(104.2)
3.6 Investment-Deposit Ratio	30.0	29.5	29.8	30.1	30.3
				(30.5)	(30.7)
3.7 Incremental Investment-Deposit Ratio	43.5	56.3	64.0	32.1	35.8
				(37.8)	(40.8)
4 Interest Rates (%)					
4.1 Policy Repo Rate	6.50	4.90	5.40	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	4.65	5.15	6.25	6.25
4.4 Marginal Standing Facility (MSF) Rate	6.75	5.15	5.65	6.75	6.75
4.5 Bank Rate	6.75	5.15	5.65	6.75	6.75
4.6 Base Rate	8.65/10.10	7.75/8.80	7.75/8.80	8.85/10.10	8.85/10.10
4.7 MCLR (Overnight)	7.50/8.50	6.70/7.50	6.80/7.65	7.95/8.35	7.95/8.40
4.8 Term Deposit Rate >1 Year	6.00/7.25	5.30/5.75	5.30/6.10	6.00/7.25	6.00/7.25
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	5.04	5.10	6.50	6.75
4.11 91-Day Treasury Bill (Primary) Yield	-	5.62	5.63	6.72	6.82
4.12 182-Day Treasury Bill (Primary) Yield	7.28	5.98	6.09	6.86	7.02
4.13 364-Day Treasury Bill (Primary) Yield	7.31	6.33	6.32	6.89	7.03
4.14 10-Year G-Sec Par Yield (FBIL)	7.31	7.32	7.17	7.17	7.14
5 Reference Rate and Forward Premia					
5.1 INR-US$ Spot Rate (Rs. Per Foreign Currency)	82.22	79.42	79.91	82.25	82.65
5.2 INR-Euro Spot Rate (Rs. Per Foreign Currency)	89.61	81.17	79.62	90.32	89.17
5.3 Forward Premia of US$ 1-month (%)	2.41	3.32	3.30	1.17	1.31
3-month (%)	2.19	3.35	3.20	1.22	1.38
6-month (%)	2.31	3.20	3.00	1.33	1.40
6 Inflation (%)					
6.1 All India Consumer Price Index	6.7	6.7	7.0	7.4	6.8
6.2 Consumer Price Index for Industrial Workers	6.1	5.8	5.9	7.5	6.9
6.3 Wholesale Price Index	9.6	14.1	12.5	-1.2	-0.5
6.3.1 Primary Articles	10.3	14.8	14.7	8.2	6.3
6.3.2 Fuel and Power	29.4	44.6	35.0	-12.7	-6.0
6.3.3 Manufactured Products	5.7	8.2	7.5	-2.6	-2.4
7 Foreign Trade (% Change)					
7.1 Imports	16.8	38.2	37.2	-17.0	-2.8
7.2 Exports	6.9	7.9	10.9	-10.0	3.9

Note : Financial Benchmark India Pvt. Ltd. (FBIL) has commenced publication of the G-Sec benchmarks with effect from March 31, 2018 as per RBI circularFMRD.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.

Reserve Bank of India

No. 2: RBI - Liabilities and Assets *

(₹ Crore)

Item	As on the Last Friday/ Friday						
	2022-23	2022	2023				
		Sep.	Sep. 01	Sep. 08	Sep. 15	Sep. 22	Sep. 29
	1	2	3	4	5	6	7
1 Issue Department							
1.1 Liabilities							
1.1.1 Notes in Circulation	3348235	3129317	3274586	3288738	3276973	3270463	3257516
1.1.2 Notes Held in Banking Department	9	12	12	12	12	11	10
1.1/1.2 Total Liabilities (Total Notes Issued) or Assets	**3348245**	**3129329**	**3274598**	**3288750**	**3276984**	**3270474**	**3257526**
1.2 Assets							
1.2.1 Gold	140766	115506	140099	138753	137925	138484	137471
1.2.2 Foreign Securities	3207202	3013438	3134225	3149564	3138678	3131651	3119750
1.2.3 Rupee Coin	277	385	274	433	382	338	305
1.2.4 Government of India Rupee Securities	-	-	-	-	-	-	-
2 Banking Department							
2.1 Liabilities							
2.1.1 Deposits	1354217	1457197	1541674	1549273	1616313	1672092	1678098
2.1.1.1 Central Government	5001	100	100	101	101	101	100
2.1.1.2 Market Stabilisation Scheme							
2.1.1.3 State Governments	42	42	42	42	42	42	42
2.1.1.4 Scheduled Commercial Banks	868940	844913	1071184	992546	1051822	959345	969235
2.1.1.5 Scheduled State Co-operative Banks	8100	8247	8923	8589	8648	8379	8917
2.1.1.6 Non-Scheduled State Co-operative Banks	5177	4176	5138	4843	4885	4677	4900
2.1.1.7 Other Banks	48260	43949	49702	49453	50506	48916	49321
2.1.1.8 Others	316490	474310	284175	356461	382333	540136	518710
2.1.1.9 Financial Institution Outside India	102207	81458	122408	137238	117976	110496	126871
2.1.2 Other Liabilities	1642294	1296275	1553416	1525850	1534634	1513712	1498291
2.1/2.2 Total Liabilities or Assets	**2996512**	**2753473**	**3095090**	**3075123**	**3150947**	**3185804**	**3176389**
2.2 Assets							
2.2.1 Notes and Coins	9	12	12	12	12	11	10
2.2.2 Balances Held Abroad	1008993	859889	1282533	1243881	1262445	1235549	1235681
2.2.3 Loans and Advances							
2.2.3.1 Central Government	48677	-	-	-	-	-	-
2.2.3.2 State Governments	792	5611	22904	24915	16939	13480	11606
2.2.3.3 Scheduled Commercial Banks	112731	112521	21213	28186	114885	187948	170292
2.2.3.4 Scheduled State Co-op.Banks	-	35	-	-	-	-	-
2.2.3.5 Industrial Dev. Bank of India	-	-	-	-	-	-	-
2.2.3.6 NABARD	-	4554	-	-	-	-	-
2.2.3.7 EXIM Bank	-	-	-	-	-	-	-
2.2.3.8 Others	24485	16828	3122	2358	3054	3054	3030
2.2.3.9 Financial Institution Outside India	102128	79217	122390	137046	118524	111200	127232
2.2.4 Bills Purchased and Discounted							
2.2.4.1 Internal	-	-	-	-	-	-	-
2.2.4.2 Government Treasury Bills	-	-	-	-	-	-	-
2.2.5 Investments	1408486	1415818	1401652	1399022	1396537	1394701	1388293
2.2.6 Other Assets	290209	258988	241264	239703	238551	239862	240246
2.2.6.1 Gold	230734	190458	231595	229369	228000	228925	226353

* 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	9	10
Aug. 1, 2023	-	-	-	-	1413	143264	-	-	-	-141851
Aug. 2, 2023	-	-	-	-	2232	173043	-598	-	-	-171409
Aug. 3, 2023	-	-	-	-	1672	199047	-250	10	10	-197625
Aug. 4, 2023	-	-	-	-	1522	184499	-308	-	-	-183285
Aug. 5, 2023	-	-	-	-	2391	16891	-	-	-	-14500
Aug. 6, 2023	-	-	-	-	274	3605	-	-	-	-3331
Aug. 7, 2023	-	-	-	-	1826	146814	-	-	-	-144988
Aug. 8, 2023	-	-	-	-	2010	113912	-	-	-	-111902
Aug. 9, 2023	-	-	-	-	2113	133008	-	-	-	-130895
Aug. 10, 2023	-	-	-	-	2525	186908	410	10	10	-183973
Aug. 11, 2023	-	-	-	34139	10755	175346	250	-	-	-198480
Aug. 12, 2023	-	-	-	-	69390	3035	-	-	-	66355
Aug. 13, 2023	-	-	-	-	95	3247	-	-	-	-3152
Aug. 14, 2023	-	-	-	-	50624	52274	758	-	-	-892
Aug. 15, 2023	-	-	-	-	490	3568	-	-	-	-3078
Aug. 16, 2023	-	-	-	-	932	37361	-	-	-	-36429
Aug. 17, 2023	-	-	-	-	14143	95539	213	-	-	-81183
Aug. 18, 2023	-	-	-	-	32620	52079	43	-	-	-19416
Aug. 19, 2023	-	-	-	-	3449	15053	-	-	-	-11604
Aug. 20, 2023	-	-	-	-	130	3959	-	-	-	-3829
Aug. 21, 2023	-	-	-	-	89813	47252	-	-	-	42561
Aug. 22, 2023	-	-	-	-	87095	52626	-	-	-	34469
Aug. 23, 2023	-	-	-	-	90895	48867	-	-	-	42028
Aug. 24, 2023	-	-	-	-	50113	57030	-	10	10	-6917
Aug. 25, 2023	-	-	-	22419	73658	77958	-	-	-	-26719
Aug. 26, 2023	-	-	-	-	427	3679	-	-	-	-3252
Aug. 27, 2023	-	-	-	-	279	2734	-	-	-	-2455
Aug. 28, 2023	-	-	-	-	40720	60184	645	-	-	-18819
Aug. 29, 2023	-	-	-	-	19070	53157	-645	-	-	-34732
Aug. 30, 2023	-	-	-	-	6525	53460	-	-	-	-46935
Aug. 31, 2023	-	-	-	-	3092	76129	-	95	-	-73132

No. 4: Sale/ Purchase of U.S. Dollar by the RBI

i) Operations in onshore / offshore OTC segment

Item	2022-23	2022	2023	
		Aug.	Jul.	Aug.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US $ Million) (1.1-1.2)	-25516	-4254	3472	-3856
1.1 Purchase (+)	187054	18858	5315	500
1.2 Sale (–)	212570	23112	1843	4356
2 ₹ equivalent at contract rate (₹ Crores)	-217259	-35606	28535	31994
3 Cumulative (over end-March) (US $ Million)	-25516	-23056	23051	19195
(₹ Crore)	-217259	-188422	189273	157279
4 Outstanding Net Forward Sales (-)/ Purchase (+) at the end of month (US $ Million)	23600	20164	19468	10068

ii) Operations in currency futures segment

Item	2022-23	2022	2023	
		Aug.	Jul.	Aug.
	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	650	0	441
1.2 Sale (–)	10930	650	0	441
2 Outstanding Net Currency Futures Sales (-)/ Purchase (+) at the end of month (US $ Million)	0	-150	0	0

No. 4 A : Maturity Breakdown (by Residual Maturity) of Outstanding Forwards of RBI (US $ Million)

Item	As on August 31 , 2023		
	Long (+)	Short (-)	Net (1-2)
	1	2	3
1. Upto 1 month	757	10281	-9524
2. More than 1 month and upto 3 months	6293	0	6293
3. More than 3 months and upto 1 year	13299	0	13299
4. More than 1 year	0	0	0
Total (1+2+3+4)	**20349**	**10281**	**10068**

No. 5: RBI's Standing Facilities

(₹ Crore)

Item	As on the Last Reporting Friday							
	2022-23	2022	2023					
		Sep. 23	Apr. 21	May. 19	Jun. 30	Jul. 28	Aug. 25	Sep. 22
	1	2	3	4	5	6	7	8
1 MSF	28388	9657	16945	3326	31256	25417	73658	168348
2 Export Credit Refinance for Scheduled Banks								
2.1 Limit		-	-	-				
2.2 Outstanding		-	-	-				
3 Liquidity Facility for PDs								
3.1 Limit	4900	4900	4900	4900	4900	4900	4900	4900
3.2 Outstanding	2442	910	3719	3800	3319	3082	3122	3054
4 Others								
4.1 Limit	76000	76000	76000	76000	76000	76000	76000	76000
4.2 Outstanding	15900	31039	15900					
5 Total Outstanding (1+2.2+3.2+4.2)	46730	41606	36564	7126	34575	28499	76780	171402

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	2022	2023		
		Aug. 26	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	3276436	3062479	3215903	3215003	3205302
1.1 Notes in Circulation	3348219	3154428	3293330	3303043	3278580
1.2 Circulation of Rupee Coin	29542	28048	30405	30405	30657
1.3 Circulation of Small Coins	743	743	743	743	743
1.4 Cash on Hand with Banks	102085	120740	108660	119274	104763
2 Deposit Money of the Public	2398359	2221176	2469202	2392411	2418086
2.1 Demand Deposits with Banks	2320598	2163987	2398078	2320579	2346199
2.2 'Other' Deposits with Reserve Bank	77761	57189	71123	71831	71887
3 M1 (1 + 2)	**5674795**	**5283655**	**5685104**	**5607414**	**5623389**
4 Post Office Saving Bank Deposits	200257	194961	200257	200257	200257
5 M2 (3 + 4)	**5875052**	**5478616**	**5885361**	**5807671**	**5823646**
6 Time Deposits with Banks	16668966	15767768	17574691	17722729	17697364
			(17725150)	(17725150)	(17725150)
7 M3 (3 + 6)	22343760	21051423	23259795	23330142	23320752
			(23410255)	(23332564)	(23348539)
8 Total Post Office Deposits	1113230	1065240	1113230	1113230	1113230
9 M4 (7 + 8)	23456990	22116663	24373025	24443372	24433982
			(24523485)	(24445794)	(24461769)

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 7: Sources of Money Stock (M_3)

(₹ Crore)

Sources	Outstanding as on March 31/last reporting Fridays of the month/ reporting Fridays				
	2022-23	2022	2023		
		Aug. 26	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
1 Net Bank Credit to Government	**7165533**	**6471313**	**7224878**	**7354390**	**7274511**
			(7337446)	(7467052)	(7387274)
1.1 RBI's net credit to Government (1.1.1–1.1.2)	1451126	1103484	1197085	1252188	1185246
1.1.1 Claims on Government	1456169	1437305	1415005	1413528	1415628
1.1.1.1 Central Government	1455377	1432494	1401096	1399272	1399159
1.1.1.2 State Governments	792	4811	13909	14255	16470
1.1.2 Government deposits with RBI	5043	333820	217920	161340	230382
1.1.2.1 Central Government	5001	333778	217877	161297	230340
1.1.2.2 State Governments	42	42	42	42	42
1.2 Other Banks' Credit to Government	5714407	5367829	6027793	6102201	6089264
			(6140360)	(6214864)	(6202028)
2 Bank Credit to Commercial Sector	**14429636**	**13206634**	**14930581**	**14995471**	**15052452**
			(15540861)	(15598767)	(15654654)
2.1 RBI's credit to commercial sector	26549	32969	5144	4113	5186
2.2 Other banks' credit to commercial sector	14403087	13173665	14925437	14991358	15047266
			(15535716)	(15594655)	(15649468)
2.2.1 Bank credit by commercial banks	13675235	12458658	14191819	14257495	14315110
			(14802098)	(14860792)	(14917312)
2.2.2 Bank credit by co-operative banks	710187	698350	716715	717020	714934
2.2.3 Investments by commercial and co-operative banks in other securities	17665	16657	16904	16843	17222
			(16904)	(16843)	(17222)
3 Net Foreign Exchange Assets of Banking Sector (3.1 + 3.2)	**4911766**	**4579255**	**5124114**	**5146668**	**5075585**
3.1 RBI's net foreign exchange assets (3.1.1–3.1.2)	4587355	4323662	4799704	4822258	4751175
3.1.1 Gross foreign assets	4587616	4323902	4799965	4822517	4751434
3.1.2 Foreign liabilities	260	240	262	259	259
3.2 Other banks' net foreign exchange assets	324410	255593	324410	324410	324410
4 Government's Currency Liabilities to the Public	**30285**	**28791**	**31148**	**31148**	**31400**
5 Banking Sector's Net Non-monetary Liabilities	**4193459**	**3234571**	**4050926**	**4197534**	**4113195**
			(4623314)	(4765012)	(4681364)
5.1 Net non-monetary liabilities of RBI	1587565	1309430	1543892	1550164	1510374
5.2 Net non-monetary liabilities of other banks (residual)	2605895	1925141	2507033	2647370	2602821
			(3079421)	(3214848)	(3170990)
M_3(1+2+3+4–5)	**22343760**	**21051423**	**23259795**	**23330142**	**23320752**
			(23410255)	(23478624)	(23467549)

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 8: Monetary Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2022-23	2022	2023		
		Aug. 26	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
Monetary Aggregates					
NM_1 (1.1+1.2.1+1.3)	5674795	5283655	5685104	5607414	5623389
NM_2 (NM_1 + 1.2.2.1)	13103413	12318959	13513174	13501278	13505791
			(13580881)	(13568094)	(13571850)
NM_3 (NM_2 +1.2.2.2 + 1.4 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	22628165	21387173	23865157	23946696	23957913
			(24015617)	(24095178)	(24104709)
1 Components					
1.1 Currency with the Public	3276436	3062479	3215903	3215003	3205302
1.2 Aggregate Deposits of Residents	18828639	17797995	19793790	19862499	19862650
			(19944249)	(20010981)	(20009446)
1.2.1 Demand Deposits	2320598	2163987	2398078	2320579	2346199
1.2.2 Time Deposits of Residents	16508041	15634009	17395711	17541920	17516451
			(17546170)	(17690401)	(17663247)
1.2.2.1 Short-term Time Deposits	7428619	7035304	7828070	7893864	7882403
			(7895777)	(7960681)	(7948461)
1.2.2.1.1 Certificates of Deposits (CDs)	303993	229874	303026	296659	296520
1.2.2.2 Long-term Time Deposits	9079423	8598705	9567641	9648056	9634048
			(9650394)	(9729721)	(9714786)
1.3 'Other' Deposits with RBI	77761	57189	71123	71831	71887
1.4 Call/Term Funding from Financial Institutions	445329	469509	784342	797363	818074
2 Sources					
2.1 Domestic Credit	22710730	20766535	23293961	23471298	23445650
			(24016807)	(24187257)	(24160615)
2.1.1 Net Bank Credit to the Government	7165533	6471313	7224878	7354390	7274511
			(7337446)	(7467052)	(7387274)
2.1.1.1 Net RBI credit to the Government	1451126	1103484	1197085	1252188	1185246
2.1.1.2 Credit to the Government by the Banking System	5714407	5367829	6027793	6102201	6089264
			(6140360)	(6214864)	(6202028)
2.1.2 Bank Credit to the Commercial Sector	15545198	14295222	16069082	16116908	16171139
			(16679362)	(16720205)	(16773341)
2.1.2.1 RBI Credit to the Commercial Sector	26549	42676	5144	4113	5186
2.1.2.2 Credit to the Commercial Sector by the Banking System	15518649	14252546	16063938	16112795	16165953
			(16674218)	(16716092)	(16768155)
2.1.2.2.1 Other Investments (Non-SLR Securities)	1096333	1062358	1119938	1104860	1099778
2.2 Government's Currency Liabilities to the Public	30285	28791	31148	31148	31400
2.3 Net Foreign Exchange Assets of the Banking Sector	4699822	4534330	4837647	4839507	4795836
2.3.1 Net Foreign Exchange Assets of the RBI	4587355	4323662	4799704	4822258	4751175
2.3.2 Net Foreign Currency Assets of the Banking System	112467	210667	37943	17250	44661
2.4 Capital Account	3446786	3296324	3932839	3936067	3900956
2.5 Other items (net)	1365887	646158	937147	1026668	982185

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 9: Liquidity Aggregates

(₹ Crore)

Aggregates	2022-23	2022	2023		
		Aug.	Jun.	Jul.	Aug.
	1	2	3	4	5
1 NM_3	**22628165**	**21387173**	**23724457**	**23865157**	**23957913**
				(24015617)	(24104709)
2 Postal Deposits	668887	629053	656356	656356	656356
3 L_1 (1 + 2)	**23297052**	**22016226**	**24380813**	**24521513**	**24614269**
				(24671973)	(24761065)
4 Liabilities of Financial Institutions	54724	24000	73056	73298	71557
4.1 Term Money Borrowings	1692	1654	1164	1107	1137
4.2 Certificates of Deposit	46407	20143	62185	62185	60285
4.3 Term Deposits	6625	2203	9707	10006	10136
5 L_2 (3 + 4)	**23351776**	**22040226**	**24453870**	**24594811**	**24685826**
				(24745270)	(24832622)
6 Public Deposits with Non-Banking Financial Companies	85254	..	91373	..	..
7 L_3 (5 + 6)	**23437030**	**..**	**24545243**	**..**	**..**

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	2022	2023		
		Aug. 26	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
1 Components					
1.1 Currency in Circulation	3378521	3183219	3324563	3334277	3310065
1.2 Bankers' Deposits with the RBI	930477	819173	959639	974417	1073614
1.2.1 Scheduled Commercial Banks	868940	764114	899279	912040	1010361
1.3 'Other' Deposits with the RBI	77761	57189	71123	71831	71887
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	4386759	4059581	4355324	4380525	4455566
2 Sources					
2.1 RBI's Domestic Credit	1356683	1016557	1068365	1077283	1183365
2.1.1 Net RBI credit to the Government	1451126	1103484	1197085	1252188	1185246
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	1098716	1183219	1237975	1168819
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	1432149	1400820	1398882	1398848
2.1.1.1.3.1 Central Government Securities	1406423	1432149	1400820	1398882	1398848
2.1.1.1.4 Rupee Coins	277	345	276	390	311
2.1.1.1.5 Deposits of the Central Government	5001	333778	217877	161297	230340
2.1.1.2 Net RBI credit to State Governments	749	4768	13866	14213	16427
2.1.2 RBI's Claims on Banks	-120992	-129603	-133864	-179018	-7067
2.1.2.1 Loans and Advances to Scheduled Commercial Banks	-120992	-119896	-133864	-179018	-7067
2.1.3 RBI's Credit to Commercial Sector	26549	42676	5144	4113	5186
2.1.3.1 Loans and Advances to Primary Dealers	8476	-	3082	2109	3122
2.1.3.2 Loans and Advances to NABARD	-	9707	-	-	-
2.2 Government's Currency Liabilities to the Public	30285	28791	31148	31148	31400
2.3 Net Foreign Exchange Assets of the RBI	4587355	4323662	4799704	4822258	4751175
2.3.1 Gold	371500	316599	369359	367317	366616
2.3.2 Foreign Currency Assets	4215873	4007081	4430362	4454958	4384576
2.4 Capital Account	1505657	1390128	1685487	1684713	1641017
2.5 Other Items (net)	81908	-80698	-141594	-134549	-130643

No. 11: Reserve Money - Components and Sources

(₹ Crore)

Item	2022-23	Outstanding as on March 31/last Fridays of the month/Fridays					
		2022	2023				
		Aug. 26	Jul. 28	Aug. 4	Aug. 11	Aug. 18	Aug. 25
	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	4059581	4355324	4361448	4380525	4479444	4455566
1 Components							
1.1 Currency in Circulation	3378521	3183219	3324563	3328104	3334277	3321262	3310065
1.2 Bankers' Deposits with RBI	930477	819173	959639	961168	974417	1085406	1073614
1.3 'Other' Deposits with RBI	77761	57189	71123	72175	71831	72776	71887
2 Sources							
2.1 Net Reserve Bank Credit to Government	1451126	1103484	1197085	1312975	1252188	1233454	1185246
2.2 Reserve Bank Credit to Banks	-120992	-119896	-133864	-256594	-179018	-33921	-7067
2.3 Reserve Bank Credit to Commercial Sector	26549	32969	5144	3021	4113	5161	5186
2.4 Net Foreign Exchange Assets of RBI	4587355	4323662	4799704	4816322	4822258	4776674	4751175
2.5 Government's Currency Liabilities to the Public	30285	28791	31148	31148	31148	31148	31400
2.6 Net Non- Monetary Liabilities of RBI	1587565	1309430	1543892	1545424	1550164	1533073	1510374

No. 12: Commercial Bank Survey

(₹ Crore)

Item	Outstanding as on last reporting Fridays of the month/ reporting Fridays of the month				
	2022-23	2022	2023		
		Aug. 26	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
1 Components					
1.1 Aggregate Deposits of Residents	17882989	16860096	18837814	18907034	18908096
			(18988273)	(19055516)	(19054892)
1.1.1 Demand Deposits	2180431	2022999	2257972	2180469	2207156
1.1.2 Time Deposits of Residents	15702559	14837097	16579842	16726565	16700939
			(16730301)	(16875046)	(16847735)
1.1.2.1 Short-term Time Deposits	7066151	6676694	7460929	7526954	7515423
1.1.2.1.1 Certificates of Deposits (CDs)	303993	229874	303026	296659	296520
1.1.2.2 Long-term Time Deposits	8636407	8160403	9118913	9199611	9185517
1.2 Call/Term Funding from Financial Institutions	445329	469509	784342	797363	818074
2 Sources					
2.1 Domestic Credit	20197246	18596098	21048413	21171311	21213923
			(21771260)	(21887271)	(21928888)
2.1.1 Credit to the Government	5414322	5066468	5726039	5800325	5788050
			(5838607)	(5912988)	(5900814)
2.1.2 Credit to the Commercial Sector	14782924	13529629	15322374	15370986	15425873
			(15932654)	(15974283)	(16028074)
2.1.2.1 Bank Credit	13675235	12458658	14191819	14257495	14315110
			(14802098)	(14860792)	(14917312)
2.1.2.1.1 Non-food Credit	13655330	12430897	14170982	14237565	14295755
			(14781262)	(14840862)	(14897956)
2.1.2.2 Net Credit to Primary Dealers	19491	16785	18826	16841	19173
2.1.2.3 Investments in Other Approved Securities	826	790	753	753	775
2.1.2.4 Other Investments (in non-SLR Securities)	1087371	1053396	1110976	1095897	1090815
2.2 Net Foreign Currency Assets of Commercial Banks (2.2.1-2.2.2-2.2.3)	112467	210667	37943	17250	44661
2.2.1 Foreign Currency Assets	351387	406927	328316	306893	335015
2.2.2 Non-resident Foreign Currency Repatriable Fixed Deposits	160924	133759	178980	180809	180913
2.2.3 Overseas Foreign Currency Borrowings	77996	62501	111393	108834	109441
2.3 Net Bank Reserves (2.3.1+2.3.2-2.3.3)	833002	992537	1130067	1198518	1110573
2.3.1 Balances with the RBI	809907	764114	899279	912040	1010361
2.3.2 Cash in Hand	90263	108528	96924	107460	93145
2.3.3 Loans and Advances from the RBI	67168	-119896	-133864	-179018	-7067
2.4 Capital Account	1916959	1882026	2223182	2227183	2235769
2.5 Other items (net) (2.1+2.2+2.3-2.4-1.1-1.2)	897438	587671	371086	455499	407220
2.5.1 Other Demand and Time Liabilities (net of 2.2.3)	711655	599706	709381	749358	776267
2.5.2 Net Inter-Bank Liabilities (other than to PDs)	44733	2566	195490	170951	185564

Note: 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	2022	2023		
		Aug. 26	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
1 SLR Securities	5415148	5067259	5839360	5913741	5901589
			(5726793)	(5801078)	(5788825)
2 Other Government Securities (Non-SLR)	182265	155683	180324	180101	180085
3 Commercial Paper	65058	63326	54410	56106	57376
4 Shares issued by					
4.1 PSUs	9736	9966	9178	9081	9048
4.2 Private Corporate Sector	71099	68745	84154	85294	83515
4.3 Others	4500	5042	5454	5430	5576
5 Bonds/Debentures issued by					
5.1 PSUs	92304	101102	89456	90045	90201
5.2 Private Corporate Sector	325035	313177	291299	291132	288808
5.3 Others	99384	91995	108987	111732	109063
6 Instruments issued by					
6.1 Mutual funds	48810	59405	92914	76119	76060
6.2 Financial institutions	189180	184955	194388	190857	191082

Note: 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	2022	2023		2022-23	2022	2023	
		Aug.	Jul.	Aug.		Aug.	Jul.	Aug.
	1	2	3	4	5	6	7	8
Number of Reporting Banks	212	213	212	212	137	137	137	137
1 Liabilities to the Banking System	**355252**	**281986**	**509583**	**516594**	**351843**	**278245**	**506511**	**513579**
1.1 Demand and Time Deposits from Banks	228517	191920	249424	248463	226119	188767	247165	246284
1.2 Borrowings from Banks	67566	45029	193383	199142	67199	44956	193269	199018
1.3 Other Demand and Time Liabilities	59170	45037	66776	68988	58524	44522	66077	68276
2 Liabilities to Others	**19730504**	**18567492**	**21232155**	**21396201**	**19278894**	**18125571**	**20772069**	**20939586**
2.1 Aggregate Deposits	18477677	17418182	19609571	19675180	18043914	16993855	19166953	19235805
			(19459112)	(19528384)			(19016494)	(19089009)
2.1.1 Demand	2225416	2068921	2303947	2251772	2180431	2022999	2257972	2207156
2.1.2 Time	16252261	15349261	17305624	17423408	15863483	14970856	16908981	17028649
2.2 Borrowings	449945	474582	789050	822369	445329	469509	784342	818074
2.3 Other Demand and Time Liabilities	802881	674728	833534	898653	789651	662206	820774	885708
3 Borrowings from Reserve Bank	**165085**	**98308**	**45028**	**93310**	**165085**	**98308**	**45028**	**93310**
3.1 Against Usance Bills /Promissory Notes	-	-	-	-	-	-	-	-
3.2 Others	165085	98308	45028	93310	165085	98308	45028	93310
4 Cash in Hand and Balances with Reserve Bank	920953	894122	1018457	1126141	900170	872642	996203	1103506
4.1 Cash in Hand	92788	111443	99358	95466	90263	108528	96924	93145
4.2 Balances with Reserve Bank	828165	782679	919099	1030676	809907	764114	899279	1010361
5 Assets with the Banking System	**397974**	**350094**	**413394**	**408675**	**326601**	**292464**	**349919**	**347187**
5.1 Balances with Other Banks	232378	219517	234362	226607	193422	181732	191554	185201
5.1.1 In Current Account	18939	19131	13536	11761	15528	16080	10234	9164
5.1.2 In Other Accounts	213440	200386	220826	214845	177894	165652	181319	176037
5.2 Money at Call and Short Notice	49763	29704	38996	37031	24864	13886	22908	20919
5.3 Advances to Banks	45330	42331	44273	47077	41184	41828	42737	46290
5.4 Other Assets	70503	58542	95763	97960	67130	55019	92720	94777
6 Investment	**5560664**	**5213089**	**5985714**	**6047852**	**5415148**	**5067259**	**5839360**	**5901589**
			(5873147)	(5935089)			(5726793)	(5788825)
6.1 Government Securities	5553702	5207133	5979513	6041332	5414322	5066468	5838607	5900814
6.2 Other Approved Securities	6963	5955	6201	6520	826	790	753	775
7 Bank Credit	**14078261**	**12829118**	**15188521**	**15314378**	**13675235**	**12458658**	**14787123**	**14917312**
			(14578241)	(14712177)			(14176844)	(14315110)
7a Food Credit	65622	73480	72807	67044	19906	27761	20836	19355
7.1 Loans, Cash-credits and Overdrafts	13824693	12588664	14926259	15056862	13424906	12220997	14527984	14662675
7.2 Inland Bills-Purchased	39446	34232	43575	43976	39435	34216	43561	43961
7.3 Inland Bills-Discounted	165428	158994	174526	171313	162910	156972	172106	169119
7.4 Foreign Bills-Purchased	19758	17177	18756	17546	19545	16961	18528	17323
7.5 Foreign Bills-Discounted	28936	30050	25405	24682	28439	29512	24944	24233

Note: 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	2022	2023		Financial year so far	Y-o-Y
		Aug. 26	Jul. 28	Aug. 25	2023-24	2023
	1	2	3	4	%	%
I. Bank Credit (II + III)	**13675235**	**12458658**	**14803212**	**14920147**	**9.1**	**19.8**
			(14186270)	(14317945)	(4.7)	(14.9)
II. Food Credit	**19906**	**27761**	**20836**	**19355**	**-2.8**	**-30.3**
III. Non-food Credit	**13655330**	**12430897**	**14782375**	**14900791**	**9.1**	**19.9**
			(14165434)	(14298590)	(4.7)	(15.0)
1. Agriculture & Allied Activities	**1687191**	**1540450**	**1786862**	**1796113**	**6.5**	**16.6**
2. Industry (Micro and Small, Medium and Large)	**3336722**	**3194889**	**3365411**	**3407881**	**2.1**	**6.7**
			(3347200)	(3389622)	(1.6)	(6.1)
2.1 Micro and Small	598390	561701	611474	621844	3.9	10.7
2.2 Medium	253384	232922	254540	255701	0.9	9.8
2.3 Large	2484949	2400266	2499398	2530336	1.8	5.4
3. Services	**3608574**	**3161534**	**3919012**	**3943220**	**9.3**	**24.7**
			(3787000)	(3814657)	(5.7)	(20.7)
3.1 Transport Operators	176239	154843	187449	188944	7.2	22.0
3.2 Computer Software	21559	19697	22039	22206	3.0	12.7
3.3 Tourism, Hotels & Restaurants	66466	64184	70988	71858	8.1	12.0
3.4 Shipping	6677	7100	5730	5604	-16.1	-21.1
3.5 Aviation	28330	23182	40134	39603	39.8	70.8
3.6 Professional Services	134661	118689	142913	143340	6.4	20.8
3.7 Trade	819921	731760	843538	835897	1.9	14.2
3.7.1. Wholesale Trade[1]	396631	381644	420991	403155	1.6	5.6
3.7.2 Retail Trade	423291	350116	422547	432742	2.2	23.6
3.8 Commercial Real Estate	314604	295212	407014	408759	29.9	38.5
			(331109)	(336177)	(6.9)	(13.9)
3.9 Non-Banking Financial Companies (NBFCs)[2] of which,	1331097	1099392	1377165	1383446	3.9	25.8
3.9.1 Housing Finance Companies (HFCs)	314678	300879	316817	309883	-1.5	3.0
3.9.2 Public Financial Institutions (PFIs)	175614	139218	182824	178994	1.9	28.6
3.10 Other Services[3]	709020	647474	822042	843563	19.0	30.3
			(781377)	(803216)	(13.3)	(24.1)
4. Personal Loans	**4085168**	**3647906**	**4717408**	**4770125**	**16.8**	**30.8**
			(4257423)	(4314756)	(5.6)	(18.3)
4.1 Consumer Durables	20044	19096	21169	21221	5.9	11.1
4.2 Housing	1936428	1783815	2431647	2456320	26.8	37.7
			(2000508)	(2029296)	(4.8)	(13.8)
4.3 Advances against Fixed Deposits	121897	92579	109270	111037	-8.9	19.9
4.4 Advances to Individuals against share & bonds	6778	6555	6718	6833	0.8	4.2
4.5 Credit Card Outstanding	194282	167543	213592	217864	12.1	30.0
4.6 Education	96847	88626	103183	106502	10.0	20.2
4.7 Vehicle Loans	500299	442784	529435	533965	6.7	20.6
4.8 Loan against gold jewellery	88428	78835	95746	96265	8.9	22.1
4.9 Other Personal Loans	1120165	968074	1206648	1220119	8.9	26.0
			(1178414)	(1192357)	(6.4)	(23.2)
5. Priority Sector (Memo)						
(i) Agriculture & Allied Activities[4]	1708951	1543634	1800225	1816482	6.3	17.7
(ii) Micro & Small Enterprises[5]	1570231	1444704	1676972	1718268	9.4	18.9
(iii) Medium Enterprises[6]	399260	365946	407258	408062	2.2	11.5
(iv) Housing	621376	618053	762542	723138	16.4	17.0
			(665249)	(622272)	(0.1)	(0.7)
(v) Education Loans	59507	58329	60338	60553	1.8	3.8
(vi) Renewable Energy	4656	4253	4532	4766	2.4	12.0
(vii) Social Infrastructure	2464	2388	2580	2572	4.4	7.7
(viii) Export Credit	15424	16692	8920	9215	-40.3	-44.8
(ix) Others	59659	52451	51555	48587	-18.6	-7.4
(x) Weaker Sections including net PSLC- SF/MF	1384249	1243051	1429701	1416790	2.4	14.0

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 93 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	2022	2023		Financial year so far	Y-o-Y
		Aug 26	Jul 28	Aug 25	2023-24	2023
	1	2	3	4	%	%
2 Industries (2.1 to 2.19)	3336722	3194889	3365411	3407881	2.1	6.7
			(3347200)	(3389622)	(1.6)	(6.1)
2.1 Mining & Quarrying (incl. Coal)	58812	50529	51326	50668	-13.8	0.3
2.2 Food Processing	182878	161679	176955	175520	-4.0	8.6
2.2.1 Sugar	22867	20578	19738	17647	-22.8	-14.2
2.2.2 Edible Oils & Vanaspati	19737	15961	18544	18261	-7.5	14.4
2.2.3 Tea	5162	5923	5421	5569	7.9	-6.0
2.2.4 Others	135112	119217	133253	134043	-0.8	12.4
2.3 Beverage & Tobacco	23362	17330	22270	24411	4.5	40.9
2.4 Textiles	227843	212355	232089	237253	4.1	11.7
2.4.1 Cotton Textiles	91095	82029	91276	93460	2.6	13.9
2.4.2 Jute Textiles	3867	3583	3669	3787	-2.1	5.7
2.4.3 Man-Made Textiles	40354	38537	40661	41587	3.1	7.9
2.4.4 Other Textiles	92527	88206	96483	98418	6.4	11.6
2.5 Leather & Leather Products	11675	11408	11602	11729	0.5	2.8
2.6 Wood & Wood Products	19963	17036	20543	20836	4.4	22.3
2.7 Paper & Paper Products	43010	41066	42393	42206	-1.9	2.8
2.8 Petroleum, Coal Products & Nuclear Fuels	149363	135396	113117	119948	-19.7	-11.4
2.9 Chemicals & Chemical Products	216481	210782	209759	213330	-1.5	1.2
2.9.1 Fertiliser	33805	35706	31430	28407	-16.0	-20.4
2.9.2 Drugs & Pharmaceuticals	67130	63679	67251	70408	4.9	10.6
2.9.3 Petro Chemicals	20661	20798	21124	21382	3.5	2.8
2.9.4 Others	94885	90598	89955	93133	-1.8	2.8
2.10 Rubber, Plastic & their Products	79037	73338	78209	78204	-1.1	6.6
2.11 Glass & Glassware	8100	6140	8071	8885	9.7	44.7
2.12 Cement & Cement Products	56592	50184	56774	58718	3.8	17.0
2.13 Basic Metal & Metal Product	343507	298885	354934	355094	3.4	18.8
2.13.1 Iron & Steel	228860	199046	235791	236217	3.2	18.7
2.13.2 Other Metal & Metal Product	114646	99838	119142	118877	3.7	19.1
2.14 All Engineering	175260	167379	183010	182635	4.2	9.1
2.14.1 Electronics	41781	39017	44281	43006	2.9	10.2
2.14.2 Others	133479	128363	138729	139628	4.6	8.8
2.15 Vehicles, Vehicle Parts & Transport Equipment	96603	90122	101439	103170	6.8	14.5
2.16 Gems & Jewellery	77718	74484	84714	92909	19.5	24.7
2.17 Construction	122880	117765	124888	126361	2.8	7.3
2.18 Infrastructure	1201983	1213626	1232577	1239891	3.2	2.2
2.18.1 Power	620425	621193	616328	614306	-1.0	-1.1
2.18.2 Telecommunications	111334	131221	131347	134842	21.1	2.8
2.18.3 Roads	284793	279752	295094	299786	5.3	7.2
2.18.4 Airports	9492	8745	7691	7774	-18.1	-11.1
2.18.5 Ports	8175	8474	9543	9555	16.9	12.7
2.18.6 Railways	11169	11746	12165	12522	12.1	6.6
2.18.7 Other Infrastructure	156593	152493	160409	161106	2.9	5.6
2.19 Other Industries	241656	245384	260742	266112	10.1	8.4

Note: 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	2022	2023						
		Jul. 29	May 19	May 26	Jun. 02	Jun. 16	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5	6	7	8	9
Number of Reporting Banks	33	32	33	33	33	33	33	33	33
1 Aggregate Deposits (2.1.1.2+2.2.1.2)	**144701.9**	**127577.4**	**139189.0**	**138906.0**	**138772.4**	**138742.0**	**138579.7**	**138672.4**	**139476.4**
2 Demand and Time Liabilities									
2.1 Demand Liabilities	**30241.2**	**25689.4**	**28216.0**	**27948.0**	**27392.9**	**27086.6**	**28185.3**	**27362.1**	**28096.2**
2.1.1 Deposits									
2.1.1.1 Inter-Bank	6893.3	6672.8	6199.7	6050.4	6680.5	6522.8	6015.4	6805.3	7260.0
2.1.1.2 Others	18195.4	13286.2	15219.4	15165.1	15199.5	15451.1	15613.8	14892.5	15206.0
2.1.2 Borrowings from Banks	0.0	799.6					439.8		
2.1.3 Other Demand Liabilities	5152.4	4930.9	6797.3	6732.0	5512.8	5112.7	6116.4	5664.3	5630.2
2.2 Time Liabilities	**194129.9**	**174829.0**	**183196.0**	**182295.0**	**182351.9**	**181741.0**	**182740.2**	**181858.7**	**184270.2**
2.2.1 Deposits									
2.2.1.1 Inter-Bank	65875.0	57194.2	57475.0	56779.6	56939.9	56097.2	57869.2	56166.7	56504.5
2.2.1.2 Others	126506.5	114291.2	123969.4	123740.9	123572.9	123290.9	122965.9	123779.9	124270.4
2.2.2 Borrowings from Banks	845.8	939.1	842.0	841.5	841.0	1320.5	839.7	839.5	2399.5
2.2.3 Other Time Liabilities	902.6	2404.6	909.9	933.4	998.1	1032.4	1065.4	1072.6	1095.8
3 Borrowing from Reserve Bank	0.0								
4 Borrowings from a notified bank / Government	84382.5	56814.8	77945.0	76779.0	77822.6	76606.3	73630.1	73111.5	69968.4
4.1 Demand	20545.9	12659.5	17930.9	16752.6	16509.4	16603.5	15253.8	19968.3	17964.1
4.2 Time	63836.7	44155.3	60014.4	60026.4	61313.2	60002.8	58376.2	53143.2	52004.3
5 Cash in Hand and Balances with Reserve Bank	**12386.8**	**10617.7**	**11433.0**	**11133.0**	**11860.0**	**11642.1**	**11981.9**	**12172.0**	**11770.2**
5.1 Cash in Hand	1540.1	773.1	812.6	842.0	857.9	861.8	845.0	1033.6	766.7
5.2 Balance with Reserve Bank	10846.7	9844.6	10620.1	10291.0	11002.1	10780.3	11136.9	11138.4	11003.5
6 Balances with Other Banks in Current Account	**3500.7**	**1336.2**	**2660.8**	**2848.2**	**3192.9**	**3037.1**	**2666.2**	**2636.0**	**1704.7**
7 Investments in Government Securities	**80906.4**	**71000.9**	**72927.0**	**72717.9**	**73176.7**	**72011.3**	**72286.7**	**71605.8**	**72244.8**
8 Money at Call and Short Notice	**34771.6**	**20921.9**	**21362.0**	**21303.2**	**20792.4**	**20027.0**	**19661.2**	**19794.3**	**20748.8**
9 Bank Credit (10.1+11)	**124978.1**	**118533.2**	**127600.0**	**128078.0**	**127852.7**	**128449.8**	**128006.9**	**128149.5**	**127405.4**
10 Advances									
10.1 Loans, Cash-Credits and Overdrafts	**124928.2**	**118512.3**	**127531.0**	**128009.3**	**127783.3**	**128377.8**	**127932.8**	**128072.2**	**127329.1**
10.2 Due from Banks	131095.9	104735.3	123369.8	121063.9	121239.6	121397.0	120521.3	120095.2	119210.1
11 Bills Purchased and Discounted	49.9	20.9	68.6	68.5	69.4	71.9	74.2	77.3	76.3

Prices and Production

No. 18: Consumer Price Index (Base: 2012=100)

Group/Sub group	2022-23			Rural			Urban			Combined		
	Rural	Urban	Combined	Sep.22	Aug.23	Sep.23 (P)	Sep.22	Aug.23	Sep.23 (P)	Sep.22	Aug.23	Sep.23 (P)
	1	2	3	4	5	6	7	8	9	10	11	12
1 Food and beverages	**173.9**	**179.7**	**176.0**	**175.5**	**189.5**	**186.6**	**181.8**	**197.6**	**193.0**	**177.8**	**192.5**	**189.0**
1.1 Cereals and products	163.3	165.3	164.0	162.9	179.0	181.4	164.9	179.8	181.3	163.5	179.3	181.4
1.2 Meat and fish	208.7	215.2	211.0	206.7	211.1	214.6	213.7	219.7	223.7	209.2	214.1	217.8
1.3 Egg	174.7	177.1	175.6	169.0	174.2	178.4	170.9	180.1	184.2	169.7	176.5	180.6
1.4 Milk and products	170.1	170.7	170.3	169.5	181.2	181.4	170.1	181.1	181.5	169.7	181.2	181.4
1.5 Oils and fats	197.0	181.1	191.2	194.1	165.2	164.4	179.3	159.0	158.3	188.7	162.9	162.2
1.6 Fruits	164.1	169.6	166.7	164.1	174.2	173.5	167.5	186.2	182.7	165.7	179.8	177.8
1.7 Vegetables	160.8	198.7	173.6	176.9	216.4	184.3	220.8	272.3	225.5	191.8	235.4	198.3
1.8 Pulses and products	168.1	168.2	168.2	169.0	187.8	195.1	169.2	191.5	200.1	169.1	189.0	196.8
1.9 Sugar and confectionery	119.9	122.2	120.7	120.8	124.8	126.5	123.1	127.0	128.4	121.6	125.5	127.1
1.10 Spices	199.4	193.5	197.5	199.1	242.1	246.3	193.6	231.4	235.9	197.3	238.5	242.8
1.11 Non-alcoholic beverages	175.4	161.3	169.6	175.4	180.3	180.5	161.1	167.7	168.3	169.4	175.0	175.4
1.12 Prepared meals, snacks, sweets	185.1	190.4	187.6	184.8	192.9	193.2	190.4	200.0	200.7	187.4	196.2	196.7
2 Pan, tobacco and intoxicants	**195.0**	**199.9**	**196.3**	**194.5**	**201.7**	**202.2**	**199.7**	**206.7**	**207.2**	**195.9**	**203.0**	**203.5**
3 Clothing and footwear	**184.5**	**172.9**	**179.9**	**184.5**	**192.3**	**192.8**	**173.0**	**180.8**	**181.2**	**179.9**	**187.7**	**188.2**
3.1 Clothing	184.8	175.0	180.9	184.7	192.9	193.3	175.0	182.8	183.2	180.9	188.9	189.3
3.2 Footwear	182.7	161.4	173.9	183.3	189.1	189.4	161.7	169.7	170.2	174.3	181.0	181.4
4 Housing	**--**	**170.0**	**170.0**	**--**	**--**	**--**	**169.5**	**176.4**	**176.2**	**169.5**	**176.4**	**176.2**
5 Fuel and light	**179.7**	**178.4**	**179.2**	**179.7**	**185.9**	**181.6**	**179.2**	**187.4**	**175.5**	**179.5**	**186.5**	**179.3**
6 Miscellaneous	**173.8**	**166.5**	**170.3**	**173.1**	**181.2**	**181.6**	**166.1**	**173.4**	**173.7**	**169.7**	**177.4**	**177.8**
6.1 Household goods and services	173.7	165.1	169.6	173.6	181.3	181.3	165.0	171.3	171.7	169.5	176.6	176.8
6.2 Health	181.3	174.6	178.7	180.2	189.8	190.4	173.8	184.3	184.9	177.8	187.7	188.3
6.3 Transport and communication	167.3	158.8	162.8	166.9	171.1	171.3	158.2	161.2	161.3	162.3	165.9	166.0
6.4 Recreation and amusement	170.0	165.8	167.6	170.0	175.6	175.9	165.8	170.8	171.2	167.6	172.9	173.3
6.5 Education	175.6	169.7	172.2	176.2	184.5	184.9	170.9	179.8	180.3	173.1	181.7	182.2
6.6 Personal care and effects	173.2	173.4	173.3	170.8	184.7	185.1	171.1	185.7	186.1	170.9	185.1	185.5
General Index (All Groups)	**175.8**	**173.5**	**174.7**	**176.4**	**187.6**	**185.8**	**174.1**	**184.5**	**182.2**	**175.3**	**186.2**	**184.1**

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	2022	2023	
				Aug.	Jul.	Aug.
	1	2	3	4	5	6
1 Consumer Price Index for Industrial Workers	2016	2.88	131.1	130.2	139.7	139.2
2 Consumer Price Index for Agricultural Labourers	1986-87	5.89	1148	1140	1215	1224
3 Consumer Price Index for Rural Labourers	1986-87	-	1160	1152	1226	1234

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	2022	2023	
		Aug.	Jul.	Aug.
	1	2	3	4
1 Standard Gold (₹ per 10 grams)	52731	51639	58922	58738
2 Silver (₹ per kilogram)	61991	56831	72945	72135

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	2022	2023		
			Sep.	Jul.	Aug.(P)	Sep.(P)
	1	2	3	4	5	6
1 ALL COMMODITIES	**100.000**	**152.5**	**151.9**	**152.1**	**152.4**	**151.5**
1.1 PRIMARY ARTICLES	**22.618**	**176.8**	**175.9**	**191.7**	**189.6**	**182.4**
1.1.1 FOOD ARTICLES	**15.256**	**179.5**	**182.2**	**205.9**	**201.3**	**188.3**
1.1.1.1 Food Grains (Cereals+Pulses)	3.462	178.6	178.4	187.3	190.9	194.8
1.1.1.2 Fruits & Vegetables	3.475	200.6	215.6	282.9	263.6	200.3
1.1.1.3 Milk	4.440	167.8	165.5	177.9	178.4	179.7
1.1.1.4 Eggs,Meat & Fish	2.402	170.6	171.3	176.5	166.1	166.4
1.1.1.5 Condiments & Spices	0.529	187.2	191.2	234.5	251.2	253.6
1.1.1.6 Other Food Articles	0.948	178.1	174.7	180.4	179.8	180.0
1.1.2 NON-FOOD ARTICLES	**4.119**	**172.1**	**168.2**	**161.9**	**162.8**	**164.2**
1.1.2.1 Fibres	0.839	203.0	208.3	166.0	169.4	171.7
1.1.2.2 Oil Seeds	1.115	205.2	196.1	187.8	187.8	185.8
1.1.2.3 Other non-food Articles	1.960	131.2	128.0	135.0	135.1	136.9
1.1.2.4 Floriculture	0.204	257.4	237.2	262.4	265.3	277.6
1.1.3 MINERALS	**0.833**	**203.5**	**185.7**	**215.4**	**215.4**	**204.8**
1.1.3.1 Metallic Minerals	0.648	191.7	168.2	202.7	202.7	189.1
1.1.3.2 Other Minerals	0.185	245.2	247.0	260.1	260.3	260.0
1.1.4 CRUDE PETROLEUM & NATURAL GAS	**2.410**	**158.4**	**145.3**	**144.7**	**152.3**	**168.0**
1.2 FUEL & POWER	**13.152**	**159.5**	**158.4**	**145.4**	**149.6**	**153.1**
1.2.1 COAL	**2.138**	**133.3**	**134.3**	**137.6**	**137.6**	**136.7**
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	294.3	279.8	279.8	258.1
1.2.2 MINERAL OILS	**7.950**	**172.9**	**171.7**	**151.8**	**157.9**	**163.7**
1.2.3 ELECTRICITY	**3.064**	**143.3**	**140.6**	**134.2**	**136.3**	**137.0**
1.3 MANUFACTURED PRODUCTS	**64.231**	**142.6**	**142.2**	**139.5**	**139.8**	**140.3**
1.3.1 MANUFACTURE OF FOOD PRODUCTS	**9.122**	**165.3**	**163.3**	**159.9**	**160.7**	**160.2**
1.3.1.1 Processing and Preserving of meat	0.134	143.7	141.4	143.0	143.9	143.3
1.3.1.2 Processing and Preserving of fish, Crustaceans, Molluscs and products thereof	0.204	144.9	148.1	140.7	140.5	140.7
1.3.1.3 Processing and Preserving of fruit and Vegetables	0.138	125.8	125.4	131.4	131.6	130.8
1.3.1.4 Vegetable and Animal oils and Fats	2.643	181.9	173.1	147.7	147.5	143.3
1.3.1.5 Dairy products	1.165	167.0	166.6	179.0	178.3	178.6
1.3.1.6 Grain mill products	2.010	162.1	163.0	170.7	173.7	176.3
1.3.1.7 Starches and Starch products	0.110	158.9	160.8	149.9	150.6	152.9
1.3.1.8 Bakery products	0.215	163.0	164.7	165.1	164.3	164.9
1.3.1.9 Sugar, Molasses & honey	1.163	126.8	127.3	131.3	133.4	134.5
1.3.1.10 Cocoa, Chocolate and Sugar confectionery	0.175	135.9	136.1	138.4	137.9	138.5
1.3.1.11 Macaroni, Noodles, Couscous and Similar farinaceous products	0.026	155.8	156.2	148.3	148.4	149.6
1.3.1.12 Tea & Coffee products	0.371	178.2	181.4	187.9	183.9	179.9
1.3.1.13 Processed condiments & salt	0.163	176.5	176.9	189.1	190.3	193.2
1.3.1.14 Processed ready to eat food	0.024	141.2	141.0	146.6	145.6	146.5
1.3.1.15 Health supplements	0.225	179.4	184.2	177.0	179.2	181.7
1.3.1.16 Prepared animal feeds	0.356	208.8	207.3	208.3	210.8	210.9
1.3.2 MANUFACTURE OF BEVERAGES	**0.909**	**128.9**	**128.4**	**130.8**	**131.2**	**131.3**
1.3.2.1 Wines & spirits	0.408	129.3	129.1	132.2	132.9	133.4
1.3.2.2 Malt liquors and Malt	0.225	134.5	134.0	135.0	136.2	134.8
1.3.2.3 Soft drinks; Production of mineral waters and Other bottled waters	0.275	123.7	122.7	125.3	124.8	125.3

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Sep.	Jul.	Aug.(P)	Sep.(P)
	1	2	3	4	5	6
1.3.3 MANUFACTURE OF TOBACCO PRODUCTS	**0.514**	**165.3**	**164.4**	**173.2**	**172.9**	**173.1**
1.3.3.1 Tobacco products	0.514	165.3	164.4	173.2	172.9	173.1
1.3.4 MANUFACTURE OF TEXTILES	**4.881**	**142.7**	**144.5**	**133.9**	**134.1**	**134.2**
1.3.4.1 Preparation and Spinning of textile fibres	2.582	133.2	136.3	118.9	119.4	120.0
1.3.4.2 Weaving & Finishing of textiles	1.509	158.9	158.4	157.5	157.0	156.7
1.3.4.3 Knitted and Crocheted fabrics	0.193	129.9	133.8	119.3	120.1	118.4
1.3.4.4 Made-up textile articles, Except apparel	0.299	153.6	155.0	156.1	157.0	157.6
1.3.4.5 Cordage, Rope, Twine and Netting	0.098	156.8	160.9	140.0	141.8	139.2
1.3.4.6 Other textiles	0.201	132.2	132.5	127.8	124.9	125.2
1.3.5 MANUFACTURE OF WEARING APPAREL	**0.814**	**148.7**	**149.4**	**150.2**	**150.8**	**150.6**
1.3.5.1 Manufacture of Wearing Apparel (woven), Except fur Apparel	0.593	147.3	147.8	148.2	149.3	148.4
1.3.5.2 Knitted and Crocheted apparel	0.221	152.2	153.9	155.7	154.7	156.4
1.3.6 MANUFACTURE OF LEATHER AND RELATED PRODUCTS	**0.535**	**122.2**	**123.4**	**125.7**	**126.8**	**124.7**
1.3.6.1 Tanning and Dressing of leather; Dressing and Dyeing of fur	0.142	105.6	107.2	111.9	114.1	109.0
1.3.6.2 Luggage, HandbAgs, Saddlery and Harness	0.075	141.0	140.9	141.6	140.9	141.7
1.3.6.3 Footwear	0.318	125.2	126.4	128.1	129.2	127.7
1.3.7 MANUFACTURE OF WOOD AND PRODUCTS OF WOOD AND CORK	**0.772**	**143.2**	**143.4**	**144.4**	**144.8**	**145.0**
1.3.7.1 Saw milling and Planing of wood	0.124	137.6	138.8	137.9	137.6	138.6
1.3.7.2 Veneer sheets; Manufacture of plywood, Laminboard, Particle board and Other panels and Boards	0.493	141.8	141.3	143.3	143.7	144.2
1.3.7.3 Builder's carpentry and Joinery	0.036	204.0	205.9	201.8	201.8	201.7
1.3.7.4 Wooden containers	0.119	136.7	138.4	139.1	139.8	138.0
1.3.8 MANUFACTURE OF PAPER AND PAPER PRODUCTS	**1.113**	**152.0**	**154.2**	**139.5**	**138.5**	**138.8**
1.3.8.1 Pulp, Paper and Paperboard	0.493	158.4	161.0	146.8	146.4	146.7
1.3.8.2 Corrugated paper and Paperboard and Containers of paper and Paperboard	0.314	148.3	150.8	139.5	139.2	140.1
1.3.8.3 Other articles of paper and Paperboard	0.306	145.6	146.6	127.9	125.1	124.6
1.3.9 PRINTING AND REPRODUCTION OF RECORDED MEDIA	**0.676**	**172.5**	**168.2**	**180.3**	**183.0**	**182.6**
1.3.9.1 Printing	0.676	172.5	168.2	180.3	183.0	182.6
1.3.10 MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS	**6.465**	**145.4**	**146.0**	**136.6**	**136.3**	**136.2**
1.3.10.1 Basic chemicals	1.433	159.2	160.1	139.1	138.6	138.8
1.3.10.2 Fertilizers and Nitrogen compounds	1.485	144.8	145.1	143.6	141.4	141.1
1.3.10.3 Plastic and Synthetic rubber in primary form	1.001	143.2	141.8	130.8	132.2	132.6
1.3.10.4 Pesticides and Other agrochemical products	0.454	143.4	145.5	132.1	131.9	131.4
1.3.10.5 Paints, Varnishes and Similar coatings, Printing ink and Mastics	0.491	145.0	146.2	143.4	144.0	144.2
1.3.10.6 Soap and Detergents, Cleaning and Polishing preparations, Perfumes and Toilet preparations	0.612	140.8	142.3	140.6	140.0	140.1
1.3.10.7 Other chemical products	0.692	142.1	143.0	134.2	134.7	133.8
1.3.10.8 Man-made fibres	0.296	110.7	112.0	102.6	103.4	103.3
1.3.11 MANUFACTURE OF PHARMACEUTICALS, MEDICINAL CHEMICAL AND BOTANICAL PRODUCTS	**1.993**	**140.9**	**140.3**	**141.8**	**142.0**	**142.9**
1.3.11.1 Pharmaceuticals, Medicinal chemical and Botanical products	1.993	140.9	140.3	141.8	142.0	142.9
1.3.12 MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS	**2.299**	**129.7**	**129.5**	**127.0**	**127.0**	**128.1**
1.3.12.1 Rubber Tyres and Tubes; Retreading and Rebuilding of Rubber Tyres	0.609	111.8	112.9	113.2	113.3	113.6
1.3.12.2 Other Rubber Products	0.272	106.4	107.7	107.4	106.7	106.8
1.3.12.3 Plastics products	1.418	141.8	140.7	136.7	136.8	138.4

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Sep.	Jul.	Aug.(P)	Sep.(P)
	1	2	3	4	5	6
1.3.13 MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS	**3.202**	**133.7**	**133.3**	**134.6**	**135.2**	**135.0**
1.3.13.1 Glass and Glass products	0.295	158.1	157.4	164.4	163.5	164.2
1.3.13.2 Refractory products	0.223	119.0	119.9	119.1	123.1	119.8
1.3.13.3 Clay Building Materials	0.121	135.3	134.9	123.9	123.5	124.6
1.3.13.4 Other Porcelain and Ceramic Products	0.222	118.0	117.0	121.4	121.8	122.1
1.3.13.5 Cement, Lime and Plaster	1.645	137.2	136.6	137.4	137.9	137.7
1.3.13.6 Articles of Concrete, Cement and Plaster	0.292	134.4	133.7	138.4	138.0	138.1
1.3.13.7 Cutting, Shaping and Finishing of Stone	0.234	125.6	126.8	130.0	130.7	131.4
1.3.13.8 Other Non-Metallic Mineral Products	0.169	105.9	105.6	101.3	103.0	101.5
1.3.14 MANUFACTURE OF BASIC METALS	**9.646**	**148.7**	**146.6**	**139.9**	**140.4**	**142.6**
1.3.14.1 Inputs into steel making	1.411	159.7	159.4	135.6	136.2	145.0
1.3.14.2 Metallic Iron	0.653	165.9	168.7	155.5	155.1	155.3
1.3.14.3 Mild Steel - Semi Finished Steel	1.274	127.0	126.3	122.2	120.9	121.8
1.3.14.4 Mild Steel -Long Products	1.081	149.7	146.8	139.5	140.7	142.6
1.3.14.5 Mild Steel - Flat products	1.144	155.0	149.6	142.8	142.1	144.5
1.3.14.6 Alloy steel other than Stainless Steel- Shapes	0.067	146.9	147.4	136.1	135.3	139.2
1.3.14.7 Stainless Steel - Semi Finished	0.924	151.9	150.9	136.0	139.8	137.2
1.3.14.8 Pipes & tubes	0.205	175.4	176.6	169.0	169.0	169.4
1.3.14.9 Non-ferrous metals incl. precious metals	1.693	145.9	139.2	143.7	144.0	144.6
1.3.14.10 Castings	0.925	130.7	131.1	137.2	138.4	142.9
1.3.14.11 Forgings of steel	0.271	172.4	171.4	173.0	174.5	174.0
1.3.15 MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT	**3.155**	**139.0**	**139.1**	**138.3**	**138.3**	**139.5**
1.3.15.1 Structural Metal Products	1.031	132.7	134.1	130.2	131.1	134.7
1.3.15.2 Tanks, Reservoirs and Containers of Metal	0.660	161.1	157.6	158.7	158.3	158.3
1.3.15.3 Steam generators, Except Central Heating Hot Water Boilers	0.145	100.5	99.6	105.8	103.4	103.6
1.3.15.4 Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy	0.383	135.2	136.2	141.7	143.5	143.0
1.3.15.5 Cutlery, Hand Tools and General Hardware	0.208	112.2	112.6	108.7	108.5	108.4
1.3.15.6 Other Fabricated Metal Products	0.728	145.0	146.5	144.5	143.0	143.4
1.3.16 MANUFACTURE OF COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS	**2.009**	**116.6**	**117.2**	**118.4**	**119.4**	**119.7**
1.3.16.1 Electronic Components	0.402	115.0	115.9	115.4	115.3	116.7
1.3.16.2 Computers and Peripheral Equipment	0.336	135.0	134.9	135.1	135.1	135.1
1.3.16.3 Communication Equipment	0.310	129.4	129.5	131.5	136.9	136.1
1.3.16.4 Consumer Electronics	0.641	99.7	100.6	103.5	103.4	103.5
1.3.16.5 Measuring, Testing, Navigating and Control equipment	0.181	112.8	113.1	112.7	114.2	114.4
1.3.16.6 Watches and Clocks	0.076	151.2	152.8	156.7	156.6	157.3
1.3.16.7 Irradiation, Electromedical and Electrotherapeutic equipment	0.055	108.9	110.4	107.1	111.0	109.6
1.3.16.8 Optical instruments and Photographic equipment	0.008	100.5	101.6	103.9	103.9	103.6
1.3.17 MANUFACTURE OF ELECTRICAL EQUIPMENT	**2.930**	**128.8**	**129.2**	**130.9**	**131.7**	**131.0**
1.3.17.1 Electric motors, Generators, Transformers and Electricity distribution and Control apparatus	1.298	126.3	128.3	128.8	130.4	129.3

No. 21: Wholesale Price Index (Concld.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Sep.	Jul.	Aug.(P)	Sep.(P)
	1	2	3	4	5	6
1.3.17.2 Batteries and Accumulators	0.236	131.9	132.2	136.9	136.5	137.2
1.3.17.3 Fibre optic cables for data transmission or live transmission of images	0.133	116.6	118.7	122.8	124.7	125.6
1.3.17.4 Other electronic and Electric wires and Cables	0.428	146.3	141.7	146.4	146.9	146.8
1.3.17.5 Wiring devices, Electric lighting & display equipment	0.263	117.2	117.9	116.0	116.0	116.3
1.3.17.6 Domestic appliances	0.366	134.1	134.7	135.2	135.4	133.2
1.3.17.7 Other electrical equipment	0.206	117.4	116.6	121.6	121.1	120.8
1.3.18 MANUFACTURE OF MACHINERY AND EQUIPMENT	**4.789**	**126.2**	**126.4**	**128.6**	**128.3**	**129.0**
1.3.18.1 Engines and Turbines, Except aircraft, Vehicle and Two wheeler engines	0.638	126.9	127.9	126.9	127.9	129.3
1.3.18.2 Fluid power equipment	0.162	128.4	127.8	131.0	130.7	131.3
1.3.18.3 Other pumps, Compressors, Taps and Valves	0.552	117.6	117.7	117.0	116.6	116.7
1.3.18.4 Bearings, Gears, Gearing and Driving elements	0.340	124.2	124.6	125.8	125.8	127.0
1.3.18.5 Ovens, Furnaces and Furnace burners	0.008	79.8	78.7	85.8	84.4	82.2
1.3.18.6 Lifting and Handling equipment	0.285	126.3	124.8	127.9	128.5	128.2
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	142.9	147.4	144.7	146.5
1.3.18.9 Agricultural and Forestry machinery	0.833	137.2	137.1	141.8	141.4	141.9
1.3.18.10 Metal-forming machinery and Machine tools	0.224	120.5	120.9	122.3	121.9	122.9
1.3.18.11 Machinery for mining, Quarrying and Construction	0.371	84.9	85.0	89.1	88.3	88.9
1.3.18.12 Machinery for food, Beverage and Tobacco processing	0.228	127.7	129.9	124.4	124.4	124.5
1.3.18.13 Machinery for textile, Apparel and Leather production	0.192	130.0	130.4	138.0	136.8	139.2
1.3.18.14 Other special-purpose machinery	0.468	140.6	140.4	144.3	144.1	144.1
1.3.18.15 Renewable electricity generating equipment	0.046	69.2	69.0	71.1	71.0	71.0
1.3.19 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS	**4.969**	**127.6**	**128.3**	**128.5**	**128.2**	**127.6**
1.3.19.1 Motor vehicles	2.600	126.0	126.5	128.6	128.6	128.7
1.3.19.2 Parts and Accessories for motor vehicles	2.368	129.3	130.2	128.4	127.9	126.4
1.3.20 MANUFACTURE OF OTHER TRANSPORT EQUIPMENT	**1.648**	**137.4**	**137.6**	**142.4**	**142.8**	**145.3**
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	110.6	105.9	106.4	106.4
1.3.20.3 Motor cycles	1.302	137.6	137.3	143.9	144.4	147.5
1.3.20.4 Bicycles and Invalid carriages	0.117	139.8	140.7	138.6	138.5	138.1
1.3.20.5 Other transport equipment	0.002	152.5	152.9	155.3	157.5	159.8
1.3.21 MANUFACTURE OF FURNITURE	**0.727**	**157.2**	**157.2**	**159.9**	**159.8**	**160.8**
1.3.21.1 Furniture	0.727	157.2	157.2	159.9	159.8	160.8
1.3.22 OTHER MANUFACTURING	**1.064**	**147.7**	**145.4**	**151.3**	**154.3**	**154.8**
1.3.22.1 Jewellery and Related articles	0.996	146.5	144.0	150.5	153.7	154.3
1.3.22.2 Musical instruments	0.001	189.3	180.3	193.1	193.1	180.3
1.3.22.3 Sports goods	0.012	150.5	151.8	155.3	155.5	155.4
1.3.22.4 Games and Toys	0.005	159.0	159.6	159.6	160.0	159.9
1.3.22.5 Medical and Dental instruments and Supplies	0.049	170.4	169.7	164.5	164.5	162.7
2 FOOD INDEX	**24.378**	**174.2**	**175.1**	**188.7**	**186.1**	**177.8**

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-August		August	
				2022-23	2023-24	2022	2023
	1	2	3	4	5	6	7
General Index	100.00	131.6	138.5	135.3	143.5	131.5	145.1
1 Sectoral Classification							
1.1 Mining	14.37	113.3	119.9	110.3	119.4	99.6	111.9
1.2 Manufacturing	77.63	131.0	137.1	133.9	141.7	131.3	143.5
1.3 Electricity	7.99	170.1	185.2	194.3	204.7	191.3	220.5
2 Use-Based Classification							
2.1 Primary Goods	34.05	129.5	139.2	136.9	145.2	129.4	145.4
2.2 Capital Goods	8.22	88.7	100.3	96.0	102.0	95.0	107.0
2.3 Intermediate Goods	17.22	143.9	149.4	148.7	154.2	146.6	156.1
2.4 Infrastructure/ Construction Goods	12.34	148.2	160.7	151.6	171.8	152.8	175.5
2.5 Consumer Durables	12.84	113.8	114.5	117.5	116.3	116.2	122.8
Consumer non-durables	15.33	146.7	147.7	139.8	150.2	134.9	147.0

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

(Amount in ₹ Crore)

Item	Financial Year	April – August			
	2023-24 (Budget Estimates)	2023-24 (Actuals)	2022-23 (Actuals)	Percentage to Budget Estimates	
				2023-24	2022-23
	1	2	3	4	5
1 Revenue Receipts	**2632281**	**1013526**	**816898**	**38.5**	**37.1**
1.1 Tax Revenue (Net)	2330631	803944	700094	34.5	36.2
1.2 Non-Tax Revenue	301650	209582	116804	69.5	43.3
2 Non Debt Capital Receipt	**84000**	**15405**	**31527**	**18.3**	**39.8**
2.1 Recovery of Loans	23000	9804	6967	42.6	48.8
2.2 Other Receipts	61000	5601	24560	9.2	37.8
3 Total Receipts (excluding borrowings) (1+2)	**2716281**	**1028931**	**848425**	**37.9**	**37.2**
4 Revenue Expenditure of which :	3502136	1297958	1137698	37.1	35.6
4.1 Interest Payments	1079971	367539	338637	34.0	36.0
5 Capital Expenditure	1000961	373799	252328	37.3	33.6
6 Total Expenditure (4+5)	**4503097**	**1671757**	**1390026**	**37.1**	**35.2**
7 Revenue Deficit (4-1)	**869855**	**284432**	**320800**	**32.7**	**32.4**
8 Fiscal Deficit (6-3)	**1786816**	**642826**	**541601**	**36.0**	**32.6**
9 Gross Primary Deficit (8-4.1)	**706845**	**275287**	**202964**	**38.9**	**28.2**

Source: Controller General of Accounts (CGA), Ministry of Finance, Government of India and Union Budget 2023-24.

No. 24: Treasury Bills – Ownership Pattern

(₹ Crore)

Item	2022-23	2022	2023					
		Aug. 26	Jul. 21	Jul. 28	Aug. 4	Aug. 11	Aug. 18	Aug. 25
	1	2	3	4	5	6	7	8
1 91-day								
1.1 Banks	6191	12858	18065	20183	21250	22499	25092	22486
1.2 Primary Dealers	20071	24936	18840	19282	20088	22764	22636	24198
1.3 State Governments	8038	54450	30008	35727	27627	28377	33577	29577
1.4 Others	80638	113266	127295	122735	117861	111937	107472	107517
2 182-day								
2.1 Banks	53154	86529	66186	63735	67492	71790	74237	73109
2.2 Primary Dealers	97274	99375	120206	119595	119147	118404	119469	117704
2.3 State Governments	2592	37587	18791	20791	22541	22541	22541	22541
2.4 Others	110072	105846	139108	138170	131861	124805	117294	115187
3 364-day								
3.1 Banks	101834	98908	81949	81443	84275	85937	88844	85480
3.2 Primary Dealers	146080	184586	182132	182603	179033	180220	162824	167514
3.3 State Governments	48284	27419	49524	49427	46999	48134	49115	48926
3.4 Others	149086	135506	135918	136953	138692	136843	152331	152006
4 14-day Intermediate								
4.1 Banks								
4.2 Primary Dealers								
4.3 State Governments	212758	151970	190683	172959	129320	154109	141239	159374
4.4 Others	926	841	184	730	1014	471	542	1041
Total Treasury Bills (Excluding 14 day Intermediate T Bills) #	823313	981267	988023	990645	976867	974252	975432	966244

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										
Aug. 2	10000	164	32841	5532	55	9968	5532	15500	98.35	6.7188
Aug. 9	10000	153	36217	1800	77	9950	1800	11750	98.35	6.7487
Aug. 17	10000	123	23810	7229	73	9971	7229	17200	98.31	6.8781
Aug. 23	10000	220	47521	1041	40	9959	1041	11000	98.32	6.8569
Aug. 30	10000	209	38952	4751	48	9973	4751	14724	98.33	6.8225
182-day Treasury Bills										
2023-24										
Aug. 2	8000	153	25745	2979	49	7971	2979	10950	96.69	6.8740
Aug. 9	8000	156	23422	548	61	7952	548	8500	96.67	6.9094
Aug. 17	8000	155	18715	16	80	7984	16	8000	96.61	7.0385
Aug. 23	8000	215	27877	1060	77	7940	1060	9000	96.61	7.0400
Aug. 30	8000	200	25055	45	54	7955	45	8000	96.62	7.0200
364-day Treasury Bills										
2023-24										
Aug. 2	6000	122	12350	264	79	5982	264	6246	93.53	6.9314
Aug. 9	6000	156	25286	2764	60	5984	2764	8748	93.51	6.9605
Aug. 17	6000	164	21240	1808	54	5983	1808	7791	93.41	7.0692
Aug. 23	6000	226	29600	1000	26	5984	1000	6985	93.43	7.0548
Aug. 30	6000	180	27598	1414	26	5981	1414	7395	93.45	7.0298

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
August 01 ,2023	5.00-6.45	6.39
August 02 ,2023	5.00-6.45	6.34
August 03 ,2023	5.00-6.40	6.35
August 04 ,2023	5.30-6.40	6.34
August 05 ,2023	5.60-6.50	6.30
August 07 ,2023	5.30-6.45	6.36
August 08 ,2023	5.30-6.40	6.36
August 09 ,2023	5.00-6.45	6.39
August 10 ,2023	5.00-6.55	6.45
August 11 ,2023	5.00-6.70	6.59
August 14 ,2023	5.30-6.85	6.63
August 17 ,2023	5.00-6.85	6.75
August 18 ,2023	5.00-6.75	6.66
August 19 ,2023	5.25-6.70	6.25
August 21 ,2023	5.00-6.95	6.77
August 22 ,2023	5.00-6.85	6.76
August 23 ,2023	5.00-6.96	6.77
August 24 ,2023	5.00-6.85	6.77
August 25 ,2023	5.00-6.85	6.74
August 28 ,2023	5.00-6.85	6.74
August 29 ,2023	5.00-6.85	6.75
August 30 ,2023	5.40-6.85	6.71
August 31 ,2023	5.00-6.75	6.58
September 01 ,2023	5.00-6.70	6.52
September 02 ,2023	5.70-6.20	6.00
September 04 ,2023	5.00-6.55	6.44
September 05 ,2023	5.00-6.50	6.38
September 06 ,2023	5.00-6.50	6.32
September 07 ,2023	5.50-6.75	6.40
September 08 ,2023	5.00-6.85	6.71
September 11 ,2023	5.00-6.80	6.67
September 12 ,2023	5.00-6.85	6.73
September 13 ,2023	5.00-6.85	6.73
September 14 ,2023	5.00-6.85	6.73
September 15 ,2023	5.00-6.90	6.70

Note: Includes Notice Money.

No. 27: Certificates of Deposit

Item	2022	2023			
	Aug. 26	Jul. 14	Jul. 28	Aug. 11	Aug. 25
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	237146.80	297670.83	307002.89	304165.00	301278.00
1.1 Issued during the fortnight (₹ Crore)	26979.70	18265.42	25601.63	14894.00	34741.00
2 Rate of Interest (per cent)	5.66-6.51	6.79-7.81	6.76-7.89	6.77-7.71	6.88-7.67

No. 28: Commercial Paper

Item	2022	2023			
	Aug. 31	Jul. 15	Jul. 31	Aug. 15	Aug. 31
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	410076.80	434827.80	444567.60	447570.85	450064.05
1.1 Reported during the fortnight (₹ Crore)	87514.55	26230.40	65987.70	41800.20	73816.05
2 Rate of Interest (per cent)	5.64-13.66	6.72-13.10	6.75-12.23	6.81-12.55	6.93-16.55

No. 29: Average Daily Turnover in Select Financial Markets

(₹ Crore)

Item	2022-23	2022	2023					
		Aug. 26	Jul. 21	Jul. 28	Aug. 4	Aug. 11	Aug. 18	Aug. 25
	1	2	3	4	5	6	7	8
1 Call Money	19987	20329	21986	21447	14649	15814	13721	17813
2 Notice Money	2605	511	167	185	3505	245	7095	318
3 Term Money	612	501	917	491	1006	688	829	735
4 Triparty Repo	697245	697741	504737	615266	581066	498286	718562	612373
5 Market Repo	504418	470547	544797	651665	589638	504906	604536	486636
6 Repo in Corporate Bond	2085	1820	976	1178	2694	3591	167	452
7 Forex (US $ million)	89155	94756	75674	96828	91117	85291	102358	97473
8 Govt. of India Dated Securities	66200	67005	83009	90813	117943	86113	78473	88757
9 State Govt. Securities	5450	3366	2521	4199	3597	1413	3802	3858
10 Treasury Bills								
10.1 91-Day	4380	5470	3268	3955	10468	6898	7253	3085
10.2 182-Day	4480	6151	5187	4788	3741	7442	3366	4758
10.3 364-Day	2900	2895	1190	2426	3957	1955	2379	1660
10.4 Cash Management Bills								
11 Total Govt. Securities (8+9+10)	83410	84888	95174	106181	139707	103822	95274	102118
11.1 RBI	660	297	138	24	113	102	362	666

No. 30: New Capital Issues by Non-Government Public Limited Companies

(Amount in ₹ Crore)

Security & Type of Issue	2022-23		2022-23 (Apr.-Aug.)		2023-24 (Apr.-Aug.) *		Aug. 2022		Aug. 2023 *	
	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**	**67**	**19414**	**112**	**21593**	**8**	**945**	**31**	**6467**
1A Premium	218	42408	59	18439	104	19941	5	849	29	5945
1.1 Public	164	38515	47	18089	78	15615	5	875	21	5124
1.1.1 Premium	161	37158	44	17457	78	14881	4	827	21	4842
1.2 Rights	73	6751	20	1325	34	5978	3	71	10	1342
1.2.1 Premium	57	5250	15	983	26	5059	1	22	8	1103
2 Preference Shares	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2.1 Public	-	-	-	-	-	-	-	-	-	-
2.2 Rights	-	-	-	-	-	-	-	-	-	-
3 Bonds & Debentures	**34**	**9221**	**13**	**3102**	**14**	**5364**	**1**	**279**	**2**	**1948**
3.1 Convertible	-	-	-	-	-	-	-	-	-	-
3.1.1 Public	-	-	-	-	-	-	-	-	-	-
3.1.2 Rights	-	-	-	-	-	-	-	-	-	-
3.2 Non-Convertible	34	9221	13	3102	14	5364	1	279	2	1948
3.2.1 Public	34	9221	13	3102	14	5364	1	279	2	1948
3.2.2 Rights	-	-	-	-	-	-	-	-	-	-
4 Total (1+2+3)	**271**	**54487**	**80**	**22516**	**126**	**26957**	**9**	**1224**	**33**	**8415**
4.1 Public	198	47736	60	21191	92	20979	6	1153	23	7072
4.2 Rights	73	6751	20	1325	34	5978	3	71	10	1342

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	2022	2023				
			Aug.	Apr.	May	Jun.	Jul.	Aug.
		1	2	3	4	5	6	7
1 Exports	₹ Crore	3621550	294495	284167	287994	282445	283533	318330
	US $ Million	451070	37018	34646	34975	34347	34513	38452
1.1 Oil	₹ Crore	782303	67510	52662	48243	55578	55101	79873
	US $ Million	97468	8486	6421	5859	6759	6707	9648
1.2 Non-oil	₹ Crore	2839247	226984	231505	239751	226867	228431	238457
	US $ Million	353602	28532	28225	29116	27588	27806	28804
2 Imports	₹ Crore	5749801	492280	402338	473536	439721	434921	498062
	US $ Million	715969	61879	49053	57508	53472	52941	60163
2.1 Oil	₹ Crore	1682475	137821	112299	128454	103123	96710	121803
	US $ Million	209418	17324	13692	15600	12540	11772	14713
2.2 Non-oil	₹ Crore	4067326	354458	290038	345082	336597	338211	376259
	US $ Million	506551	44555	35362	41908	40932	41169	45450
3 Trade Balance	₹ Crore	-2128251	-197785	-118170	-185543	-157276	-151388	-179731
	US $ Million	-264899	-24861	-14407	-22533	-19125	-18428	-21711
3.1 Oil	₹ Crore	-900172	-70311	-59637	-80211	-47545	-41609	-41930
	US $ Million	-111950	-8838	-7271	-9741	-5782	-5065	-5065
3.2 Non-oil	₹ Crore	-1228079	-127474	-58533	-105331	-109731	-109780	-137802
	US $ Million	-152949	-16023	-7136	-12792	-13344	-13363	-16646

Source: DGCI&S and Ministry of Commerce & Industry.

No. 32: Foreign Exchange Reserves

Item	Unit	2022	2023					
		Oct. 07	Aug. 25	Sep. 01	Sep. 08	Sep. 15	Sep. 22	Sep. 29
		1	2	3	4	5	6	7
1 Total Reserves	**₹ Crore**	**4386936**	**4916873**	**4953552**	**4925911**	**4931885**	**4898336**	**4882783**
	US $ Million	**532868**	**594858**	**598897**	**593904**	**593037**	**590702**	**586908**
1.1 Foreign Currency Assets	₹ Crore	3881646	4358044	4389432	4366137	4373725	4339928	4328124
	US $ Million	471496	527249	530691	526426	525915	523363	520236
1.2 Gold	₹ Crore	320700	366616	371694	368121	365925	367410	363824
	US $ Million	38955	44354	44939	44384	44000	44307	43731
	Volume (Metric Tonnes)	785.35	799.59	799.59	799.59	799.59	799.59	800.78
1.3 SDRs	SDRs Million	13658	13681	13681	13681	13681	13681	13681
	₹ Crore	144744	150383	150491	149790	150460	149366	149243
	US $ Million	17582	18194	18195	18060	18092	18012	17939
1.4 Reserve Tranche Position in IMF	₹ Crore	39846	41828	41935	41863	41775	41633	41593
	US $ Million	4836	5061	5073	5034	5030	5019	5002

* Difference, if any, is due to rounding off.

No. 33: Non-Resident Deposits

(US $ Million)

Scheme	Outstanding				Flows	
	2022-23	2022	2023		2022-23	2023-24
		Aug.	Jul.	Aug. (P)	Apr.-Aug.	Apr.-Aug.(P)
	1	2	3	4	5	6
1 NRI Deposits	**138879**	**134682**	**141850**	**141987**	**1435**	**3743**
1.1 FCNR(B)	19363	16018	20808	20915	-900	1552
1.2 NR(E)RA	95817	96952	96351	96179	906	868
1.3 NRO	23699	21712	24690	24892	1429	1323

P: Provisional.

No. 34: Foreign Investment Inflows

(US $ Million)

Item	2022-23	2022-23	2023-24	2022	2023	
		Apr.-Aug.	Apr.-Aug.	Aug.	Jul.	Aug.
	1	2	3	4	5	6
1.1 Net Foreign Direct Investment (1.1.1-1.1.2)	**27986**	**18034**	**2999**	**748**	**749**	**-2831**
1.1.1 Direct Investment to India (1.1.1.1-1.1.1.2)	**42006**	**22794**	**7284**	**1968**	**1639**	**-1707**
1.1.1.1 Gross Inflows/Gross Investments	**71355**	**34207**	**26914**	**4570**	**4392**	**4742**
1.1.1.1.1 Equity	47600	24547	16970	2502	2672	3034
1.1.1.1.1.1 Government (SIA/FIPB)	692	466	176	27	53	78
1.1.1.1.1.2 RBI	37097	18535	12590	1974	1721	1605
1.1.1.1.1.3 Acquisition of shares	8245	4936	3634	376	772	1225
1.1.1.1.1.4 Equity capital of unincorporated bodies	1566	610	571	126	126	126
1.1.1.1.2 Reinvested earnings	19105	7505	7682	1557	1557	1557
1.1.1.1.3 Other capital	4650	2156	2262	510	163	151
1.1.1.2 Repatriation/Disinvestment	**29349**	**11413**	**19630**	**2601**	**2753**	**6449**
1.1.1.2.1 Equity	27094	10537	18229	2370	2511	6367
1.1.1.2.2 Other capital	2255	876	1401	231	243	82
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**	**4760**	**4285**	**1220**	**890**	**1123**
1.1.2.1 Equity capital	8771	2404	2697	617	424	460
1.1.2.2 Reinvested Earnings	4412	1838	1866	368	368	368
1.1.2.3 Other Capital	4714	1872	1908	637	648	443
1.1.2.4 Repatriation/Disinvestment	3877	1354	2186	401	550	148
1.2 Net Portfolio Investment (1.2.1+1.2.2+1.2.3-1.2.4)	**-5152**	**-6923**	**22355**	**7337**	**4285**	**2339**
1.2.1 GDRs/ADRs	-	-	-	-	-	-
1.2.2 FIIs	-4828	-6706	22869	7460	4340	2440
1.2.3 Offshore funds and others	-	-	-	-	-	-
1.2.4 Portfolio investment by India	324	218	514	123	56	100
1 Foreign Investment Inflows	**22834**	**11111**	**25354**	**8085**	**5034**	**-491**

No. 35: Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals

(US $ Million)

Item	2022-23	2022	2023		
		Aug.	Jun.	Jul.	Aug.
	1	2	3	4	5
1 Outward Remittances under the LRS	**27140.65**	**2667.81**	**3890.83**	**2359.51**	**3379.54**
1.1 Deposit	1011.07	72.02	227.23	50.12	60.74
1.2 Purchase of immovable property	188.73	12.24	45.85	14.89	16.29
1.3 Investment in equity/debt	1256.15	53.53	314.73	58.06	94.08
1.4 Gift	3005.27	221.31	643.95	233.96	268.89
1.5 Donations	12.78	1.57	2.22	0.65	0.63
1.6 Travel	13662.15	1469.73	1482.81	1419.42	2039.72
1.7 Maintenance of close relatives	4174.06	330.70	890.89	282.30	378.41
1.8 Medical Treatment	55.74	4.95	7.64	4.22	4.41
1.9 Studies Abroad	3427.81	467.52	237.32	267.28	483.29
1.10 Others	346.89	34.25	38.20	28.62	33.10

No. 36: Indices of Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) of the Indian Rupee

Item	2021-22	2022-23	2022	2023	
			Sep	Aug	Sep
	1	2	3	4	5
40-Currency Basket (Base: 2015-16=100)					
1 Trade-Weighted					
1.1 NEER	93.13	91.27	92.84	90.91	91.37
1.2 REER	104.66	102.82	104.96	104.86	103.75
2 Export-Weighted					
2.1 NEER	93.55	93.03	94.60	92.68	93.15
2.2 REER	103.47	101.07	103.10	102.14	100.98
6-Currency Basket (Trade-weighted)					
1 Base : 2015-16 =100					
1.1 NEER	87.04	85.93	88.19	83.77	84.27
1.2 REER	102.22	101.90	104.89	103.27	102.63
2 Base : 2021-22 =100					
2.1 NEER	100.00	98.72	101.32	96.24	96.82
2.2 REER	100.00	99.69	102.61	101.03	100.41

No. 37: External Commercial Borrowings (ECBs) – Registrations

(Amount in US $ Million)

Item	2022-23	2022	2023	
		Aug	Jul	Aug
	1	2	3	4
1 Automatic Route				
1.1 Number	1093	83	93	92
1.2 Amount	24156	1875	485	1498
2 Approval Route				
2.1 Number	9	0	2	2
2.2 Amount	2473	0	2074	1270
3 Total (1+2)				
3.1 Number	1102	83	95	94
3.2 Amount	26629	1875	2559	2768
4 Weighted Average Maturity (in years)	5.72	7.30	5.00	4.90
5 Interest Rate (per cent)				
5.1 Weighted Average Margin over 6-month LIBOR or reference rate for Floating Rate Loans	1.68	1.63	0.83	1.30
5.2 Interest rate range for Fixed Rate Loans	0.00-11.80	0.00-10.00	0.00-11.25	0.00-11.60
Borrower Category				
I. Corporate Manufacturing	6925	773	223	988
II. Corporate-Infrastructure	8396	540	1635	713
a.) Transport	333	36	43	182
b.) Energy	2235	504	2	3
c.) Water and Sanitation	32	0	0	6
d.) Communication	1538	0	1590	0
e.) Social and Commercial Infrastructure	530	0	0	61
f.) Exploration,Mining and Refinery	2085	0	0	460
g.) Other Sub-Sectors	1643	0	0	1
III. Corporate Service-Sector	1773	66	101	64
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	0
V. Banks	0	0	0	0
VI. Financial Institution (Other than NBFC)	0	0	0	0
VII. NBFCs	7540	480	562	795
a). NBFC- IFC/AFC	3031	50	505	712
b). NBFC-MFI	313	0	2	44
c). NBFC-Others	4196	430	55	39
VIII. Non-Government Organization (NGO)	0	0	0	0
IX. Micro Finance Institution (MFI)	0	0	0	0
X. Others	189	16	38	208

Note: Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

No. 38: India's Overall Balance of Payments

(US$ Million)

Item	Apr-Jun 2022			Apr-Jun 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance Of Payments (1+2+3)	**424381**	**419786**	**4595**	**403245**	**378813**	**24432**
1 Current Account (1.1+ 1.2)	**231036**	**249000**	**-17964**	**221417**	**230631**	**-9214**
1.1 Merchandise	**122797**	**185851**	**-63054**	**105029**	**161625**	**-56596**
1.2 Invisibles (1.2.1+1.2.2+1.2.3)	**108239**	**63149**	**45090**	**116388**	**69006**	**47382**
1.2.1 Services	76093	45024	31069	80573	45448	35125
1.2.1.1 Travel	4705	6299	-1593	6412	9489	-3077
1.2.1.2 Transportation	9849	11780	-1931	7412	7693	-281
1.2.1.3 Insurance	915	510	405	761	591	170
1.2.1.4 G.n.i.e.	170	207	-37	159	250	-91
1.2.1.5 Miscellaneous	60454	26230	34225	65830	27426	38404
1.2.1.5.1 Software Services	34476	3784	30692	38172	4243	33928
1.2.1.5.2 Business Services	17751	14303	3448	21831	15203	6627
1.2.1.5.3 Financial Services	1660	1514	146	1891	1152	739
1.2.1.5.4 Communication Services	961	439	522	831	324	507
1.2.2 Transfers	25651	2777	22874	27117	4251	22866
1.2.2.1 Official	31	222	-191	20	227	-208
1.2.2.2 Private	25620	2555	23065	27097	4024	23073
1.2.3 Income	6495	15348	-8853	8698	19307	-10609
1.2.3.1 Investment Income	4804	14565	-9761	6871	18439	-11568
1.2.3.2 Compensation of Employees	1691	783	908	1827	868	959
2 Capital Account (2.1+2.2+2.3+2.4+2.5)	**192841**	**170786**	**22055**	**181828**	**147453**	**34374**
2.1 Foreign Investment (2.1.1+2.1.2)	**106256**	**107494**	**-1238**	**109044**	**88232**	**20812**
2.1.1 Foreign Direct Investment	23025	9633	13392	19268	14188	5081
2.1.1.1 In India	22474	6211	16263	17780	10427	7352
2.1.1.1.1 Equity	16948	5797	11151	11265	9351	1914
2.1.1.1.2 Reinvested Earnings	4390	0	4390	4567	0	4567
2.1.1.1.3 Other Capital	1136	415	722	1948	1077	871
2.1.1.2 Abroad	552	3422	-2870	1489	3760	-2271
2.1.1.2.1 Equity	552	1254	-702	1489	1813	-324
2.1.1.2.2 Reinvested Earnings	0	1103	-1103	0	1130	-1130
2.1.1.2.3 Other Capital	0	1065	-1065	0	817	-817
2.1.2 Portfolio Investment	83231	97861	-14630	89775	74045	15731
2.1.2.1 In India	82548	97207	-14659	88743	72654	16089
2.1.2.1.1 FIIs	82548	97207	-14659	88743	72654	16089
2.1.2.1.1.1 Equity	72768	87798	-15029	77174	63525	13649
2.1.2.1.1.2 Debt	9780	9410	370	11569	9129	2440
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	683	654	29	1032	1391	-358
2.2 Loans (2.2.1+2.2.2+2.2.3)	**23965**	**19905**	**4060**	**30287**	**28038**	**2249**
2.2.1 External Assistance	3229	1424	1805	3030	1577	1454
2.2.1.1 By India	8	23	-15	7	23	-16
2.2.1.2 To India	3221	1400	1820	3023	1553	1470
2.2.2 Commercial Borrowings	3252	6062	-2809	15382	9597	5784
2.2.2.1 By India	216	138	78	2212	2071	140
2.2.2.2 To India	3037	5924	-2887	13170	7526	5644
2.2.3 Short Term to India	17484	12420	5064	11875	16864	-4989
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	17484	11502	5982	11875	14352	-2477
2.2.3.2 Suppliers' Credit up to 180 days	0	918	-918	0	2512	-2512
2.3 Banking Capital (2.3.1+2.3.2)	**49574**	**30533**	**19041**	**33355**	**20408**	**12947**
2.3.1 Commercial Banks	49574	30018	19556	33183	20408	12776
2.3.1.1 Assets	35834	16375	19458	13391	3451	9941
2.3.1.2 Liabilities	13741	13643	97	19792	16957	2835
2.3.1.2.1 Non-Resident Deposits	12287	11937	349	18896	16688	2208
2.3.2 Others	0	514	-514	172	0	172
2.4 Rupee Debt Service	**0**	**59**	**-59**	**0**	**62**	**-62**
2.5 Other Capital	**13045**	**12795**	**251**	**9142**	**10713**	**-1571**
3 Errors & Omissions	**505**	**0**	**505**	**0**	**728**	**-728**
4 Monetary Movements (4.1+ 4.2)	**0**	**4595**	**-4595**	**0**	**24432**	**-24432**
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	0	4595	-4595	0	24432	-24432

Note: P: Preliminary.

No. 39: India's Overall Balance of Payments

(₹ Crore)

Item	Apr-Jun 2022			Apr-Jun 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance Of Payments (1+2+3)	**3275683**	**3240212**	**35471**	**3314641**	**3113815**	**200826**
1 Current Account (1.1+ 1.2)	**1783304**	**1921965**	**-138662**	**1820030**	**1895772**	**-75742**
1.1 Merchandise	**947837**	**1434534**	**-486697**	**863329**	**1328547**	**-465219**
1.2 Invisibles (1.2.1+1.2.2+1.2.3)	**835466**	**487431**	**348035**	**956701**	**567225**	**389477**
1.2.1 Services	587342	347531	239811	662307	373579	288728
1.2.1.1 Travel	36320	48618	-12298	52702	77997	-25295
1.2.1.2 Transportation	76019	90923	-14904	60923	63237	-2314
1.2.1.3 Insurance	7061	3936	3125	6255	4854	1401
1.2.1.4 G.n.i.e.	1314	1596	-282	1305	2051	-746
1.2.1.5 Miscellaneous	466628	202458	264170	541121	225440	315681
1.2.1.5.1 Software Services	266112	29209	236902	313769	34880	278889
1.2.1.5.2 Business Services	137013	110398	26614	179448	124971	54477
1.2.1.5.3 Financial Services	12811	11683	1129	15546	9473	6073
1.2.1.5.4 Communication Services	7419	3390	4029	6827	2663	4165
1.2.2 Transfers	197995	21434	176560	222898	34944	187954
1.2.2.1 Official	241	1713	-1472	160	1869	-1708
1.2.2.2 Private	197753	19722	178032	222738	33076	189662
1.2.3 Income	50130	118466	-68336	71495	158701	-87206
1.2.3.1 Investment Income	37081	112425	-75344	56477	151570	-95092
1.2.3.2 Compensation of Employees	13049	6041	7008	15018	7132	7886
2 Capital Account (2.1+2.2+2.3+2.4+2.5)	**1488483**	**1318247**	**170236**	**1494611**	**1212057**	**282555**
2.1 Foreign Investment (2.1.1+2.1.2)	**820164**	**829717**	**-9553**	**896332**	**725262**	**171070**
2.1.1 Foreign Direct Investment	177727	74355	103373	158385	116622	41764
2.1.1.1 In India	173468	47943	125526	146148	85713	60435
2.1.1.1.1 Equity	130813	44743	86070	92594	76861	15733
2.1.1.1.2 Reinvested Earnings	33883	0	33883	37542	0	37542
2.1.1.1.3 Other Capital	8772	3200	5572	16012	8853	7160
2.1.1.2 Abroad	4259	26412	-22153	12237	30908	-18671
2.1.1.2.1 Equity	4259	9676	-5417	12237	14902	-2665
2.1.1.2.2 Reinvested Earnings	0	8513	-8513	0	9291	-9291
2.1.1.2.3 Other Capital	0	8222	-8222	0	6715	-6715
2.1.2 Portfolio Investment	642437	755362	-112926	737947	608641	129306
2.1.2.1 In India	637168	750316	-113148	729461	597209	132252
2.1.2.1.1 FIIs	637168	750316	-113148	729461	597209	132252
2.1.2.1.1.1 Equity	561680	677686	-116006	634364	522169	112195
2.1.2.1.1.2 Debt	75489	72631	2858	95097	75040	20058
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	5268	5046	222	8486	11432	-2946
2.2 Loans (2.2.1+2.2.2+2.2.3)	**184977**	**153640**	**31336**	**248958**	**230472**	**18486**
2.2.1 External Assistance	24922	10988	13934	24910	12961	11949
2.2.1.1 By India	63	180	-117	61	192	-131
2.2.1.2 To India	24859	10808	14051	24849	12769	12080
2.2.2 Commercial Borrowings	25103	46788	-21685	126436	78890	47546
2.2.2.1 By India	1664	1062	603	18179	17027	1153
2.2.2.2 To India	23438	45726	-22287	108257	61863	46393
2.2.3 Short Term to India	134952	95864	39087	97612	138621	-41009
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	134952	88778	46173	97612	117969	-20357
2.2.3.2 Suppliers' Credit up to 180 days	0	7086	-7086	0	20652	-20652
2.3 Banking Capital (2.3.1+2.3.2)	**382650**	**235676**	**146974**	**274174**	**167750**	**106424**
2.3.1 Commercial Banks	382650	231704	150945	272764	167750	105014
2.3.1.1 Assets	276591	126397	150194	110076	28366	81710
2.3.1.2 Liabilities	106059	105308	752	162687	139384	23304
2.3.1.2.1 Non-Resident Deposits	94837	92139	2697	155328	137175	18153
2.3.2 Others	0	3971	-3971	1410	0	1410
2.4 Rupee Debt Service	**0**	**456**	**-456**	**0**	**512**	**-512**
2.5 Other Capital	**100693**	**98758**	**1934**	**75147**	**88061**	**-12913**
3 Errors & Omissions	**3896**	**0**	**3896**	**0**	**5987**	**-5987**
4 Monetary Movements (4.1+ 4.2)	**0**	**35471**	**-35471**	**0**	**200826**	**-200826**
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	0	35471	-35471	0	200826	-200826

Note: P: Preliminary.

No. 40: Standard Presentation of BoP in India as per BPM6

(US$ Million)

Item	Apr-Jun 2022			Apr-Jun 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	**231033**	**248979**	**-17945**	**221416**	**230612**	**-9195**
1.A Goods and Services (1.A.a+1.A.b)	**198890**	**230876**	**-31985**	**185602**	**207073**	**-21471**
1.A.a Goods (1.A.a.1 to 1.A.a.3)	**122797**	**185851**	**-63054**	**105029**	**161625**	**-56596**
1.A.a.1 General merchandise on a BOP basis	122351	175362	-53011	104590	151928	-47337
1.A.a.2 Net exports of goods under merchanting	446	0	446	438	0	438
1.A.a.3 Nonmonetary gold	0	10489	-10489	0	9698	-9698
1.A.b Services (1.A.b.1 to 1.A.b.13)	**76093**	**45024**	**31069**	**80573**	**45448**	**35125**
1.A.b.1 Manufacturing services on physical inputs owned by others	321	28	293	481	42	439
1.A.b.2 Maintenance and repair services n.i.e.	48	432	-384	47	431	-385
1.A.b.3 Transport	9849	11780	-1931	7412	7693	-281
1.A.b.4 Travel	4705	6299	-1593	6412	9489	-3077
1.A.b.5 Construction	739	730	9	870	697	174
1.A.b.6 Insurance and pension services	915	510	405	761	591	170
1.A.b.7 Financial services	1660	1514	146	1891	1152	739
1.A.b.8 Charges for the use of intellectual property n.i.e.	332	2251	-1919	381	3647	-3266
1.A.b.9 Telecommunications, computer, and information services	35521	4436	31085	39091	4859	34231
1.A.b.10 Other business services	17751	14303	3448	21831	15203	6627
1.A.b.11 Personal, cultural, and recreational services	946	1252	-306	968	1279	-312
1.A.b.12 Government goods and services n.i.e.	170	207	-37	159	250	-91
1.A.b.13 Others n.i.e.	3137	1284	1853	272	115	157
1.B Primary Income (1.B.1 to 1.B.3)	**6495**	**15348**	**-8853**	**8698**	**19307**	**-10609**
1.B.1 Compensation of employees	1691	783	908	1827	868	959
1.B.2 Investment income	3631	14204	-10572	5461	18003	-12542
1.B.2.1 Direct investment	2274	9197	-6923	2039	9977	-7938
1.B.2.2 Portfolio investment	62	1604	-1542	208	2250	-2042
1.B.2.3 Other investment	102	3388	-3286	517	5587	-5070
1.B.2.4 Reserve assets	1193	15	1178	2697	189	2508
1.B.3 Other primary income	1173	362	811	1410	436	973
1.C Secondary Income (1.C.1+1.C.2)	**25648**	**2755**	**22893**	**27116**	**4231**	**22885**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	25620	2555	23065	27097	4024	23073
1.C.1.1 Personal transfers (Current transfers between resident and/non-resident households)	24969	1806	23163	26325	2680	23645
1.C.1.2 Other current transfers	651	749	-98	772	1343	-571
1.C.2 General government	28	200	-172	19	208	-189
2 Capital Account (2.1+2.2)	**141**	**227**	**-86**	**150**	**142**	**8**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	19	132	-113	12	51	-39
2.2 Capital transfers	123	96	27	138	91	47
3 Financial Account (3.1 to 3.5)	**192702**	**175175**	**17527**	**181679**	**171763**	**9916**
3.1 Direct Investment (3.1A+3.1B)	**23025**	**9633**	**13392**	**19268**	**14188**	**5081**
3.1.A Direct Investment in India	22474	6211	16263	17780	10427	7352
3.1.A.1 Equity and investment fund shares	21337	5797	15541	15832	9351	6481
3.1.A.1.1 Equity other than reinvestment of earnings	16948	5797	11151	11265	9351	1914
3.1.A.1.2 Reinvestment of earnings	4390	0	4390	4567	0	4567
3.1.A.2 Debt instruments	1136	415	722	1948	1077	871
3.1.A.2.1 Direct investor in direct investment enterprises	1136	415	722	1948	1077	871
3.1.B Direct Investment by India	552	3422	-2870	1489	3760	-2271
3.1.B.1 Equity and investment fund shares	552	2357	-1805	1489	2943	-1455
3.1.B.1.1 Equity other than reinvestment of earnings	552	1254	-702	1489	1813	-324
3.1.B.1.2 Reinvestment of earnings	0	1103	-1103	0	1130	-1130
3.1.B.2 Debt instruments	0	1065	-1065	0	817	-817
3.1.B.2.1 Direct investor in direct investment enterprises	0	1065	-1065	0	817	-817
3.2 Portfolio Investment	**83231**	**97861**	**-14630**	**89775**	**74045**	**15731**
3.2.A Portfolio Investment in India	82548	97207	-14659	88743	72654	16089
3.2.1 Equity and investment fund shares	72768	87798	-15029	77174	63525	13649
3.2.2 Debt securities	9780	9410	370	11569	9129	2440
3.2.B Portfolio Investment by India	683	654	29	1032	1391	-358
3.3 Financial derivatives (other than reserves) and employee stock options	**5267**	**7658**	**-2391**	**5013**	**5736**	**-723**
3.4 Other investment	**81179**	**55428**	**25751**	**67622**	**53363**	**14259**
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	12287	12452	-165	19068	16688	2380
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	514	-514	172	0	172
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	12287	11937	349	18896	16688	2208
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)	43769	25567	18202	32699	14894	17805
3.4.3.A Loans to India	43545	25406	18139	30480	12799	17681
3.4.3.B Loans by India	224	161	63	2219	2095	124
3.4.4 Insurance, pension, and standardized guarantee schemes	74	184	-110	38	168	-130
3.4.5 Trade credit and advances	17484	12420	5064	11875	16864	-4989
3.4.6 Other accounts receivable/payable - other	7566	4807	2759	3942	4750	-807
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	**0**	**4595**	**-4595**	**0**	**24432**	**-24432**
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	4595	-4595	0	24432	-24432
4 Total assets/liabilities	**192702**	**175175**	**17527**	**181679**	**171763**	**9916**
4.1 Equity and investment fund shares	100681	104446	-3765	100577	83113	17464
4.2 Debt instruments	84455	61327	23128	77159	59469	17690
4.3 Other financial assets and liabilities	7566	9402	-1836	3942	29181	-25239
5 Net errors and omissions	**505**	**0**	**505**	**0**	**728**	**-728**

Note: P: Preliminary.

No. 41: Standard Presentation of BoP in India as per BPM6

(₹ Crore)

Item	Apr-Jun 2022			Apr-Jun 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	**1783282**	**1921798**	**-138516**	**1820024**	**1895610**	**-75586**
1.A Goods and Services (1.A.a+1.A.b)	**1535179**	**1782065**	**-246886**	**1525636**	**1702127**	**-176490**
1.A.a Goods (1.A.a.1 to 1.A.a.3)	**947837**	**1434534**	**-486697**	**863329**	**1328547**	**-465219**
1.A.a.1 General merchandise on a BOP basis	944394	1353574	-409180	859724	1248834	-389109
1.A.a.2 Net exports of goods under merchanting	3443	0	3443	3604	0	3604
1.A.a.3 Nonmonetary gold	0	80960	-80960	0	79714	-79714
1.A.b Services (1.A.b.1 to 1.A.b.13)	**587342**	**347531**	**239811**	**662307**	**373579**	**288728**
1.A.b.1 Manufacturing services on physical inputs owned by others	2474	213	2261	3955	345	3610
1.A.b.2 Maintenance and repair services n.i.e.	367	3334	-2967	382	3546	-3164
1.A.b.3 Transport	76019	90923	-14904	60923	63237	-2314
1.A.b.4 Travel	36320	48618	-12298	52702	77997	-25295
1.A.b.5 Construction	5705	5637	68	7153	5726	1427
1.A.b.6 Insurance and pension services	7061	3936	3125	6255	4854	1401
1.A.b.7 Financial services	12811	11683	1129	15546	9473	6073
1.A.b.8 Charges for the use of intellectual property n.i.e.	2560	17373	-14813	3128	29977	-26849
1.A.b.9 Telecommunications, computer, and information services	274180	34244	239936	321321	39942	281380
1.A.b.10 Other business services	137013	110398	26614	179448	124971	54477
1.A.b.11 Personal, cultural, and recreational services	7303	9666	-2363	7953	10515	-2562
1.A.b.12 Government goods and services n.i.e.	1314	1596	-282	1305	2051	-746
1.A.b.13 Others n.i.e.	24215	9910	14305	2235	945	1290
1.B Primary Income (1.B.1 to 1.B.3)	**50130**	**118466**	**-68336**	**71495**	**158701**	**-87206**
1.B.1 Compensation of employees	13049	6041	7008	15018	7132	7886
1.B.2 Investment income	28028	109634	-81605	44888	147982	-103094
1.B.2.1 Direct investment	17555	70988	-53433	16758	82009	-65250
1.B.2.2 Portfolio investment	476	12377	-11902	1710	18491	-16781
1.B.2.3 Other investment	789	26155	-25366	4252	45927	-41674
1.B.2.4 Reserve assets	9209	113	9095	22167	1555	20612
1.B.3 Other primary income	9053	2792	6261	11590	3588	8002
1.C Secondary Income (1.C.1+1.C.2)	**197973**	**21267**	**176706**	**222893**	**34783**	**188110**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	197753	19722	178032	222738	33076	189662
1.C.1.1 Personal transfers (Current transfers between resident and/non-resident households)	192727	13938	178789	216392	22033	194358
1.C.1.2 Other current transfers	5026	5784	-757	6346	11042	-4696
1.C.2 General government	219	1545	-1326	155	1707	-1552
2 Capital Account (2.1+2.2)	**1092**	**1755**	**-663**	**1232**	**1165**	**66**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	145	1016	-871	100	418	-319
2.2 Capital transfers	947	738	208	1132	747	385
3 Financial Account (3.1 to 3.5)	**1487413**	**1352130**	**135283**	**1493386**	**1411879**	**81507**
3.1 Direct Investment (3.1A+3.1B)	**177727**	**74355**	**103373**	**158385**	**116622**	**41764**
3.1.A Direct Investment in India	173468	47943	125526	146148	85713	60435
3.1.A.1 Equity and investment fund shares	164697	44743	119954	130136	76861	53275
3.1.A.1.1 Equity other than reinvestment of earnings	130813	44743	86070	92594	76861	15733
3.1.A.1.2 Reinvestment of earnings	33883	0	33883	37542	0	37542
3.1.A.2 Debt instruments	8772	3200	5572	16012	8853	7160
3.1.A.2.1 Direct investor in direct investment enterprises	8772	3200	5572	16012	8853	7160
3.1.B Direct Investment by India	4259	26412	-22153	12237	30908	-18671
3.1.B.1 Equity and investment fund shares	4259	18190	-13931	12237	24193	-11956
3.1.B.1.1 Equity other than reinvestment of earnings	4259	9676	-5417	12237	14902	-2665
3.1.B.1.2 Reinvestment of earnings	0	8513	-8513	0	9291	-9291
3.1.B.2 Debt instruments	0	8222	-8222	0	6715	-6715
3.1.B.2.1 Direct investor in direct investment enterprises	0	8222	-8222	0	6715	-6715
3.2 Portfolio Investment	**642437**	**755362**	**-112926**	**737947**	**608641**	**129306**
3.2.A Portfolio Investment in India	637168	750316	-113148	729461	597209	132252
3.2.1 Equity and investment fund shares	561680	677686	-116006	634364	522169	112195
3.2.2 Debt securities	75489	72631	2858	95097	75040	20058
3.2.B Portfolio Investment by India	5268	5046	222	8486	11432	-2946
3.3 Financial derivatives (other than reserves) and employee stock options	**40653**	**59109**	**-18455**	**41207**	**47148**	**-5941**
3.4 Other investment	**626596**	**427834**	**198762**	**555847**	**438643**	**117204**
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	94837	96111	-1274	156738	137175	19563
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	3971	-3971	1410	0	1410
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	94837	92139	2697	155328	137175	18153
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)	337838	197341	140497	268782	122426	146356
3.4.3.A Loans to India	336111	196099	140012	250542	105207	145335
3.4.3.B Loans by India	1728	1242	485	18240	17219	1022
3.4.4 Insurance, pension, and standardized guarantee schemes	571	1417	-846	308	1380	-1072
3.4.5 Trade credit and advances	134952	95864	39087	97612	138621	-41009
3.4.6 Other accounts receivable/payable - other	58398	37101	21298	32407	39041	-6634
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	**0**	**35471**	**-35471**	**0**	**200826**	**-200826**
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	35471	-35471	0	200826	-200826
4 Total assets/liabilities	**1487413**	**1352130**	**135283**	**1493386**	**1411879**	**81507**
4.1 Equity and investment fund shares	777128	806190	-29062	826738	683184	143554
4.2 Debt instruments	651887	473369	178518	634241	488829	145412
4.3 Other financial assets and liabilities	58398	72572	-14173	32407	239866	-207460
5 Net errors and omissions	**3896**	**0**	**3896**	**0**	**5987**	**-5987**

Note: P: Preliminary.

No. 42: India's International Investment Position

(US$ Million)

Item	As on Financial Year/Quarter End							
	2022-23		2022		2023			
			Jun.		Mar.		Jun.	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	1	2	3	4	5	6	7	8
1. Direct investment Abroad/in India	225592	523360	214443	517277	225592	523360	227864	532357
1.1 Equity Capital*	142071	493896	134570	489565	142071	493896	143525	501438
1.2 Other Capital	83521	29464	79872	27712	83521	29464	84338	30920
2. Portfolio investment	10966	243559	10614	244999	10966	243559	11325	258589
2.1 Equity	4958	138958	8153	135476	4958	138958	8698	152928
2.2 Debt	6008	104601	2461	109523	6008	104601	2627	105660
3. Other investment	87717	503353	77407	484558	87717	503353	92624	515595
3.1 Trade credit	27507	124301	21118	122817	27507	124301	29742	119313
3.2 Loan	10714	202589	6543	193367	10714	202589	14499	207118
3.3 Currency and Deposits	30526	141133	30242	137445	30526	141133	30584	144069
3.4 Other Assets/Liabilities	18970	35330	19504	30929	18970	35330	17798	45094
4. Reserves	578449		589155		578449		595051	
5. Total Assets/ Liabilities	902725	1270272	891618	1246835	902725	1270272	926864	1306541
6. Net IIP (Assets - Liabilities)	-367548		-355217		-367548		-379677	

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	2022	2023		FY 2022-23	2022	2023	
		Aug.	Jul.	Aug.		Aug.	Jul.	Aug.
	1	2	3	4	5	6	7	8
A. Settlement Systems								
Financial Market Infrastructures (FMIs)								
1 CCIL Operated Systems (1.1 to 1.3)	41.44	3.30	3.83	3.83	258797336	20028644	21113033	21796085
1.1 Govt. Securities Clearing (1.1.1 to 1.1.3)	15.00	1.33	1.53	1.46	172251292	13493765	14338395	14374901
1.1.1 Outright	7.99	0.75	0.87	0.82	10090700	888832	1200245	1075273
1.1.2 Repo	4.07	0.32	0.46	0.44	68032487	5251883	6722022	6265271
1.1.3 Tri-party Repo	2.94	0.25	0.20	0.20	94128105	7353051	6416128	7034358
1.2 Forex Clearing	25.16	1.89	2.17	2.23	78932050	5970122	5937050	6636448
1.3 Rupee Derivatives @	1.27	0.09	0.13	0.14	7613994	564757	837588	784735
B. Payment Systems								
I Financial Market Infrastructures (FMIs)	-	-	-	-	-	-	-	-
1 Credit Transfers - RTGS (1.1 to 1.2)	2425.62	188.08	211.89	218.08	149946286	11665583	13124561	13742007
1.1 Customer Transactions	2411.19	186.92	210.72	216.88	131667176	10274480	11615417	12202747
1.2 Interbank Transactions	14.43	1.16	1.17	1.20	18279111	1391103	1509144	1539260
II Retail								
2 Credit Transfers - Retail (2.1 to 2.6)	983620.84	77757.95	114189.63	119823.49	55009620	4288963	5250943	5374181
2.1 AePS (Fund Transfers) @	5.90	0.54	0.32	0.34	356	30	22	22
2.2 APBS $	17833.95	1162.46	2850.05	1791.92	247535	9662	45524	20129
2.3 IMPS	56532.64	4669.09	4897.10	4891.65	5585441	445989	512312	514280
2.4 NACH Cr $	19257.19	1940.04	1322.80	1627.49	1541815	128480	110184	128612
2.5 NEFT	52847.43	4166.76	5476.79	5651.92	33719541	2631639	3049364	3134602
2.6 UPI @	837143.73	65819.06	99642.56	105860.16	13914932	1073162	1533536	1576537
2.6.1 of which USSD @	17.21	1.63	2.77	2.60	197	17	43	41
3 Debit Transfers and Direct Debits (3.1 to 3.3)	15343.05	1247.15	1473.10	1522.83	1289611	102824	130931	135193
3.1 BHIM Aadhaar Pay @	214.22	17.57	14.42	13.96	6791	516	457	416
3.2 NACH Dr $	13502.52	1097.38	1327.06	1374.16	1280219	102100	130240	134543
3.3 NETC (linked to bank account) @	1626.31	132.20	131.62	134.72	2601	209	233	234
4 Card Payments (4.1 to 4.2)	63324.72	5481.30	4872.12	4981.95	2152245	174516	198050	201292
4.1 Credit Cards (4.1.1 to 4.1.2)	29145.24	2447.83	2770.81	2905.78	1432255	112358	144737	148602
4.1.1 PoS based $	15598.46	1330.54	1428.18	1520.79	541932	44943	49628	52961
4.1.2 Others $	13546.79	1117.30	1342.63	1384.99	890323	67414	95108	95641
4.2 Debit Cards (4.2.1 to 4.2.1)	34179.48	3033.47	2101.31	2076.18	719989	62159	53313	52690
4.2.1 PoS based $	22904.86	2009.83	1485.21	1495.96	476520	40552	33513	34615
4.2.2 Others $	11274.61	1023.64	616.10	580.22	243470	21606	19801	18075
5 Prepaid Payment Instruments (5.1 to 5.2)	74667.44	6177.69	6393.08	6366.80	287111	24625	23238	23669
5.1 Wallets	59112.76	4877.42	5045.31	5041.90	221896	18495	19724	19987
5.2 Cards (5.2.1 to 5.2.2)	15554.69	1300.27	1347.78	1324.90	65215	6131	3514	3682
5.2.1 PoS based $	1013.09	83.90	725.68	742.19	14777	1177	782	862
5.2.2 Others $	14541.60	1216.37	622.10	582.71	50438	4953	2732	2820
6 Paper-based Instruments (6.1 to 6.2)	7109.28	576.17	555.48	565.42	7172904	547503	587310	593323
6.1 CTS (NPCI Managed)	7109.28	576.17	555.48	565.42	7172904	547503	587310	593323
6.2 Others	0.00	–	–	–	–	–	–	–
Total - Retail Payments (2+3+4+5+6)	1144065.34	91240.25	127483.42	133260.50	65911490	5138432	6190470	6327659
Total Payments (1+2+3+4+5+6)	1146490.96	91428.33	127695.31	133478.58	215857776	16804015	19315032	20069666
Total Digital Payments (1+2+3+4+5)	1139381.68	90852.16	127139.83	132913.16	208684872	16256512	18727722	19476343

PART II - Payment Modes and Channels

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2022	2023		FY 2022-23	2022	2023	
		Aug.	Jul.	Aug.		Aug.	Jul.	Aug.
	1	2	3	4	5	6	7	8
A. Other Payment Channels								
1 Mobile Payments (mobile app based) (1.1 to 1.2)	805338.23	65313.24	93340.31	97611.71	22031628	1742250	2316954	2370838
1.1 Intra-bank $	62306.61	6590.62	6400.03	6553.01	4191430	363857	428279	439914
1.2 Inter-bank $	743031.61	58722.63	86940.28	91058.70	17840197	1378393	1888674	1930924
2 Internet Payments (Netbanking / Internet Browser Based) @ (2.1 to 2.2)	42630.64	3529.19	3938.95	3790.98	91539296	7342636	8157864	8295085
2.1 Intra-bank @	10703.78	932.41	1107.74	1033.68	53506133	4304970	4353820	4490488
2.2 Inter-bank @	31926.86	2596.78	2831.21	2757.30	38033163	3037666	3804045	3804596
B. ATMs								
3 Cash Withdrawal at ATMs $ (3.1 to 3.3)	69468.87	5766.61	5590.93	5723.39	3305008	268788	269297	273107
3.1 Using Credit Cards $	88.37	7.46	7.56	8.09	4296	359	356	383
3.2 Using Debit Cards $	68975.18	5723.84	5553.98	5685.19	3286749	267289	267870	271612
3.3 Using Pre-paid Cards $	405.32	35.31	29.39	30.12	13963	1141	1071	1112
4 Cash Withdrawal at PoS $ (4.1 to 4.2)	27.73	2.19	2.23	1.26	278	21	22	12
4.1 Using Debit Cards $	27.41	2.16	2.23	1.25	276	21	22	12
4.2 Using Pre-paid Cards $	0.33	0.03	0.01	0.01	2	0	0	0
5 Cash Withrawal at Micro ATMs @	12375.16	1061.82	1078.92	1055.42	333966	26193	28950	27023
5.1 AePS @	12375.16	1061.82	1078.92	1055.42	333966	26193	28950	27023

PART III - Payment Infrastructures (Lakh)

System	As on March 2023	2022	2023	
		Aug.	Jul.	Aug.
	1	2	3	4
Payment System Infrastructures				
1 Number of Cards (1.1 to 1.2)	10465.62	10130.17	10606.14	10693.35
1.1 Credit Cards	853.03	779.91	898.73	912.78
1.2 Debit Cards	9612.59	9350.26	9707.41	9780.57
2 Number of PPIs @ (2.1 to 2.2)	16185.22	15679.00	16646.89	16625.74
2.1 Wallets @	13384.65	12948.75	13513.24	13328.60
2.2 Cards @	2800.57	2730.25	3133.65	3297.15
3 Number of ATMs (3.1 to 3.2)	2.59	2.54	2.59	2.60
3.1 Bank owned ATMs $	2.23	2.20	2.24	2.25
3.2 White Label ATMs $	0.36	0.34	0.36	0.35
4 Number of Micro ATMs @	16.11	11.71	15.37	15.29
5 Number of PoS Terminals	77.90	70.58	81.23	82.47
6 Bharat QR @	53.82	47.49	58.06	58.99
7 UPI QR *	2563.77	2092.54	2807.25	2881.64

@: 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.
2. ECS (Debit and Credit) has been merged with NACH with effect from January 31, 2020.
3. 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.
4. 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 –
o Include transactions done through mobile apps of banks and UPI apps.
o 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		2021-22	2021	2022		
			Dec.	Oct.	Nov.	Dec.
		1	2	3	4	5
1 Small Savings	**Receipts**	**203175**	**18175**	**10387**	**9057**	**11632**
	Outstanding	**1463777**	**1397878**	**1556375**	**1565352**	**1576921**
1.1 Total Deposits	**Receipts**	**144749**	**13855**	**7696**	**6204**	**9136**
	Outstanding	**1012241**	**969847**	**1082284**	**1088482**	**1097617**
1.1.1 Post Office Saving Bank Deposits	Receipts	17581	2630	6	-393	3806
	Outstanding	188433	179437	196446	196053	199859
1.1.2 Sukanya Samriddhi Yojna	Receipts	23748	1845	1394	1597	1890
	Outstanding	58783	47264	70176	71773	73663
1.1.3 National Saving Scheme, 1987	Receipts	-1524	-366	-20	-20	-22
	Outstanding	1894	3200	1701	1680	1659
1.1.4 National Saving Scheme, 1992	Receipts	-352	2	-2	-2	-2
	Outstanding	-177	150	-195	-198	-200
1.1.5 Monthly Income Scheme	Receipts	14441	1228	506	275	-125
	Outstanding	235820	232747	240671	240946	240821
1.1.6 Senior Citizen Scheme 2004	Receipts	22281	1929	1491	1256	935
	Outstanding	119333	114134	130652	131908	132843
1.1.7 Post Office Time Deposits	Receipts	43725	3926	1900	1547	527
	Outstanding	251282	241034	272186	273732	274259
1.1.7.1 1 year Time Deposits	Outstanding	118282	116043	124019	124073	123599
1.1.7.2 2 year Time Deposits	Outstanding	8008	7931	8553	8686	8765
1.1.7.3 3 year Time Deposits	Outstanding	6918	6983	6879	6913	6938
1.1.7.4 5 year Time Deposits	Outstanding	118074	110077	132735	134060	134957
1.1.8 Post Office Recurring Deposits	Receipts	24840	2662	2421	1941	2125
	Outstanding	156869	151885	170550	172491	174616
1.1.9 Post Office Cumulative Time Deposits	Receipts	7	-1	0	0	0
	Outstanding	-19	-25	-19	-19	-19
1.1.10 Other Deposits	Receipts	2	0	0	0	0
	Outstanding	23	21	22	22	22
1.1.11 PM Care for children	Receipts			0	3	2
	Outstanding			94	94	94
1.2 Saving Certificates	**Receipts**	**45307**	**3978**	**2545**	**2564**	**2115**
	Outstanding	**333189**	**321027**	**353818**	**356308**	**358362**
1.2.1 National Savings Certificate VIII issue	Receipts	19696	1860	791	627	446
	Outstanding	155043	150513	162152	162779	163224
1.2.2 Indira Vikas Patras	Receipts	-16	0	0	0	0
	Outstanding	143	158	142	142	142
1.2.3 Kisan Vikas Patras	Receipts	-1115	-426	-134	-165	-238
	Outstanding	-7891	-8455	-9302	-9466	-9704
1.2.4 Kisan Vikas Patras - 2014	Receipts	26619	2544	1888	2102	1907
	Outstanding	174560	168720	189654	191756	193663
1.2.5 National Saving Certificate VI issue	Receipts	92	0	0	0	0
	Outstanding	-22	-114	-22	-22	-22
1.2.6 National Saving Certificate VII issue	Receipts	31	0	0	0	0
	Outstanding	-44	-74	-44	-44	-44
1.2.7 Other Certificates	Outstanding	11400	10279	11238	11163	11103
1.3 Public Provident Fund	**Receipts**	**13119**	**342**	**146**	**289**	**381**
	Outstanding	**118347**	**107004**	**120273**	**120562**	**120942**

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	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(A) Total (in ₹. Crore)	**8784931**	**9098788**	**9373372**	**9645776**	**9898751**
1 Commercial Banks	36.16	36.44	36.13	36.61	36.58
2 Co-operative Banks	1.84	1.80	1.70	1.64	1.56
3 Non-Bank PDs	0.33	0.38	0.44	0.49	0.73
4 Insurance Companies	26.34	25.94	26.14	25.97	26.21
5 Mutual Funds	2.32	2.58	2.87	2.81	2.69
6 Provident Funds	4.77	4.66	4.67	4.71	4.59
7 Pension Funds	3.61	3.84	3.91	3.98	4.18
8 Financial Institutions	1.09	0.98	1.07	0.98	1.20
9 Corporates	1.52	1.58	1.57	1.62	1.22
10 Foreign Portfolio Investors	1.43	1.38	1.31	1.36	1.59
11 RBI	16.06	15.28	14.73	14.26	13.78
12 Others	4.57	5.14	5.45	5.57	5.67
12.1 State Governments	1.84	1.83	1.88	2.03	2.03

State Governments Securities					
Category	2022			2023	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(B) Total (in ₹. Crore)	**4472011**	**4589128**	**4712902**	**4929079**	**5050874**
1 Commercial Banks	34.22	34.37	34.34	33.91	34.13
2 Co-operative Banks	4.06	3.89	3.80	3.64	3.68
3 Non-Bank PDs	0.41	0.36	0.44	0.62	0.50
4 Insurance Companies	28.39	27.71	27.42	26.80	26.73
5 Mutual Funds	1.89	2.08	2.02	1.94	2.08
6 Provident Funds	20.52	20.18	20.31	21.29	21.19
7 Pension Funds	4.43	4.73	4.74	4.81	4.84
8 Financial Institutions	1.73	1.71	1.77	1.84	1.82
9 Corporates	1.98	1.85	1.94	2.00	1.92
10 Foreign Portfolio Investors	0.02	0.02	0.02	0.02	0.02
11 RBI	0.79	0.79	0.75	0.72	0.70
12 Others	1.56	2.32	2.45	2.42	2.39
12.1 State Governments	0.21	0.21	0.24	0.27	0.27

Treasury Bills					
Category	2022			2023	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(C) Total (in ₹. Crore)	**1022053**	**920205**	**839931**	**823313**	**1012301**
1 Commercial Banks	51.37	50.91	49.15	53.92	47.64
2 Co-operative Banks	1.34	1.48	1.27	1.29	1.20
3 Non-Bank PDs	2.49	2.12	2.17	2.85	1.99
4 Insurance Companies	5.34	5.46	5.81	6.11	4.93
5 Mutual Funds	14.86	11.98	14.23	15.30	17.04
6 Provident Funds	1.70	3.21	1.37	0.10	1.46
7 Pension Funds	0.05	0.02	0.02	0.07	0.01
8 Financial Institutions	3.73	4.17	4.52	3.72	7.96
9 Corporates	4.27	3.86	3.59	4.99	4.42
10 Foreign Portfolio Investors	0.40	0.53	0.50	0.40	0.12
11 RBI	0.00	0.00	0.00	0.00	0.00
12 Others	14.45	16.25	17.37	11.25	13.23
12.1 State Governments	10.99	12.27	13.38	7.16	10.33

No. 46: Combined Receipts and Disbursements of the Central and State Governments

(₹ Crore)

Item	2017-18	2018-19	2019-20	2020-21	2021-22 RE	2022-23 BE
	1	2	3	4	5	6
1 Total Disbursements	**4515946**	**5040747**	**5410887**	**6353359**	**7453320**	**8008684**
1.1 Developmental	2635110	2882758	3074492	3823423	4489442	4761567
1.1.1 Revenue	2029044	2224367	2446605	3150221	3444624	3536719
1.1.2 Capital	519356	596774	588233	550358	963856	1144725
1.1.3 Loans	86710	61617	39654	122844	80962	80123
1.2 Non-Developmental	1812455	2078276	2253027	2442941	2864084	3140466
1.2.1 Revenue	1741432	1965907	2109629	2271637	2653832	2928102
1.2.1.1 Interest Payments	814757	894520	955801	1060602	1244104	1408929
1.2.2 Capital	69370	111029	141457	169155	178038	209892
1.2.3 Loans	1654	1340	1941	2148	32214	2472
1.3 Others	68381	79713	83368	86995	99794	106652
2 Total Receipts	**4528422**	**5023352**	**5734166**	**6397162**	**7193029**	**7944834**
2.1 Revenue Receipts	3376416	3797731	3851563	3688030	4894050	5497245
2.1.1 Tax Receipts	2978134	3278947	3231582	3193390	4026487	4551271
2.1.1.1 Taxes on commodities and services	1853859	2030050	2012578	2076013	2608666	2904479
2.1.1.2 Taxes on Income and Property	1121189	1246083	1216203	1114805	1414088	1642678
2.1.1.3 Taxes of Union Territories (Without Legislature)	3086	2814	2800	2572	3732	4115
2.1.2 Non-Tax Receipts	398282	518783	619981	494640	867564	945974
2.1.2.1 Interest Receipts	34224	36273	31137	33448	40481	46552
2.2 Non-debt Capital Receipts	142433	140287	110094	64994	117937	90824
2.2.1 Recovery of Loans & Advances	42213	44667	59515	16951	33188	19835
2.2.2 Disinvestment proceeds	100219	95621	50578	48044	84748	70989
3 Gross Fiscal Deficit [1 - (2.1 + 2.2)]	**997097**	**1102729**	**1449230**	**2600335**	**2441333**	**2420614**
3A Sources of Financing: Institution-wise						
3A.1 Domestic Financing	989167	1097210	1440548	2530155	2421587	2401363
3A.1.1 Net Bank Credit to Government	144792	387091	571872	890012	627255	-----
3A.1.1.1 Net RBI Credit to Government	-144847	325987	190241	107493	350911	-----
3A.1.2 Non-Bank Credit to Government	844375	710119	868676	1640143	1794332	2401363
3A.2 External Financing	7931	5519	8682	70180	19746	19251
3B Sources of Financing: Instrument-wise						
3B.1 Domestic Financing	989167	1097210	1440548	2530155	2421587	2401363
3B.1.1 Market Borrowings (net)	794856	795845	971378	1696012	1377060	1808401
3B.1.2 Small Savings (net)	71222	88961	209232	458801	565522	398870
3B.1.3 State Provident Funds (net)	42351	51004	38280	41273	45133	44731
3B.1.4 Reserve Funds	18423	-18298	10411	4545	-1675	5824
3B.1.5 Deposits and Advances	25138	66289	-14227	25682	32945	34029
3B.1.6 Cash Balances	-12476	17395	-323279	-43802	260291	63850
3B.1.7 Others	49653	96014	548753	347643	142310	45659
3B.2 External Financing	7931	5519	8682	70180	19746	19251
4 Total Disbursements as per cent of GDP	*26.4*	*26.7*	*27.0*	*32.1*	*31.5*	*31.0*
5 Total Receipts as per cent of GDP	*26.5*	*26.6*	*28.6*	*32.3*	*30.4*	*30.8*
6 Revenue Receipts as per cent of GDP	*19.8*	*20.1*	*19.2*	*18.6*	*20.7*	*21.3*
7 Tax Receipts as per cent of GDP	*17.4*	*17.3*	*16.1*	*16.1*	*17.0*	*17.6*
8 Gross Fiscal Deficit as per cent of GDP	*5.8*	*5.8*	*7.2*	*13.1*	*10.3*	*9.4*

…: Not available. RE: Revised Estimates; BE: Budget Estimates

Source : Budget Documents of Central and State Governments.

No. 47: Financial Accommodation Availed by State Governments under various Facilities

(₹ Crore)

Sr. No	State/Union Territory	During August-2023					
		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	934.61	31	1740.87	30	1001.44	12
2	Arunachal Pradesh	-	-	-	-	-	-
3	Assam	228.49	1	-	-	-	-
4	Bihar	-	-	-	-	-	-
5	Chhattisgarh	-	-	-	-	-	-
6	Goa	62.99	2	-	-	-	-
7	Gujarat	-	-	-	-	-	-
8	Haryana	296.78	13	1094.76	5	-	-
9	Himachal Pradesh	-	-	28.11	2	-	-
10	Jammu & Kashmir UT	-	-	971.04	24	477.64	11
11	Jharkhand	-	-	-	-	-	-
12	Karnataka	-	-	-	-	-	-
13	Kerala	276.13	4	755.63	3	-	-
14	Madhya Pradesh	-	-	-	-	-	-
15	Maharashtra	-	-	-	-	-	-
16	Manipur	14.82	23	224.65	27	106.40	19
17	Meghalaya	-	-	-	-	-	-
18	Mizoram	60.10	25	141.35	22	41.73	4
19	Nagaland	-	-	-	-	-	-
20	Odisha	-	-	-	-	-	-
21	Puducherry	-	-	-	-	-	-
22	Punjab	1669.21	23	-	-	-	-
23	Rajasthan	9117.15	31	744.83	1	-	-
24	Tamil Nadu	-	-	-	-	-	-
25	Telangana	863.46	30	1316.03	27	1037.19	11
26	Tripura	-	-	-	-	-	-
27	Uttar Pradesh	-	-	-	-	-	-
28	Uttarakhand	305.34	23	505.61	9	267.15	5
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 amount 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 August 2023			
		Consolidated Sinking Fund (CSF)	Guarantee Redemption Fund (GRF)	Government Securities	Auction Treasury Bills (ATBs)
	1	2	3	4	5
1	Andhra Pradesh	10400	1026	0	0
2	Arunachal Pradesh	2340	5	0	2010
3	Assam	6191	80	0	0
4	Bihar	8405	-	0	200
5	Chhattisgarh	6611	5	1	3550
6	Goa	855	412	0	0
7	Gujarat	12068	602	0	21000
8	Haryana	1841	1529	0	0
9	Himachal Pradesh	-	-	0	0
10	Jammu & Kashmir UT	-	-	0	0
11	Jharkhand	1624	-	0	0
12	Karnataka	14595	323	0	32803
13	Kerala	2749	-	0	0
14	Madhya Pradesh	-	1149	0	0
15	Maharashtra	61512	1512	0	4000
16	Manipur	63	126	0	0
17	Meghalaya	1063	84	8	0
18	Mizoram	383	44	0	0
19	Nagaland	1604	42	0	0
20	Odisha	16358	1840	105	21376
21	Puducherry	486	-	0	1250
22	Punjab	7578	0	0	0
23	Rajasthan	-	-	129	11600
24	Tamil Nadu	8400	-	0	2837
25	Telangana	7112	1559	0	0
26	Tripura	1011	21	0	825
27	Uttarakhand	4515	190	0	0
28	Uttar Pradesh	6416	-	89	0
29	West Bengal	11502	837	239	0
	Total	**195682**	**11388**	**571**	**101452**

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	
						June		July		August			
		Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross	Net
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Andhra Pradesh	46443	36103	57478	45814	7000	7000	7000	7000	6000	3784	35500	32117
2	Arunachal Pradesh	563	530	559	389	-	-	-	-	-	-	-	-
3	Assam	12753	10753	17100	16105	1000	1000	1000	1000	1250	1250	7250	7250
4	Bihar	28489	24334	36800	27467	-	-	4000	-	6000	2000	10000	2000
5	Chhattisgarh	4000	913	2000	-2287	3000	3000	-	-700	-	-	3000	1500
6	Goa	2000	1450	1350	500	200	200	200	-	300	150	700	150
7	Gujarat	31054	13554	43000	28300	3000	1000	-	-	-	-1016	5500	1484
8	Haryana	30500	20683	45158	28638	3500	1925	2000	-462	4000	1990	16000	8290
9	Himachal Pradesh	4000	1875	14000	11941	800	200	1000	1000	-	-	1800	950
10	Jammu & Kashmir UT	8562	5373	8473	5969	1500	1200	400	-100	1400	1400	4100	2900
11	Jharkhand	5000	3191	4000	-155	-	-	-	-300	-	-500	-	-800
12	Karnataka	59000	49000	36000	26000	-	-	-	-	-	-2102	-	-2102
13	Kerala	27000	18120	30839	15620	3000	2000	5500	5000	6300	3100	18800	11600
14	Madhya Pradesh	22000	13900	40158	26849	4000	4000	-	-	-	-1000	6000	4500
15	Maharashtra	68750	40790	72000	42815	10000	8500	4000	-3500	3000	1114	32000	21114
16	Manipur	1476	1326	1422	1147	-	-	150	150	200	200	700	700
17	Meghalaya	1608	1298	1753	1356	350	350	200	200	-	-	700	600
18	Mizoram	747	447	1315	1129	100	50	80	60	80	80	510	360
19	Nagaland	1727	1222	1854	1199	150	150	-	-	-	-60	900	640
20	Odisha	0	-6473	0	-7500	-	-	-	-1000	-	-	-	-1500
21	Puducherry	1374	841	1200	698	-	-	-	-	-	-	-	-
22	Punjab	25814	12428	45500	33660	4300	2558	3500	2471	6750	5250	23750	16079
23	Rajasthan	51149	38243	46057	30110	3500	-312	4500	3000	4500	3000	25000	15688
24	Sikkim	1511	1471	1414	1320	-	-	-	-	-	-45	300	255
25	Tamil Nadu	87000	72500	87000	65722	14000	12000	15000	5000	7000	5332	47000	27332
26	Telangana	45716	39256	40150	30922	6000	6000	5000	5000	5000	3416	22000	19583
27	Tripura	300	0	0	-645	-	-	-	-	-	-	-	-
28	Uttar Pradesh	62500	42355	55612	41797	2500	-733	3000	3000	6000	6000	15500	10267
29	Uttarakhand	3200	1800	3200	1450	-	-	-	-	-	-	-	-
30	West Bengal	67390	45199	63000	42500	-	-2000	1500	-500	4500	2566	11000	3066
	Grand Total	701626	492483	758392	518829	67900	48088	58030	26319	62280	35910	288010	184024

- : 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**
Per cent of GDP	*15.0*	*11.7*	*8.5*	*11.8*	*11.5*
I. Financial Assets	**788786.3**	**592945.3**	**633317.9**	**1047276.1**	**3062325.6**
Per cent of GDP	*20.3*	*12.5*	*11.6*	*18.2*	*15.4*
of which:					
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**
of which:					
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**
of which:					
(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**
Per cent of GDP	*5.3*	*0.8*	*3.1*	*6.4*	*3.9*
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**
of which:					
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**
Per cent of GDP	*7.2*	*6.0*	*7.9*	*7.7*	*7.2*
I. Financial Assets	**364661.7**	**527896.1**	**818355.4**	**887657.3**	**2597511.9**
Per cent of GDP	*7.1*	*9.4*	*13.1*	*13.6*	*11.1*
of which:					
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**
of which:					
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**
of which:					
(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**
Per cent of GDP	*-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**
of which:					
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 (Concld.)

(Amount in ₹ Crore)

Item	2022-23				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**297770.4**	**293705.1**	**279460.1**	**505937.8**	**1376873.5**
Per cent of GDP	*4.6*	*4.5*	*4.0*	*7.0*	*5.1*
I. Financial Assets	**586920.5**	**646714.8**	**750856.7**	**974558.5**	**2959050.5**
Per cent of GDP	*9.0*	*9.8*	*10.8*	*13.6*	*10.9*
of which:					
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**
of which:					
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**
of which:					
(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**
Per cent of GDP	*4.4*	*5.4*	*6.8*	*6.5*	*5.8*
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**
of which:					
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**
Per cent of GDP	*107.2*	*111.5*	*114.0*	*115.4*
(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				
of which:				
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**
Per cent of GDP	*37.8*	*38.3*	*38.5*	*39.2*
Loans/Borrowings				
(a) Banking Sector	**5728735.3**	**5741948.3**	**5881570.2**	**6158150.0**
of which:				
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**
of which:				
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**
Per cent of GDP	*110.7*	*109.3*	*108.7*	*108.4*
(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				
of which:				
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**
Per cent of GDP	*36.8*	*35.9*	*36.3*	*36.9*
Loans/Borrowings				
(a) Banking Sector	**6172863.3**	**6231128.1**	**6559106.7**	**6934620.2**
of which:				
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**
of which:				
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 (Concld.)

(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**
Per cent of GDP	*103.2*	*101.5*	*102.4*	*103.1*
(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				
of which:				
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**
Per cent of GDP	*36.0*	*36.0*	*36.8*	*37.6*
Loans/Borrowings				
(a) Banking Sector	**7169465.5**	**7433248.0**	**7801415.3**	**8153970.3**
of which:				
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**
of which:				
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

NM_2 and NM_3 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.

L_1 and L_2 are compiled monthly and L_3 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 SWAP arrangement. 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 & 1.1.1.1.1.4: 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.*

Table No. 46

GDP data is based on 2011-12 base. GDP for 2022-23 is from Union Budget 2022-23.

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**.

Recent Publications of the Reserve Bank of India

Name of Publication	Price	
	India	Abroad
1. Reserve Bank of India Bulletin 2023	₹350 per copy ₹250 per copy (concessional rate*) ₹4,000 (one year subscription) ₹3,000 (one year concessional rate*)	US$ 15 per copy US$ 150 (one-year subscription) (inclusive of air mail courier charges)
2. Handbook of Statistics on the Indian States 2021-22	₹550 (Normal) ₹600 (inclusive of postage)	US$ 24 (inclusive of air mail courier charges)
3. Handbook of Statistics on the Indian Economy 2022-23	₹600 (Normal) ₹650 (inclusive of postage) ₹450 (concessional) ₹500 (concessional with postage)	US$ 50 (inclusive of air mail courier charges)
4. State Finances - A Study of Budgets of 2022-23	₹600 per copy (over the counter) ₹650 per copy (inclusive of postal charges)	US$ 24 per copy (inclusive of air mail courier charges)
5. Report on Currency and Finance 2022-23	₹575 per copy (over the counter) ₹625 per copy (inclusive of postal charges)	US$ 22 per copy (inclusive of air mail courier charges)
6. Report of the committee on Fuller Capital account Convertibility (Tarapore Committee Report II)	₹140 per copy (over the counter) ₹170 per copy (inclusive of postal charges)	US$ 25 per copy (inclusive of air mail courier charges)
7. Banking Glossary (2012)	₹80 per copy (over the counter) ₹120 per copy (inclusive of postal charges)	
8. Anuvad Ke Vividh Aayam (Hindi)	₹165 per copy (over the counter) ₹205 per copy (inclusive of postal charges)	
9. Bank Me Rajbhasha Niti Ka Karyanvayan: Dasha Aur Disha (Hindi)	₹150 per copy (over the counter) ₹200 per copy (inclusive of postal charges)	
10. Reserve Bank of India Occasional Papers Vol. 43, No. 1, 2022	₹200 per copy (over the counter) ₹250 per copy (inclusive of postal charges)	US$ 18 per copy (inclusive of air mail courier charges)
11. Perspectives on Central Banking Governors Speak (1935-2010) Platinum Jubilee	₹1400 per copy (over the counter)	US$ 50 per copy (inclusive of air mail courier charges)
12. Report on Municipal Finances	₹300 per copy (over the counter) ₹350 per copy (inclusive of postal charges)	US$ 16 per copy (inclusive of air mail courier charges)

Notes

1. Many of the above publications are available at the RBI website (www.rbi.org.in).
2. Time Series data are available at the Database on Indian Economy (http://dbie.rbi.org.in).
3. The Reserve Bank of India History 1935-1997 (4 Volumes), Challenges to Central Banking in the Context of Financial Crisis and the Regional Economy of India: Growth and Finance are available at leading book stores in India.

* Concession is available for students, teachers/lecturers, academic/education institutions, public libraries and Booksellers in India provided the proof of eligibility is submitted.

General Instructions

1. All communications should be addressed to:
   Director, Division of Reports and Knowledge Dissemination,
   Department of Economic and Policy Research (DRKD, DEPR),
   Reserve Bank of India, Amar Building, Ground Floor,
   Sir P. M. Road, Fort, P. B. No.1036, Mumbai - 400 001.
   Telephone: 022- 2260 3000 Extn: 4002, Email: spsdepr@rbi.org.in.
2. Publications are available for sale between 10:30 am to 3:00 pm (Monday to Friday).
3. Publications will not be supplied on a cash-on-delivery basis.
4. Publications once sold will not be taken back.
5. Back issues of the publication are generally not available.
6. Wherever concessional price is not indicated, a discount of 25 per cent is available for students, faculty, academic/education institutions, public libraries, and book sellers in India provided the proof of eligibility is submitted.
7. Subscription should be made preferably by NEFT and transaction details including payer's name, subscription number (if any), account number, date and amount should be emailed to **spsdepr@rbi.org.in**, or sent by post.
   a. Details required for NEFT transfer are as follows:

Beneficiary Name	Department of Economic and Policy Research, RBI
Name of the Bank	Reserve Bank of India
Branch and address	Fort, Mumbai
IFSC of Bank Branch	RBIS0MBPA04
Type of Account	Current Account
Account Number	41-8024129-19

   b. In case of subscription through non-digital modes, please send the demand draft/cheque payable at Mumbai in favour of Reserve Bank of India, Mumbai.
8. Complaints regarding 'non-receipt of publication' may be sent within a period of two months.