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GOVERNOR'S STATEMENT

Governor's Statement

*Governor's Statement**

Shaktikanta Das

In the last two and half years, the world has witnessed two major shocks – the COVID-19 pandemic and the conflict in Ukraine. These shocks have produced profound impact on the global economy. As if that was not enough, now we are in the midst of a third major shock – a storm – arising from aggressive monetary policy actions and even more aggressive communication from Advanced Economy (AE) central banks. The necessity of such actions is driven by their domestic considerations, but in a highly integrated global financial system, they inevitably cause negative externalities through global spillovers. The recent sharp rate hikes and forward guidance about further big rate hikes have caused a tightening of financial conditions, extreme volatility and risk aversion. All segments of the financial market including equity, bond and currency markets are in turmoil across countries. There is nervousness in financial markets with potential consequences for the real economy and financial stability. The global economy is in the eye of a new storm.

Despite this unsettling global environment, the Indian economy continues to be resilient. There is macroeconomic stability. The financial system remains intact, with improved performance parameters. The country has withstood the shocks from COVID-19 and the conflict in Ukraine. Our journey over the last two and half years, our steely resolve in dealing with the various challenges gives us the confidence to deal with the new storm that we are confronted with.

Decisions and Deliberations of the Monetary Policy Committee (MPC)

The Monetary Policy Committee (MPC) met on 28th, 29th and 30th September 2022. Based on an

assessment of the macroeconomic situation and its outlook, the MPC decided by a majority of five members out of six to increase the policy repo rate by 50 basis points to 5.9 per cent, with immediate effect. Consequently, the standing deposit facility (SDF) rate stands adjusted to 5.65 per cent; and the marginal standing facility (MSF) rate and the Bank Rate to 6.15 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 remains within the target going forward, while supporting growth.

I would now explain the MPC's rationale for its decisions on the policy rate and the stance. The global economic outlook continues to be bleak. Financial conditions are tightening and recession fears are mounting. Inflation continues to persist at alarmingly high levels across jurisdictions. The enduring effects of the pandemic and the geopolitical conflict are manifesting in demand-supply mismatches of goods and services. Central banks are charting new territory with aggressive rate hikes, even if it entails sacrificing growth in the near term. In this milieu, nervous investor sentiments have triggered a flight to safety. The US dollar has strengthened rapidly to a two-decade high. Several advanced and emerging market currencies are facing sharp depreciation pressures. Emerging market economies (EMEs), in particular, are confronted with challenges of slowing global growth, elevated food and energy prices, spillovers from advanced economy policy normalisation, debt distress and sharp currency depreciations.

Against this challenging global environment, economic activity in India remains stable. While real GDP growth in Q1:2022-23 turned out to be lower than our expectations, the late recovery in *kharif* sowing, the comfortable reservoir levels, improvement in capacity utilisation, buoyant bank credit expansion and government's continued thrust on capital expenditure are expected to support aggregate demand and output in H2:2022-23.

* Governor's Statement - September 30, 2022.

Consumer price inflation remains elevated and above the upper tolerance band of the target due to large adverse supply shocks, some firming up of domestic demand, and the spillovers from global financial markets. The recent correction in global commodity prices including crude oil, if sustained, may ease cost pressures in the coming months. The inflation trajectory remains clouded with uncertainties arising from continuing geopolitical tensions and nervous global financial market sentiments.

In this backdrop, the MPC was of the view that persistence of high inflation necessitates further calibrated withdrawal of monetary accommodation to restrain broadening of price pressures, anchor inflation expectations and contain the second-round effects. This action will support medium-term growth prospects. Accordingly, the MPC decided to increase the policy repo rate by 50 basis points to 5.9 per cent and to remain focused on withdrawal of accommodation, while supporting growth.

Let me step back and elaborate on our monetary policy stance. Monetary policy had moved from neutral to accommodative stance in June 2019. At that time, the repo rate was 5.75 per cent; headline CPI inflation was hovering around 3 per cent and was expected to be in the range of 3.4 to 3.7 per cent in H2:2019-20; and, liquidity was in deficit mode, with an average daily net injection of ₹0.3 lakh crore in May 2019 under the liquidity adjustment facility (LAF). Today, inflation is hovering around 7 per cent and we expect it to remain elevated at around 6 per cent in H2:2022-23. Liquidity remains surplus, with average daily net absorption of ₹1.1 lakh crore under the LAF in September 2022 (up to September 28). As government expenditure picks up on the back of high GST and direct tax collections, the system liquidity will go up further. Thus, even as the nominal policy repo rate has been raised by 190 basis points so far (including today's increase), the policy rate adjusted for inflation trails the 2019 levels. The

overall monetary and liquidity conditions, therefore, remain accommodative and hence, the MPC decided to remain focused on withdrawal of accommodation.

Assessment of Growth and Inflation

Growth

Real GDP grew by 13.5 per cent (y-o-y) in Q1:2022-23, surpassing the pre-pandemic level by 3.8 per cent. This was led by robust growth in private consumption and investment demand.

High frequency data for Q2 indicate that economic activity remains resilient. Private consumption has been holding up. There is a sustained revival in urban demand which should get a further impetus from unfettered celebration of upcoming festivals after two and half years of living with COVID-19. Rural demand is also gaining gradually. Investment demand is picking up and is evident from the robust growth of domestic production and import of capital goods in July and August. Bank credit grew at an accelerated pace of 16.2 per cent y-o-y as on September 9, 2022 as against 6.7 per cent a year ago. Total flow of financial resources from banks and non-banks to the commercial sector has improved significantly to ₹9.3 lakh crore in this financial year so far (up to September 9) from ₹1.7 lakh crore in the corresponding period of last year. According to RBI survey, seasonally adjusted capacity utilisation of the manufacturing sector improved from 73.0 per cent in Q4: 2021-22 to 74.3 per cent in Q1:2022-23 - its highest level in three years¹. Non-oil non-gold imports remained resilient, indicating sustained revival in domestic demand. Merchandise exports growth, however, faced headwinds in an unsettled external environment.

In the supply side, the agricultural sector remains resilient. The monsoon rainfall was 7 per cent above

¹ This is notwithstanding the decline in unadjusted capacity utilisation from 75.3 per cent to 72.4 per cent over the same period reflecting seasonal pattern.

the long period average (LPA) as on September 29. *Kharif* sowing was 1.7 per cent above the normal sown area as on September 23. The production of *kharif* foodgrains as per the first advance estimate is only 0.4 per cent below the first advance estimate of last year. The reservoir levels are at 87 per cent of the full capacity on September 29, 2022 as against the decadal average of 77 per cent. This augurs well for the ensuing *Rabi* crop.

Industrial activity, reflected in the growth of index of industrial production (IIP) (y-o-y), slipped to 2.4 per cent in July. India's manufacturing purchasing managers index (PMI), however, indicates sustained expansion at 56.2 in August. Business sentiment, as reflected in the manufacturing PMI, strengthened with the degree of optimism at its highest in six years.

Services sector indicators² point towards strong growth in July and August. Services PMI rebounded to 57.2 in August from 55.5 in July. Business confidence rose to a 51-month high.

Looking ahead, all these factors³ should support aggregate demand and activity. The headwinds from extended geopolitical tensions, tightening global financial conditions and possible decline in the external component of aggregate demand can pose downside risks to growth. Taking all these factors into consideration, real GDP growth for 2022-23 is projected at 7.0 per cent with Q2 at 6.3 per cent; Q3 at 4.6 per cent; and Q4:2022-23 at 4.6 per cent, with risks broadly balanced. The growth for Q1:2023-24 is projected at 7.2 per cent.

Inflation

Global geopolitical developments are weighing heavily on the domestic inflation trajectory. Inflation

inched up to 7.0 per cent in August from 6.7 per cent in July.

Acute imported inflation pressures felt at the beginning of the financial year have eased but remain elevated across food and energy items. Edible oil price pressures are likely to remain contained on improved supply from key producing countries and measures taken by the Government. Going forward, there could be some tapering of selling price increases on account of easing supply conditions and softening of industrial metal and crude oil prices. With services activity showing strong rebound and some improvement in pricing power, risks of higher pass-through of input costs, however, do remain.

There are also upside risks to food prices. Cereal price pressure is spreading from wheat to rice due to the likely lower *kharif* paddy production. The lower sowing for *kharif* pulses could also cause some pressures. The delayed withdrawal of monsoon and intense rain spells in various regions have already started to impact vegetable prices, especially tomatoes. These risks to food inflation could have an adverse impact on inflation expectations.

The Indian basket crude oil price was around US\$ 104 per barrel in H1:2022-23. Going forward, we are now assuming it to be US\$ 100 per barrel in H2:2022-23. Taking into account these factors, the inflation projection is retained at 6.7 per cent in 2022-23, with Q2 at 7.1 per cent; Q3 at 6.5 per cent; and Q4 at 5.8 per cent, with risks evenly balanced. CPI inflation is projected to further reduce to 5.0 per cent in Q1:2023-24.

The extraordinary global circumstances that caused the heightened inflationary pressures have impacted both AEs and EMEs. India is, however, better placed than many of these economies. If high inflation is allowed to linger, it invariably triggers second order effects and unsettles expectations. Therefore, monetary policy has to carry forward

² Railway freight traffic; port freight traffic; domestic air passenger traffic; e-way bills; toll collections, etc.

³ The recovery in *kharif* sowing, adequate reservoir levels, an upsurge in discretionary spending, moderation in commodity prices, Government's continued thrust on capex, improvement in capacity utilisation in manufacturing, pick-up in bank credit and waning COVID-19 infections.

its calibrated action on policy rates and liquidity conditions consistent with the evolving inflation growth dynamics. It must remain alert and nimble.

Liquidity and Financial Market Conditions

During the current financial year, the weighted average call rate (WACR) – the operating target of monetary policy – has increased cumulatively by 196 bps in a phased manner (up to September 28) over March 2022. This is in sync with our actions on the SDF and the repo rate. Consequently, interest rates across the financial market spectrum⁴ have increased, though at varying degrees.

Surplus liquidity in the banking system, as reflected in average daily absorptions under the liquidity adjustment facility (LAF) [both SDF and variable rate reverse repo (VRRR) auctions], moderated to ₹2.3 lakh crore during August - September 2022 (up to September 28) from ₹3.8 lakh crore during June-July. GST and advance tax payments coupled with forex outflows moderated the surplus liquidity conditions in the third week of September. This necessitated recourse to the marginal standing facility (MSF) by banks and liquidity injection by the RBI through variable rate repo (VRR) auctions. This temporary moderation of surplus liquidity needs to be seen in the context of the large potential liquidity in the system arising from the expected pick-up in government spending that usually happens in the second half of the year. Furthermore, drawdown of excess cash reserve ratio (CRR) and excess statutory liquidity ratio (SLR) holdings of banks can also augment system liquidity.

In my policy statement of October 2021, I had stated that the RBI may complement the fortnightly main operation conducted through 14-day VRRR

auctions with 28-day VRRR auctions depending upon the evolving liquidity conditions. In view of the moderation in surplus liquidity, it has now been decided to merge the 28-day VRRR with the fortnightly 14-day main auction. Consequently, from now on, only 14-day VRRR auctions will be conducted. Fine-tuning operations of various maturities for absorption as well as injection of liquidity will continue as may be necessary from time to time.

During the current financial year (up to September 28), the US dollar has appreciated by 14.5 per cent against a basket of major currencies. This has caused turmoil in currency markets globally. The movement of the Indian Rupee (INR) has, however, been orderly compared to most other countries. It has depreciated by 7.4 per cent against the US dollar during the same period – faring much better than several reserve currencies as well as many of its EME and Asian peers.

A stable exchange rate is a beacon of financial and overall macroeconomic stability and market confidence. In recent days, there have been divergent views on the exchange rate of the rupee and the adequacy of our forex reserves. Let me set out the overall position once again. First, the rupee is a freely floating currency and its exchange rate is market determined. Second, the RBI does not have any fixed exchange rate in mind. It intervenes in the market to curb excessive volatility and anchor expectations. The overarching focus is on maintaining macroeconomic stability and market confidence. Our actions have helped in engendering investor confidence as reflected in the return of capital inflows since July. Over the medium term, the primacy of price stability embedded in our flexible inflation targeting (FIT) framework provides the anchor for exchange rate stability. Third, our interventions in the forex market are based on continuous assessment of the prevailing and evolving situation from the point of view of our approach which I just explained. The aspect of adequacy of

⁴ 91-day treasury bills, commercial paper (CPs) and certificates of deposit (CDs), bond yields. (The rate hikes also triggered an upward adjustment in the benchmark lending rates of banks. In tandem, term deposit rates have also increased as banks compete for mobilising resources to meet the resurgent credit demand.)

forex reserves is always kept in mind. The umbrella continues to be strong.

During the pandemic, forward guidance gained prominence in the Reserve Bank's communication strategy. This was helpful in anchoring market expectations. In a policy tightening cycle, however, it is arduous to provide consistent forward guidance, particularly in a highly uncertain environment. In fact, forward guidance may even destabilise financial markets. Questions are often asked about the peak and terminal rates in a rate tightening cycle. Without venturing into any forward guidance which can be hazardous in the present context, I would like to state that our actions will be carefully calibrated to the incoming data and evolving scenario without being constrained by conventional or any textbook approach to policy making.

External Sector

The current account deficit (CAD) for Q1:2022-23 is placed at 2.8 per cent of GDP with trade deficit at 8.1 per cent of GDP. Various leading indicators, including global PMIs, point to weakening of global growth momentum and downside risks to global trade. India's import growth, though decelerating⁵, outpaced export growth. Consequently, the trade deficit remained high in July-August 2022. Services exports continued to grow at a robust pace amidst resilient demand for software and business services and modest recovery in travel services. On a balance of payments (BOP) basis, for which data were released yesterday, exports of services grew at a robust pace of 35.4 per cent (y-o-y) in April-June this year. For the same period, remittances rose by 22.6 per cent. The net surplus on exports of services is expected to partly offset the higher trade deficit.

From external financing side, net foreign direct investment (FDI) improved to US\$ 18.9 billion in April-

July 2022 from US\$ 13.1 billion a year ago. Foreign portfolio investors (FPIs) have returned to the domestic market with net inflow of US\$ 7.5 billion during July-September after an outflow for nine consecutive months. India's foreign exchange reserve at US\$ 537.5 billion as on September 23, 2022 compares favourably with most peer economies. About 67 per cent of the decline in reserves during the current financial year is due to valuation changes arising from an appreciating US dollar and higher US bond yields. Incidentally, there was an accretion of US\$ 4.6 billion to the foreign exchange reserves on balance of payments (BOP) basis during Q1:2022-23. India's other external indicators, viz., external debt to GDP ratio; net international investment position to GDP ratio; ratio of short-term debt to reserves; and debt service ratio also indicate lower vulnerability as compared with most other major EMEs⁶. In fact, India's external debt to GDP ratio is the lowest among major EMEs. In the final analysis, we remain confident of meeting our external financing requirements comfortably.

Additional Measures

I shall now announce certain additional measures.

Discussion Paper on Expected Loss (EL) Based Approach for Loan Loss Provisioning by Banks

Banks currently follow the incurred loss approach for provisioning on their loan assets, whereby provisions on loan assets are made after the stress has materialised. A more prudent and forward looking approach is the expected loss based approach, which requires banks to make provisions based on an assessment of probable losses. As a step towards converging with globally accepted prudential norms, we will issue a discussion paper on the proposed transition for stakeholder comments.

⁵ Growth in merchandise imports moderated from 49.5 per cent in Q1:2022-23 to 43.6 per cent in July and 37.3 per cent in August 2022.

⁶ Net international investment position to GDP ratio is in terms of net claims of non-residents on India and ratio of short-term debt to reserves is measured in terms of residual maturity.

Discussion Paper on Securitisation of Stressed Assets Framework (SSAF)

The revised framework for securitisation of standard assets was issued by the Reserve Bank in September 2021. It has now been decided to introduce a framework for securitisation of stressed assets. This will provide an alternative mechanism for securitisation of NPAs, in addition to the existing ARC route. A Discussion Paper (DP) on the proposed framework is being issued for feedback from stakeholders.

Internet Banking Facility for Customers of RRBs

Regional Rural Banks (RRBs) are currently allowed to provide Internet Banking facility to their customers, subject to fulfilment of certain criteria. Keeping in view the need to promote the spread of digital banking in rural areas, these criteria are being rationalised. The revised guidelines will be issued separately.

Regulating Offline Payment Aggregators

Online Payment Aggregators (PAs) have been brought under the purview of RBI regulations since March 2020. It is now proposed to extend these

regulations to offline PAs, who handle proximity/face-to-face transactions. This measure is expected to bring in regulatory synergy and convergence on data standards.

Conclusion

Daunting challenges confront us at this juncture. The underlying fundamentals of our economy and the buffers built over the years have stood us in good stead. We have taken a series of measures since April 2022 in the backdrop of geopolitical tensions, sanctions and supply chain disruptions. We will remain resolute and persevere in our efforts to ensure price stability as well as financial stability, while supporting growth. Our policy action today is part of our continued efforts in pursuit of these goals. As we celebrate Mahatma Gandhi's birth anniversary in another two days, I conclude my statement with his insightful words: "...we are ever wakeful, ever vigilant, ever striving."⁷ Today, despite the gathering clouds over the global economy, the Indian economy inspires optimism and confidence.

Thank you. Namaskar.

⁷ The Mind of Mahatma Gandhi by R.K. Prabhu and U.R.Rao, Navajivan Mudranalaya, Ahmedabad, India; page 153

MONETARY POLICY STATEMENT FOR 2022~23

Resolution of the Monetary Policy Committee (MPC)
September 28-30, 2022

*Monetary Policy Statement, 2022-23 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 (September 30, 2022) decided to:

- Increase the policy repo rate under the liquidity adjustment facility (LAF) by 50 basis points to 5.90 per cent with immediate effect.

Consequently, the standing deposit facility (SDF) rate stands adjusted to 5.65 per cent and the marginal standing facility (MSF) rate and the Bank Rate to 6.15 per cent.

- The MPC also decided to remain focused on withdrawal of accommodation to ensure that inflation remains within the target going forward, 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 economic activity is weakening under the impact of the protracted conflict in Ukraine and aggressive monetary policy actions and stances across the world. As financial conditions tighten, global financial markets are experiencing surges of volatility,

with sporadic sell-offs in equity and bond markets, and the US dollar strengthening to a 20-year high. Emerging market economies (EMEs) are facing intensified pressures from retrenchment of portfolio flows, currency depreciations, reserve losses and financial stability risks, besides the global inflation shock. As external demand deteriorates, their macroeconomic outlook is becoming increasingly adverse.

Domestic Economy

3. Real gross domestic product (GDP) grew year-on-year (y-o-y) by 13.5 per cent in Q1:2022-23. While all constituents of domestic aggregate demand expanded y-o-y and exceeded their pre-pandemic levels, the drag from net exports provided an offset. On the supply side, gross value added (GVA) rose by 12.7 per cent in Q1:2022-23, with all constituents recording y-o-y growth and most notably, services.

4. Aggregate supply conditions are improving. With the south-west monsoon rainfall 7 per cent above the long period average (LPA) as on September 29 and its spatial distribution spreading to some deficit areas, *kharif* sowing has been catching up. Acreage was 1.7 per cent above the normal sown area as on September 23 and only 1.2 per cent below last year's coverage. The production of *kharif* foodgrains as per first advance estimates (FAE) was 3.9 per cent below last year's fourth advance estimates (only 0.4 per cent below last year's FAE). Activity in industry and services sectors remains in expansion, especially the latter, as reflected in purchasing managers indices (PMIs) and other high frequency indicators. The index of industrial production growth, however, slowed to 2.4 per cent (y-o-y) in July.

5. On the demand side, urban consumption is being lifted by discretionary spending ahead of the festival season and rural demand is gradually improving. Investment demand is also gaining traction, as reflected in rising imports and domestic production of capital goods, steel consumption and cement production.

* Released on September 30, 2022.

Merchandise exports posted a modest expansion in August. Non-oil non-gold imports remained buoyant.

6. CPI inflation rose to 7.0 per cent (y-o-y) in August 2022 from 6.7 per cent in July as food inflation moved higher, driven by prices of cereals, vegetables, pulses, spices and milk. Fuel inflation moderated with reduction in kerosene (PDS) prices, though it remained in double digits. Core CPI (*i.e.*, CPI excluding food and fuel) inflation remained sticky at heightened levels, with upside pressures across various constituent goods and services.

7. Overall system liquidity remained in surplus, with the average daily absorption under the liquidity adjustment facility (LAF) easing to ₹2.3 lakh crore during August-September (up to September 28, 2022) from ₹3.8 lakh crore in June-July. Money supply (M3) expanded y-o-y by 8.9 per cent, with aggregate deposits of commercial banks growing by 9.5 per cent and bank credit by 16.2 per cent as on September 9, 2022. India's foreign exchange reserves were placed at US\$ 537.5 billion as on September 23, 2022.

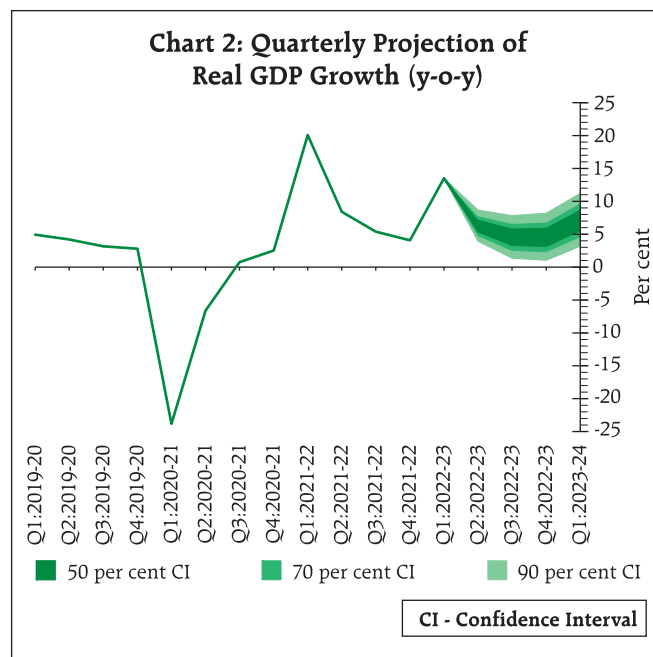
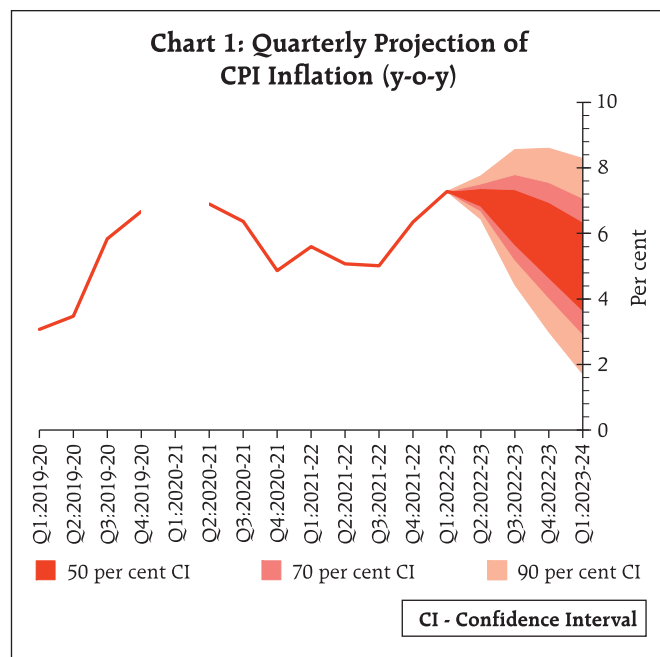
Outlook

8. High and protracted uncertainty surrounding the course of geopolitical conditions weighs heavily on the inflation outlook. Commodity prices, however, have softened and recession risks in advanced economies (AEs) are rising. On the domestic front, the late recovery in sowing augurs well for *kharif* output. The prospects for the *rabi* crop are buffered by comfortable reservoir levels. The risk of crop damage from excessive/unseasonal rains, however, remains. These factors have implications for the food price outlook. Elevated imported inflation pressures remain an upside risk for the future trajectory of inflation, amplified by the continuing appreciation of the US dollar. The outlook for crude oil prices is highly uncertain and tethered to geopolitical developments, with attendant concerns relating to both supply and

demand. The Reserve Bank's enterprise surveys point to some easing of input cost and output price pressures across manufacturing, services and infrastructure firms; however, the pass-through of input costs to prices remains incomplete. Taking into account these factors and an average crude oil price (Indian basket) of US\$ 100 per barrel, inflation is projected at 6.7 per cent in 2022-23, with Q2 at 7.1 per cent; Q3 at 6.5 per cent; and Q4 at 5.8 per cent, and risks are evenly balanced. CPI inflation for Q1:2023-24 is projected at 5.0 per cent (Chart 1).

9. On growth, the improving outlook for agriculture and allied activities and rebound in services are boosting the prospects for aggregate supply. The Government's continued thrust on capex, improvement in capacity utilisation in manufacturing and pick-up in non-food credit should sustain the expansion in industrial activity that stalled in July. The outlook for aggregate demand is positive, with rural demand catching up and urban demand expected to strengthen further with the typical upturn in the second half of the year. According to the RBI's surveys, consumer outlook remains stable and firms in manufacturing, services and infrastructure sectors are optimistic about demand conditions and sales prospects. On the other hand, headwinds from geopolitical tensions, tightening global financial conditions and the slowing external demand pose downside risks to net exports and hence to India's GDP outlook. Taking all these factors into consideration, real GDP growth for 2022-23 is projected at 7.0 per cent with Q2 at 6.3 per cent; Q3 at 4.6 per cent; and Q4 at 4.6 per cent, and risks broadly balanced. For Q1:2023-24, it is projected at 7.2 per cent (Chart 2).

10. In the MPC's view, inflation is likely to be above the upper tolerance level of 6 per cent through the first three quarters of 2022-23, with core inflation remaining high. The outlook is fraught with



considerable uncertainty, given the volatile geopolitical situation, global financial market volatility and supply disruptions. Meanwhile, domestic economic activity is holding up well and is expected to be buoyant in H2:2022-23, supported by festive season demand amidst consumer and business optimism. The MPC is of the view that further calibrated monetary policy action is warranted to keep inflation expectations anchored, restrain the broadening of price pressures and pre-empt second round effects. The MPC feels that this action will support medium-term growth prospects. Accordingly, the MPC decided to increase the policy repo rate by 50 basis points to 5.90 per cent. The MPC also decided to remain focused on withdrawal of accommodation to ensure that inflation remains within the target going forward, while supporting growth.

11. Dr. Shashanka Bhide, Prof. Jayanth R. Varma, Dr. Rajiv Ranjan, Dr. Michael Debabrata Patra and Shri Shaktikanta Das voted to increase the policy repo rate by 50 basis points. Dr. Ashima Goyal voted to increase the repo rate by 35 basis points.

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 remains within the target going forward, while supporting growth. Prof. Jayanth R. Varma voted against this part of the resolution.

13. The minutes of the MPC's meeting will be published on October 14, 2022.

14. The next meeting of the MPC is scheduled during December 5-7, 2022.

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 and Supervision; and (ii) Payment and Settlement systems.

I. Regulation and Supervision

1. Discussion Paper on Expected Loss Based Approach for Loan Loss Provisioning by Banks

The inadequacy of the incurred loss approach for provisioning by banks and its procyclicality, which amplified the downturn following the financial crisis of 2007-09, has been extensively documented. One of the major elements of the global response to these findings have been a shift to expected credit loss (ECL) regime for provisioning. As a further step towards converging with globally accepted prudential norms, it is proposed to adopt expected loss approach for loss allowances required to be maintained by banks in respect of their exposures. As a first step, a discussion paper on the various aspects of the transition will be issued shortly.

2. Discussion Paper on Securitisation of Stressed Assets Framework (SSAF)

In September 2021, the Reserve Bank had issued the revised framework for securitisation of standard assets. As regards securitisation of non-performing assets, the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002 currently provides a framework for such securitisations to be undertaken by Asset Reconstruction Companies (ARCs) licensed under the Act. However, based on market feedback, stakeholder consultations and the recommendations of the Task

Force on Development of Secondary Market for Corporate Loans (RBI, 2019), it has been decided to introduce a framework for securitisation of stressed assets in addition to the ARC route, similar to the framework for securitisation of standard assets. Accordingly, a Discussion Paper (DP) detailing relevant contours of the proposed framework will be issued shortly inviting comments on certain specific aspects.

3. Internet Banking Facility for Customers of Regional Rural Banks (RRBs)

The RRBs are currently allowed to provide Internet Banking facility to their customers with prior approval of the Reserve Bank, subject to fulfilment of certain financial and non-financial criteria. Keeping in view the need to promote the spread of digital banking in rural areas, the criteria for RRBs to be eligible to provide internet banking are being rationalised and guidelines are being issued separately.

II. Payment and Settlement Systems

4. Regulating Offline Payment Aggregators

Payment Aggregators (PAs) play an important role in the payments ecosystem and hence were brought under regulations in March 2020 and designated as Payment System Operators (PSOs). The current regulations are, however, applicable to PAs processing online or e-commerce transactions. These regulations do not cover offline PAs who handle proximity/face-to-face transactions and play a significant role in the spread of digital payments. Keeping in view the similar nature of activities undertaken by online and offline PAs, it is proposed to apply the current regulations to offline PAs as well. This measure is expected to bring in synergy in regulation covering activities and operations of PAs apart from convergence on standards of data collection and storage. Detailed instructions will be issued separately.

MONETARY POLICY REPORT FOR 2022~23

Monetary Policy Report - September 2022

I. Macroeconomic Outlook

Aggregate supply conditions are improving. This augurs well for demand ahead of the festival season. Consumer price inflation is ruling above the upper threshold around the target. Monetary policy has moved into the withdrawal of accommodation mode and remains focussed to ensure that inflation returns to the target while supporting growth. The daunting global environment imparts considerable uncertainty to the outlook.

I.1 Key Developments since the April 2022 MPR

Since the release of the April 2022 Monetary Policy Report (MPR), the global economic environment has been marked by slowing growth with rising risks of recession, elevated inflationary pressures, and tightening financial conditions engendered by aggressive and synchronised monetary policy actions and stances. For emerging market economies (EMEs), these developments have translated into currency depreciations brought on by a surging US dollar and capital outflows, leading to reserve losses. The conflict in Ukraine lingers on and the pandemic continues to weigh on economic activity even as issues in green transition, real and financial fragmentation, trade restrictions and reshoring pose formidable challenges to the global economy. Financial markets remain volatile and global spillovers pose significant headwinds.

Brent crude prices remain at elevated levels, given the tight demand-supply balance, despite recent correction. Global food prices have declined by 14 per cent from an all-time high in March but are ruling 8 per cent over last year's level¹. The Bloomberg commodity index was 10 per cent higher on September 27 (year-on-year (y-o-y) basis), notwithstanding some

easing since June. Sovereign bond yields have hardened and reached multi-year highs in major advanced economies (AEs) as investors brace for the future course of monetary policy across the world. Yield curves have inverted, foretelling future recession. Equity markets in AEs and EMEs corrected sharply by 21 per cent and 18 per cent, respectively, since end-March (upto September 27, 2022) amidst high volatility. In currency markets, the US dollar has strengthened to a 20-year high while all other major currencies have depreciated.

Turning to the domestic economy, real gross domestic product (GDP) rose by 13.5 per cent (y-o-y) in Q1: 2022-23, driven by base effects, even as momentum slipped due to the drag from net exports and restrained government spending. Aggregate supply conditions have been steadily improving and this augurs well for demand, both urban and rural, ahead of the festival season. The late pick-up in south-west monsoon and the recent spread of it to deficient regions is enabling a catch-up in *kharif* sowing, though paddy and pulses remain undersown relative to a year ago. Manufacturing is steadily gaining strength and services are posting strong growth, led by contact-sensitive sectors.

Inflationary pressures, however, persisted at elevated levels during H1:2022-23 and remain a key policy concern. Consumer price index (CPI) inflation has been at or above the upper tolerance threshold of 6 per cent since January 2022, driven by adverse supply shocks emanating from geopolitical tensions. While inflation has eased from its April peak of 7.8 per cent, it remains at unacceptably high levels. In order to anchor inflationary expectations and contain the second round effects, the Reserve Bank of India (RBI) narrowed the policy corridor in April and the Monetary Policy Committee (MPC) increased the policy repo rate by 140 basis points (bps) during May-August. Monetary policy remains focussed on withdrawal of accommodation.

¹ Based on Food and Agriculture Organisation's (FAO's) food price index for August 2022.

Monetary Policy Committee: April-September 2022

During April-September 2022, the MPC met four times, including an off-cycle meeting in May 2022. At the time of the MPC meeting in April 2022, the global economic and financial environment had turned challenging due to the sharp jump in international commodity prices and uncertainties around the pace of monetary policy normalisation globally. CPI inflation was at or above the upper threshold of 6 per cent for two successive months in January and February 2022. The MPC assessed that the ratcheting up of geopolitical tensions, the generalised hardening of global commodity prices, the likelihood of prolonged supply chain disruptions, dislocations in trade and capital flows, divergent monetary policy responses and volatility in global financial markets posed sizeable upside risks to the inflation trajectory and downside risks to domestic growth. Accordingly, the inflation forecast for 2022-23 was raised by 120 bps (relative to the February 2022 projections) to 5.7 per cent while the real GDP growth forecast was revised downward by 60 bps to 7.2 per cent. Faced with the twin challenge of high inflation and worsening growth outlook, the MPC decided to keep the policy repo rate unchanged at 4 per cent. Although still accommodative, the stance of monetary policy focused on withdrawal of accommodation to ensure that inflation remains within the target going forward, while supporting growth. Concomitantly, the Reserve Bank introduced the standing deposit facility (SDF) at 40 bps above the fixed rate reverse repo rate as the floor of the liquidity adjustment facility (LAF) corridor, thus making the corridor symmetrical with a width of +/- 25 bps around the policy repo rate (see Chapter IV).²

² To manage the excess liquidity effectively during the pandemic phase, the LAF corridor was made asymmetric during March-April 2020, with reverse repo rate at 65 bps below the repo rate (25 bps prior to the pandemic) and the marginal standing facility (MSF) rate at 25 bps above the repo rate.

With the CPI inflation print of March 2022 rising sharply to 7 per cent and significant upside risks to the near-term trajectory from higher food, crude oil and commodity prices materialising due to geopolitical tensions and sanctions, the MPC decided to hold an off-cycle meeting in May 2022. It noted that while economic activity was resilient, inflation at elevated levels warranted resolute and calibrated steps to anchor inflation expectations and contain second round effects. The MPC voted unanimously to increase the policy repo rate by 40 bps and reiterated the stance as set out in the April resolution.

By the June 2022 MPC meeting, CPI inflation had risen further to 7.8 per cent in the April 2022 print, with considerable uncertainty around the outlook on account of the geopolitical situation. The MPC was of the view that continued shocks to food inflation, elevated international crude oil prices and pending pass-through of input costs to selling prices were likely to sustain pressures on headline inflation. Accordingly, the inflation forecast for 2022-23 was revised upwards by 100 bps from the April meeting to 6.7 per cent. Against this backdrop, the MPC judged that there was a need for calibrated monetary policy action to keep inflation expectations anchored and restrain the broadening of price pressures. Accordingly, it unanimously decided to increase the policy repo rate by 50 bps. The MPC focused the stance of policy on withdrawal of accommodation.

At the time of the MPC's August 2022 meeting, CPI inflation had eased to 7 per cent during May-June 2022 from 7.8 per cent in April but remained above the upper tolerance threshold of 6 per cent. The MPC observed that while there was some let up in global commodity prices, spillovers from geopolitical shocks were imparting considerable uncertainty to the inflation trajectory. Domestic economic activity was seen as resilient. With inflation projected to remain

above the upper tolerance level of 6 per cent through the first three quarters of 2022-23, entailing the risk of destabilising inflation expectations and triggering second round effects, the MPC was of the view that further calibrated monetary policy action was needed to contain inflationary pressures, pull back headline inflation within the tolerance band closer to the target, and keep inflation expectations anchored to ensure sustained growth. Accordingly, the MPC unanimously decided to increase the repo rate by 50 basis points and maintained its stance of June 2022 with a majority of 5 to 1.

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 related to inflation and economic activity during H1:2022-23 (April-September). The

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

Country	Policy Meetings: April-September 2022			
	Total meetings	Meetings with full consensus	Meetings without full consensus	Variation in policy rate (basis points)
Brazil	4	3	1	200
Chile	4	3	1	375
Colombia	3	1	2	400
Czech Republic	3	0	3	200
Hungary	6	6	0	735
India	4	4	0	140
Israel	4	4	0	190
Japan	4	1	3	0
South Africa	3	0	3	200
Sweden	3	3	0	175
Thailand	3	1	2	50
UK	4	0	4	150
US	4	3	1	275

Sources: Central bank websites.

Table I.2: Baseline Assumptions for Projections

Indicator	MPR April 2022	MPR September 2022
Crude Oil (Indian basket)	US\$ 100 per barrel during 2022-23	US\$ 100 per barrel during H2:2022-23
Exchange rate	₹ 76/US\$ during 2022-23	₹ 80/US\$ during H2:2022-23
Monsoon	Normal for 2022-23	7 per cent above long period average for 2022-23 [#]
Global growth	3.5 per cent in 2022 3.5 per cent in 2023	3.2 per cent in 2022 2.9 per cent in 2023
Fiscal deficit (per cent of GDP)	To remain within BE 2022-23 Centre: 6.4 Combined: 9.0	To remain within BE 2022-23 Centre: 6.4 Combined: 9.3
Domestic macroeconomic/ structural policies during the forecast period	No major change	No major change

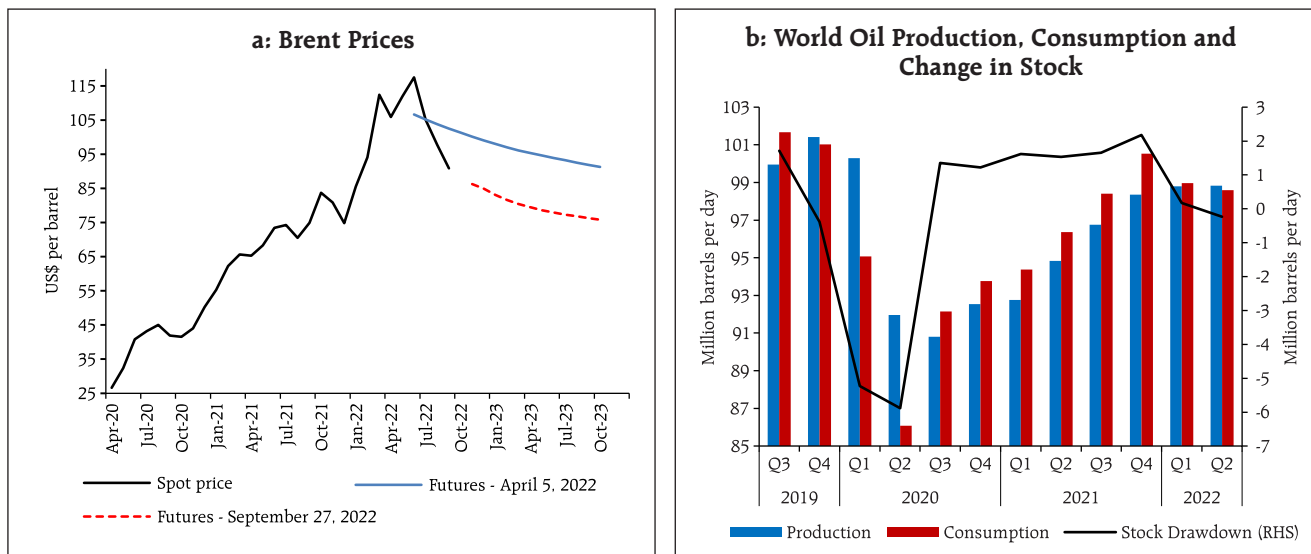
[#]: as on September 29, 2022.

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.

evolution of key macroeconomic and financial variables over the past six months warrants revisions in the baseline assumptions (Table I.2).

First, international crude oil prices have exhibited large volatility in H1. Brent crude oil prices hardened to US\$ 121 per barrel by mid-June, driven by supply concerns due to sanctions on Russia. Prices have cooled off since then, as global demand is weakening. Continued supply management by the Organization of Petroleum Exporting Countries (OPEC) *plus* and gas-to-oil switching due to record natural gas prices have supported crude oil prices while the geopolitical conflict and sanctions weigh heavily on the outlook (Chart I.1.a & Chart I.1.b). Taking into account these developments, crude prices (Indian basket) are

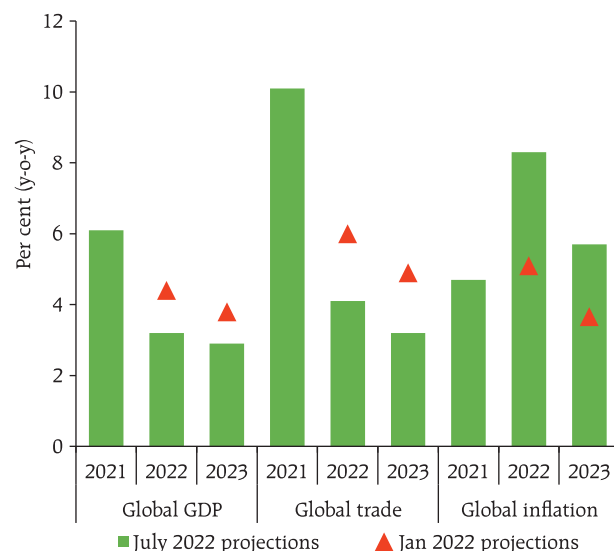
Chart I.1: Crude Oil Prices

Sources: Bloomberg; and US Energy Information Administration (EIA).

assumed at US\$ 100 per barrel in the baseline, same as in the April MPR baseline.

Second, the INR exhibited a depreciating bias *vis-à-vis* the US dollar during H1 on the back of generalised strengthening of the US dollar against currencies, elevated crude oil prices and portfolio outflows. The US dollar index strengthened by 16 per cent between end-March 2022 and September 27, reflecting aggressive monetary policy tightening by the US Fed and expectations of future hikes. Taking these developments into consideration, the exchange rate is assumed at INR 80 per US dollar in the baseline as against INR 76 in the April 2022 MPR, a depreciation of 5 per cent.

Third, global economic prospects have weakened significantly since the April MPR, due to multi-pronged headwinds discussed earlier (Chart I.2). Global trade is slowing down and there are increasing concerns of recessions in major economies. The global composite Purchasing Managers Index (PMI)

Chart I.2: Global GDP and Inflation

Source: IMF.

fell into contraction zone in August 2022 for the first time since June 2020. Global factors exert downward pressures on domestic activity and upward pressures on domestic inflation through a variety of channels (Box I.1).

Box I.1: Macroeconomic Implications of Low Global Growth and High Global Inflation

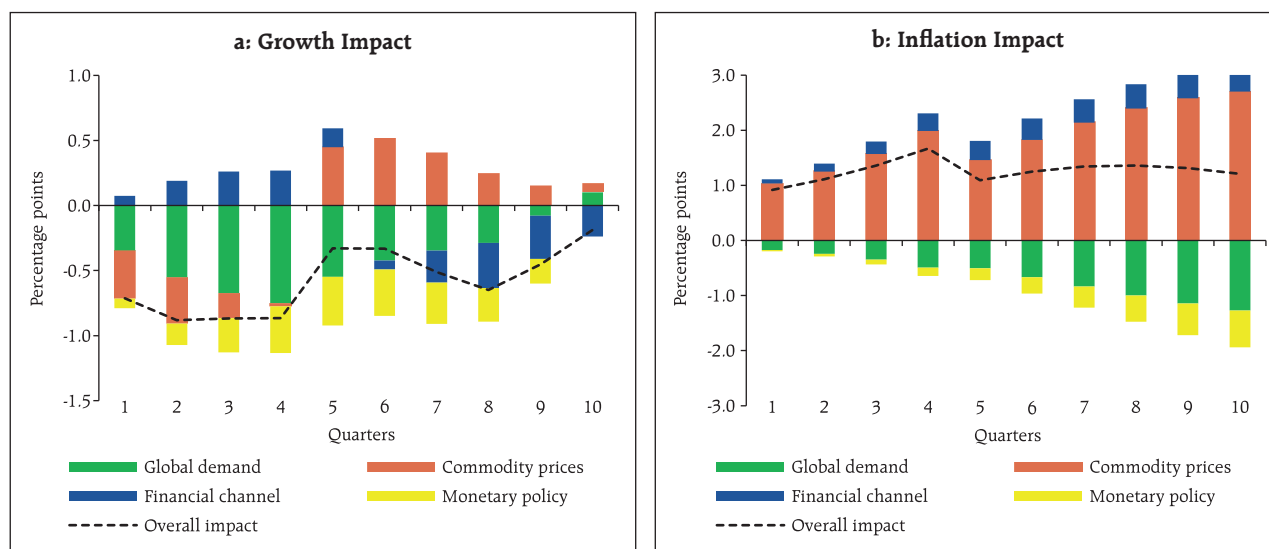
Global growth is expected to slow down from 6.1 per cent in 2021 to 3.2 per cent in 2022 and the outlook is "gloomy and more uncertain", with risks tilted to the downside (IMF, 2022). Global consumer price inflation is projected by the IMF to increase from 4.7 per cent in 2021 to 8.3 per cent in 2022.

These global stagflationary impulses can impact domestic growth and inflation through multiple channels. First, lower external demand drags down export demand and overall domestic demand and growth. At the same time, weak global demand can soften global commodity prices. Second, higher global commodity prices increase domestic inflation through direct and cost-push channels and dampen domestic growth through weakening of aggregate

demand. Third, higher global inflation and global interest rates impact capital flows, put downward pressures on the domestic currency and lead to higher imported inflation.

Based on the 'Rest of the World (RoW) Block' of the RBI's Quarterly Projection Model³, the peak impact on India's inflation and growth through all the channels occurs by four quarters. Second-round effects can keep inflation at elevated levels even beyond 8 quarters, necessitating appropriate monetary policy actions to anchor inflation expectations (Chart I.1.1). In such circumstances, frontloaded monetary policy actions by showing a strong commitment to the inflation target add to credibility gains and help in reining in inflation with lower output losses (John, Kumar and Patra, 2022).

Chart I.1.1: Global Shocks and Domestic GDP Growth and Inflation



Source: RBI staff estimates.

References:

Benes, J., K. Clinton, A. George, P. Gupta, J. John, O. Kamenik, D. Laxton, P. Mitra, G. Nadhanael, R. Portillo, H. Wang, and F. Zhang (2016), "Quarterly Projection Model for India: Key Elements and Properties", RBI Working Paper Series No. 08.

International Monetary Fund (2022), *World Economic Outlook*, July.

John, J., D. Kumar, and M. D. Patra (2022), "Monetary Policy: Confronting Supply-driven Inflation", *RBI Bulletin* July, Volume LXXVI (7), pp. 97-109.

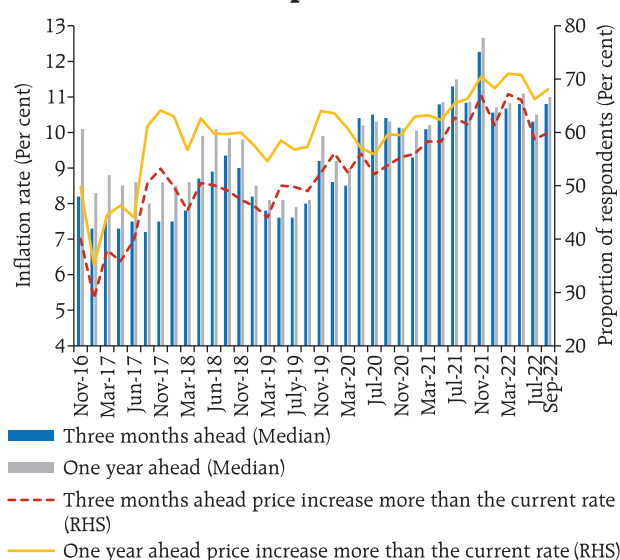
³ The QPM belongs to the genre of consensus macroeconomic new Keynesian open economy structural models and is calibrated to incorporate the India-specific characteristics (Benes *et al.*, 2016).

I.2 The Outlook for Inflation

CPI inflation has ruled at or above the upper tolerance threshold of 6 per cent since January 2022 *albeit* with some moderation in recent months (Chapter II). Looking ahead, the three months and one year ahead median inflation expectations of urban households increased by 50 bps each in the September 2022 round of the Reserve Bank's survey compared to the previous round⁴. The proportion of respondents expecting the general price level to increase by more than the current rate also increased in both the three months and one year ahead horizons *vis-à-vis* the previous round (Chart I.3).

Manufacturing firms polled in the July-September 2022 round of the Reserve Bank's industrial outlook survey expected reduction in cost of raw materials as well as selling prices in Q3:2022-23 (Chart I.4a).⁵ Services and infrastructure sector companies also expected softening in input costs and selling prices in Q3:2022-23 (Charts I.4b and I.4c).⁶ The respondents

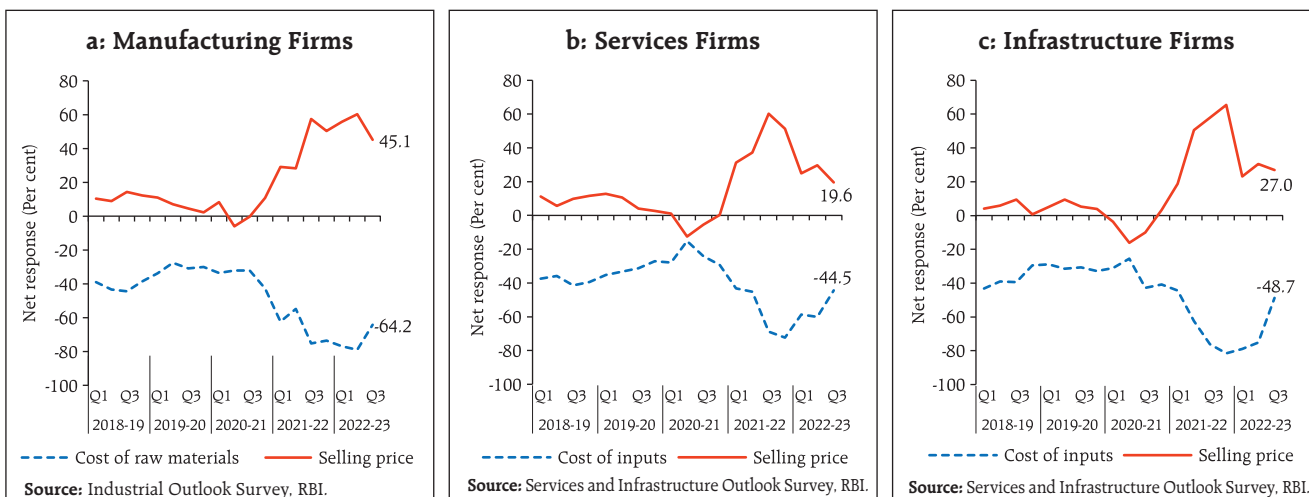
Chart I.3: Inflation Expectations of Households



Source: Inflation Expectations Survey of Households, RBI.

in manufacturing and services PMI reported increase in input and output prices in August 2022, although with some moderation in the pace of inflationary pressures.

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*.

⁴ 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 2022 round are based on responses from 6,052 households.

⁵ The results of the July-September 2022 round of the industrial outlook survey are based on responses from 1,234 companies.

⁶ Based on 469 services and 124 infrastructure companies polled in the July-September 2022 round of the services and infrastructure outlook survey.

Professional forecasters surveyed by the Reserve Bank in September 2022 expected CPI inflation to soften from 7.3 per cent in Q1:2022-23, to 6.0 per cent in Q4, and 4.9-5.0 per cent in H1:2023-24 (Chart I.5a and Table I.3).⁷ Long-run inflation expectations of professional forecasters – measured by their 5- and 10-year ahead expectations – remained broadly aligned around the inflation target, *albeit* with a slight upward drift during the pandemic period. In the September round, the 5-year ahead expected inflation rose by 10 bps to 5.0 per cent while the 10-year ahead expectation remained unchanged at 4.5 per cent (Chart I.5b).

Looking ahead, several exogenous factors – global and domestic – will impinge on the inflation outlook. Global commodity prices have come off their highs on weaker global prospects but remain elevated and volatile. Global supply chains are gradually normalising, although they remain vulnerable to geopolitical disturbances, pandemic-related lockdowns in major production hubs, and financial market volatility. Domestically, the record foodgrains

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

(Per cent)

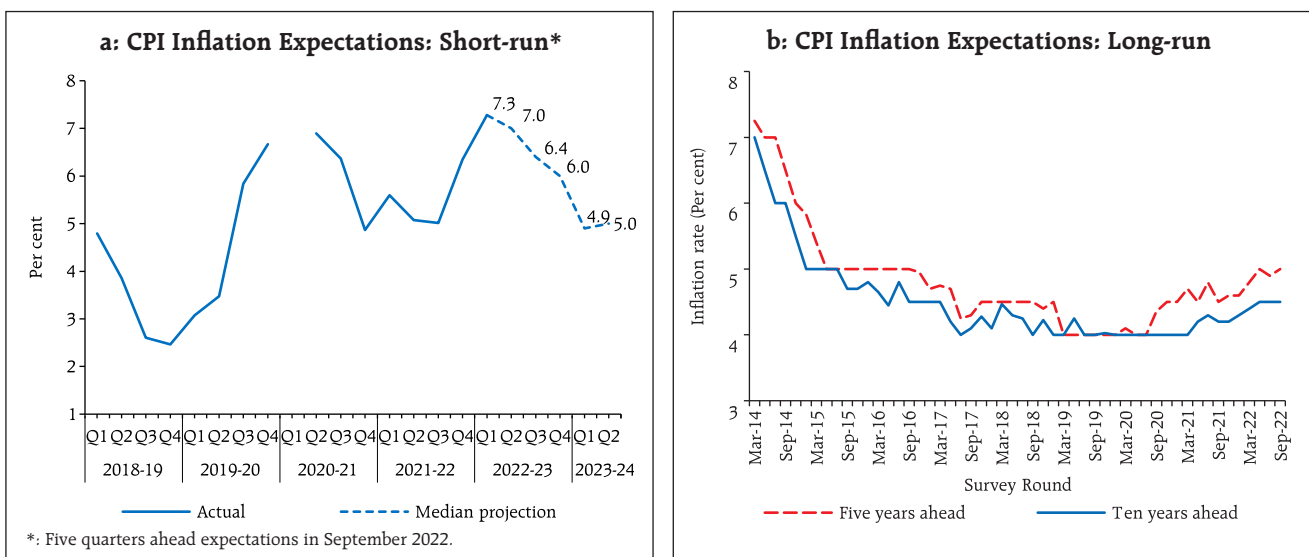
	2022-23	2023-24
Reserve Bank's Baseline Projections		
Inflation, Q4 (y-o-y)	5.8	5.2
Real GDP growth	7.0	6.5
Median Projections of Professional Forecasters		
Inflation, Q4 (y-o-y)	6.0	5.0@
Real GDP growth	7.0	6.1
Gross domestic saving (per cent of GNDI)	28.0	28.7
Gross capital formation (per cent of GDP)	31.3	31.5
Credit growth of scheduled commercial banks	13.0	11.0
Combined gross fiscal deficit (per cent of GDP)	9.7	9.0
Central government gross fiscal deficit (per cent of GDP)	6.4	6.0
Repo rate (end-period)	6.00	6.00@
Yield on 91-days treasury bills (end-period)	6.2	6.0
Yield on 10-year central government securities (end-period)	7.5	7.4
Overall balance of payments (US\$ billion)	-57.6	-7.4
Merchandise exports growth	7.2	6.3
Merchandise imports growth	19.0	5.7
Current account balance (per cent of GDP)	-3.4	-2.7

@: Q2:2023-24

Note: GNDI: Gross National Disposable Income.

Sources: RBI staff estimates; and Survey of Professional Forecasters (September 2022).

Chart I.5: Inflation Expectations of Professional Forecasters

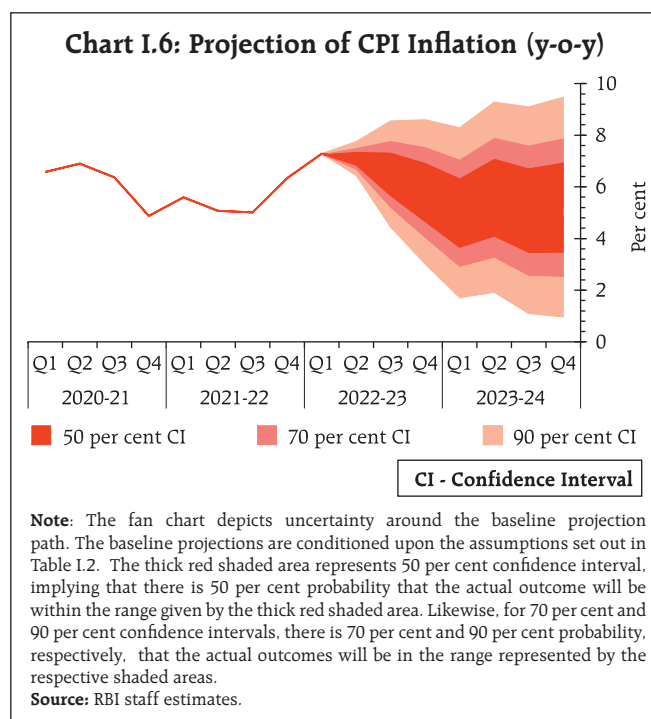


Sources: Survey of Professional Forecasters, RBI; and National Statistical Office.

⁷ 41 panellists participated in the September 2022 round of the Reserve Bank's survey of professional forecasters.

production in 2021-22, the above normal south-west monsoon during 2022, the recovery in *kharif* sowing, ample buffer stocks and improved reservoir position augur well for agricultural prospects and the future trajectory of food inflation. Taking into account the initial conditions, signals from forward-looking surveys and estimates from structural and other time-series models, CPI inflation is projected to average 6.7 per cent in 2022-23 – 7.1 per cent in Q2, 6.5 per cent in Q3 and 5.8 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 Q4:2022-23 are 4.7-6.9 per cent and 4.0-7.6 per cent, respectively. For 2023-24, assuming a normal monsoon, a progressive normalisation of supply chains, and no further exogenous or policy shocks, structural model estimates indicate that inflation will average 5.2 per cent. In Q4:2023-24, CPI inflation is projected at 5.2 per cent, with the 50 per cent and the 70 per cent confidence intervals at 3.5-7.0 per cent and 2.5-7.9 per cent, respectively.

The baseline forecasts are subject to several upside and downside risks. The upside risks emanate from a further ratcheting up of geopolitical tensions, higher global crude and commodity prices, escalation in global financial market volatility due to aggressive monetary policy actions, longer-than-expected supply



chain disruptions with shocks getting transmitted through highly integrated global supply chains (Box I.2), shortfall in *kharif* production, unseasonal rainfall and larger pass-through of input cost pressures to output prices as demand strengthens. The downside risks could arise from an early resolution of geopolitical tensions, further correction in global commodity prices due to slowing global demand, and further improvement in supply conditions with the ebbing of the pandemic.

Box I.2: Global Cost-Push Spillovers on Inflation: Insights from World Input-Output Tables

The global surge in inflation draws its origins from two large adverse shocks in quick succession – the COVID-19 pandemic and the conflict in Ukraine – reinforced by demand pressures emanating from sizeable monetary-fiscal stimuli. With more integrated global value chains, sectoral and country-specific shocks now transmit more swiftly than ever before (de Soyres and Franco, 2020)⁸. The cost-push inflationary impact of global shocks on the

Indian economy can be captured through Inter-Country Input-Output (ICIO) tables (OECD, 2021). The potential impact of country-specific sectoral shocks is estimated by using the *Leontief Inverse Matrix* to identify the countries and sectors that can pose highest cost-push inflationary risks.

(Contd.)

⁸ Intermediate goods accounted for almost half of all global trade, with trade comprising about 30 per cent of world output in 2021 (United Nations Conference on Trade and Development, 2022).

$$L = (I - A)^{-1}; [e_{jk,jk}] = SHK.L; \Pi = [\sum_{k=1}^K w_k * e_{k,k.}],$$

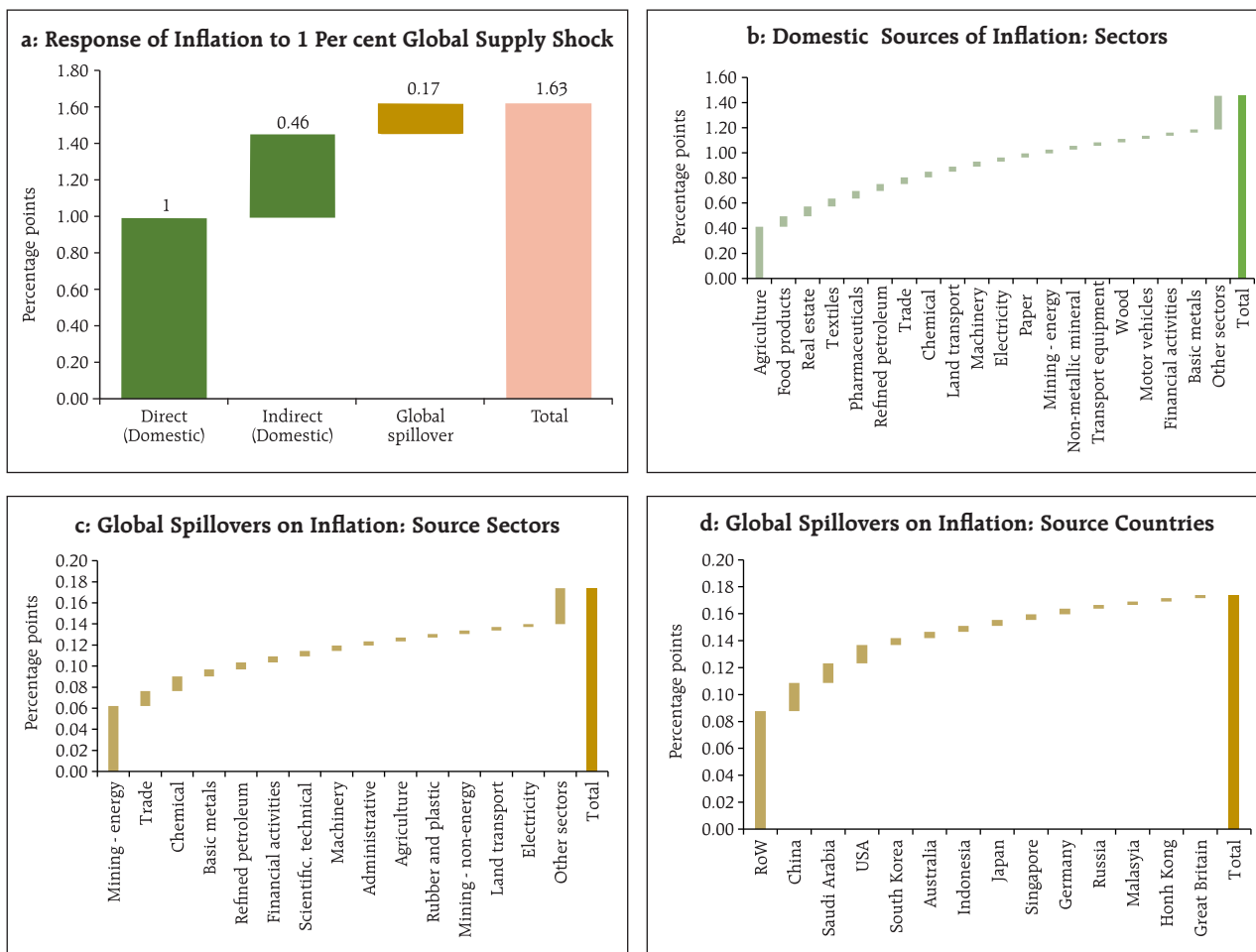
$$[C_j] = \sum_{k=1}^K \pi_{jk} [I_k] = \sum_{j=1}^J \pi_{jk}$$

L is the *Leontief inverse*, I is an identity matrix and A is the technical coefficient matrix derived from ICIO, with dimensions $(J \times K \times J \times K)$ – J and K are the total number of economies (71) and industries (45), respectively. SHK is the shock vector modelled as a unit shock (one per cent), adjusted for the relative share of the shock size of the sector and country of origin in the global shock. Π is a $(J \times K)$ domestic CPI inflation response matrix

aggregated by using CPI weights (w_k). C_j is the spillover from the j^{th} country and I_k is the spillover from the k^{th} sector.

The empirical analysis indicates that a global inflation shock of one percentage point – modelled as a simultaneous one per cent increase in prices across all the countries and sectors – could increase inflation in India by around 63 bps through second round effects comprising domestic indirect effects (46 bps) and global spillovers (17 bps)⁹, in addition to the direct impact of 100 bps (Chart I.2.1). Domestic sources of inflation (direct as well as indirect) mainly stem from agriculture and allied

Chart I.2.1: Global Supply Shocks: Impact on Inflation



Source: RBI staff estimates using OECD ICIO.

(Contd.)

⁹ These estimates assume the absence of other channels of transmission like exchange rate and inflation expectations and no offsetting macroeconomic policy actions.

activities, housing, textiles, and pharmaceutical sectors. Global spillovers, representing the imported inflation channel, are driven by price pressures in energy, mining, chemicals, trade, basic metals and machinery. In terms of source countries, the most important contributors to inflation in India are oil exporting countries, China and the United States.

The current bout of global inflation is mainly driven by the jump in global energy and agricultural product prices (which rose by almost 40 per cent and 10 per cent, respectively, during H2:2021-22). The empirical analysis suggests that the global food and energy shocks experienced during H2:2021-22 could *ceteris paribus* impart upward pressure of around 2.5 percentage points

on domestic inflation over time through the cost-push channel.

References:

de Soyres, F. and S. Franco. (2019), "Inflation Dynamics and Global Value Chains", World Bank Policy Research Working Paper No. 9090.

UNCTAD (2022), "The Effects of the COVID-19 Pandemic on International Trade", *Key Statistics and Trends in International Trade 2021*, https://unctad.org/system/files/official-document/ditctab2022d3_en.pdf

OECD (2021), *Inter-Country Input-Output Tables*, available at <https://www.oecd.org/sti/ind/inter-country-input-outputtables.htm>

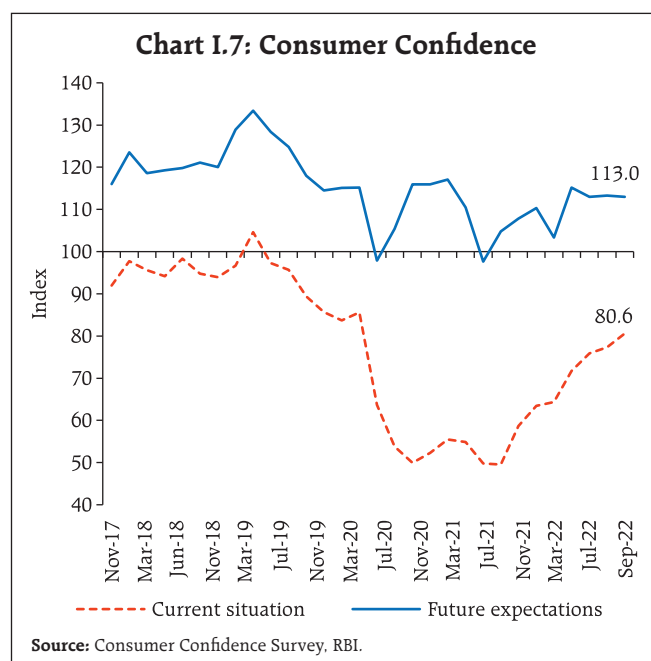
1.3 The Outlook for Growth

Ebbing COVID-19 infections and improving consumer sentiment facilitated a rebound in demand for contact-intensive services and supported domestic demand in H1:2022-23. Industry and services sectors are holding up well and *kharif* sowing has seen a smart recovery. The above-normal south-west monsoon has improved reservoir levels which bodes well for the winter crops. Investment activity is expected to benefit from the government's capex push, growth in bank credit, improving demand conditions and rising capacity utilisation. Geopolitical tensions, the upsurge in global financial market volatility and tightening global financial conditions, however, weigh heavily on the outlook.

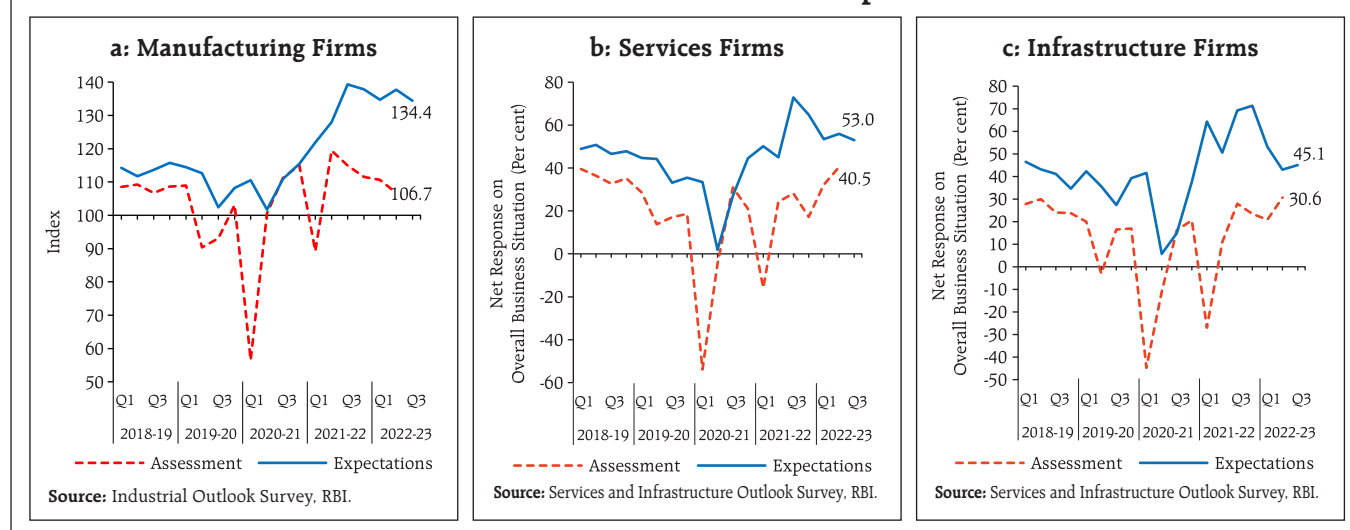
Turning to the key messages from forward-looking surveys, consumer confidence (the current situation index) increased further in the September 2022 survey round on account of improved perception on general economic situation and overall spending, though overall confidence remained in the pessimistic zone. Households remained optimistic for the year ahead, with the future expectations

index remaining unchanged *vis-à-vis* the July 2022 survey round (Chart I.7).¹⁰

Optimism on demand conditions in the manufacturing sector for the quarter ahead waned marginally in the July-September 2022 round of



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 2022 round are based on responses from 6,062 respondents.

Chart I.8: Business Assessment and Expectations

the Reserve Bank's industrial outlook survey, though it remained well in the expansion zone (Chart I.8a). Services sector companies expected slight moderation while infrastructure companies expected a minor uptick in Q3:2022-23 in terms of the overall business situation (Charts I.8b and I.8c).

Recent surveys by other agencies indicate a dip in business expectations over their respective previous rounds (Table I.4). In the August 2022 round of the PMI survey, business expectations of manufacturing and services firms improved to multi-year highs on optimism over strengthening demand.

Professional forecasters polled in the September 2022 round of the Reserve Bank's survey expected real GDP growth at 6.3 per cent in Q2:2022-23, 4.8 per cent in Q3 and 4.2 per cent in Q4, and at 6.4-6.6 per cent in H1:2023-24 (Chart I.9 and Table I.3).

Taking into account the baseline assumptions, survey indicators and model forecasts, real GDP growth is expected at 7.0 per cent in 2022-23 – 6.3 per cent in Q2; and 4.6 per cent each in Q3 and Q4 – with risks broadly balanced around this baseline path (Chart I.10 and Table I.3). For 2023-24, assuming a normal monsoon, and no major exogenous or policy

shocks, the structural model estimates indicate real GDP growth at 6.5 per cent.

There are upside and downside risks to the baseline growth path. Upside risks to the baseline trajectory could emanate from stronger-than-expected expansion in demand for contact-intensive services with the receding threat of the pandemic

Table I.4: Business Expectations Surveys

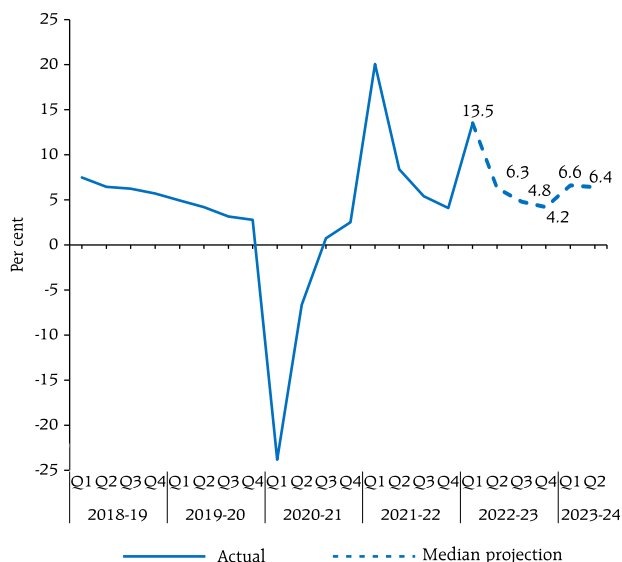
Item	NCAER Business Confidence Index (July 2022)	FICCI Overall Business Confidence Index (August 2022)	Dun and Bradstreet Composite Business Optimism Index (September 2022)	CII Business Confidence Index (September 2022)
Current level of the index	138.5	65.0	69.9	62.2
Index as per the previous survey	142.9	67.6	96.6	66.9
% change (q-o-q) sequential	-3.1	-3.8	-27.6	-7.0
% change (y-o-y)	124.1	-8.8	-5.8	-0.6

Notes: 1. NCAER: National Council of Applied Economic Research.

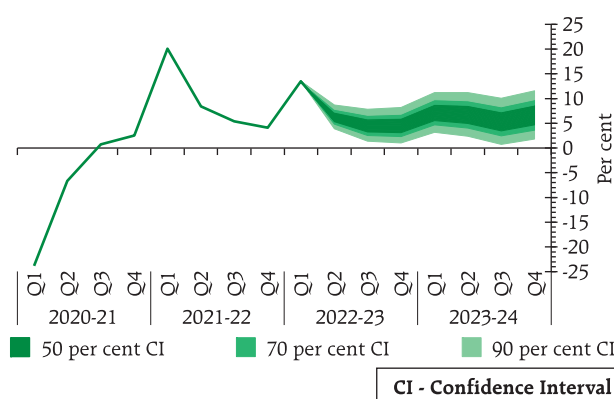
2. FICCI: Federation of Indian Chambers of Commerce & Industry.

3. CII: Confederation of Indian Industry.

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

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

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

Chart I.10: Quarterly Projection of Real GDP Growth (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.

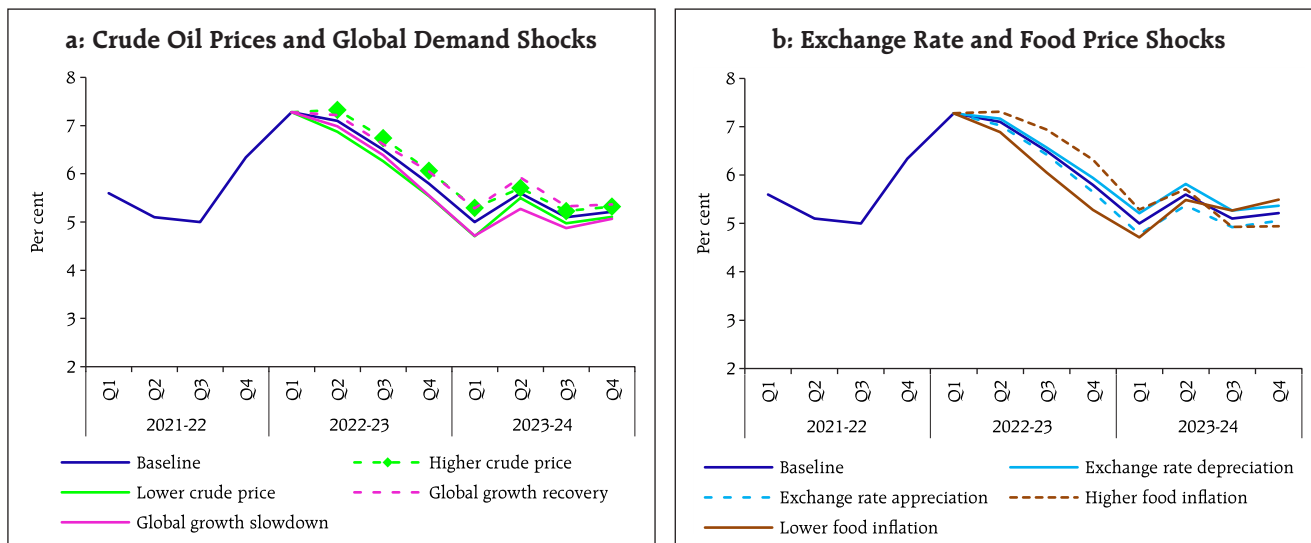
and festival spending; a boost to private investment activity from government's capex push, improving bank credit, rising capacity utilisation, and healthier corporate balance sheets; and a favourable terms of trade shock in the case of a sharp correction in crude and commodity prices. On the contrary, an escalation in geopolitical tensions, further hardening of international crude oil and other commodity prices, sustained disruptions to supply chains, the upsurge in global financial market volatility, and a sharper loss of momentum in global trade and demand pose downside risks to the baseline growth path.

I.4 Balance of Risks

Baseline projections of inflation and growth are conditional on assumptions of the future course of key domestic and international macroeconomic variables set out in Table I.2. There are, however, sizeable uncertainties around the baseline assumptions, as stated earlier. This section explores plausible alternative scenarios to assess the balance of risks around the baseline projections.

(i) Global Growth Uncertainties

The downside risks to global growth flagged in the April 2022 MPR have materialised. Headwinds from the war, elevated commodity prices, tightening financial conditions, capital outflows from emerging economies, and the slowing global activities could pull global growth further below the baseline. There are growing concerns of recession in major economies and the global outlook is bleak and risks are tilted to the downside. In such a scenario, if global growth is 100 bps below the baseline, domestic growth and inflation could be around 40 bps and 20 bps, respectively, below the baseline trajectories. Conversely, if there is an early de-escalation in geopolitical tensions, the recent trend in falling commodity prices continues, and global inflation ebbs faster than expected, there can be a fillip to global growth. In this scenario, assuming that global growth surprises by 50 bps on the upside, domestic growth and inflation could edge higher by around 20 bps and 10 bps, respectively (Charts I.11a and I.12a).

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

Source: RBI staff estimates.

(ii) International Crude Oil Prices

Global crude oil prices remain at elevated levels, driven by geopolitical tensions, sanctions and supply management by OPEC *plus*. Further production curtailment by OPEC *plus* and the spike in the seasonal winter demand for energy amidst high natural gas prices could harden international crude oil prices. Assuming crude oil prices (Indian basket) to be 10 per cent above the baseline of US\$ 100 per barrel, domestic inflation and growth could be higher by 30 bps and weaker by around 20 bps, respectively, over the baseline. Conversely, crude oil prices could soften below the baseline owing to global demand losing momentum and an easing of geopolitical tensions. As a result, if the Indian basket of crude prices falls by 10 per cent relative to the baseline, inflation could ease by around 30 bps with a boost of 20 bps to growth (Charts I.11a and I.12a).

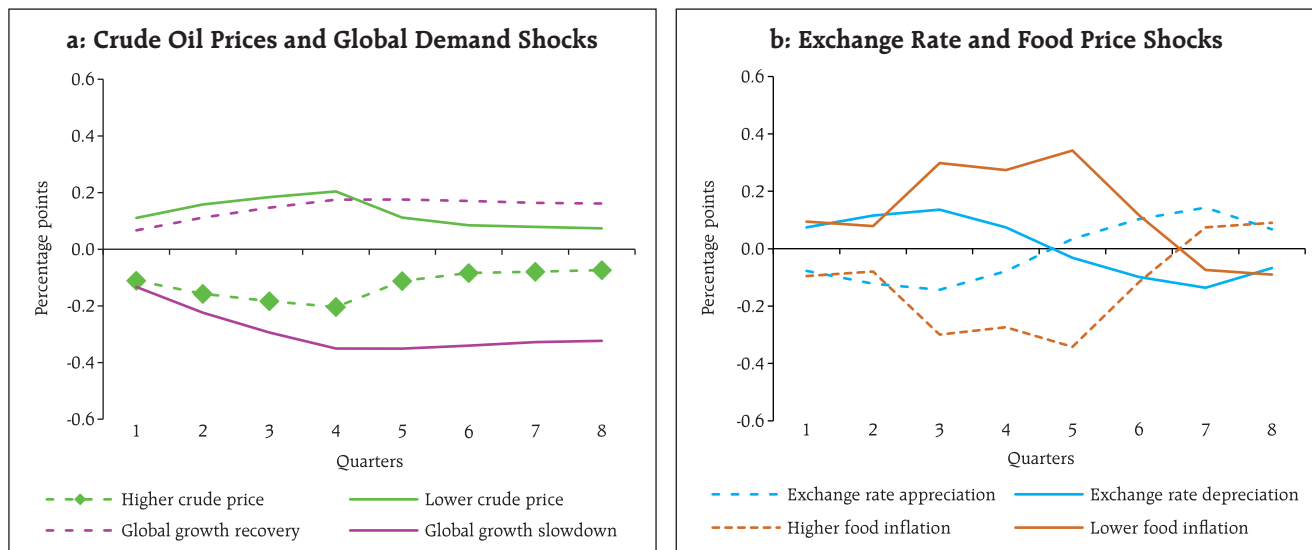
(iii) Exchange Rate

The INR depreciated in H1, driven by the generalised strengthening of the US dollar, higher crude oil prices and sales by foreign portfolio

investors. Volatility in global financial markets is expected to persist due to the uncertainty around monetary policy normalisation in the US and other major advanced economies, which could put downward pressure on the INR. Should the INR depreciate by 5 per cent from the baseline, inflation could edge up by around 20 bps while GDP growth could be higher by around 15 bps through boost to exports. On the other hand, given India's relatively better growth performance and outlook and strong domestic macroeconomic fundamentals, portfolio equity flows turned significantly positive in August 2022 and could increase further. In this scenario, if the INR appreciates by 5 per cent relative to the baseline, inflation and GDP growth could moderate by around 20 bps and 15 bps, respectively (Charts I.11b and I.12b).

(iv) Food Inflation

Food inflation remained high during H1, driven by the war-induced jump in global food prices. Global food prices have started correcting and these are being reflected in the softening of domestic

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

Source: RBI staff estimates.

edible oil prices. Furthermore, *kharif* sowing has caught up with its long-term average. Reservoir levels are above last year's and the decadal average, which augur well for the *rabi* crop. Although the area under paddy sowing has been lower than a year ago due to uneven distribution of south-west monsoon rainfall, ample buffer stocks of rice and effective supply management measures could soften food inflation more than anticipated, and push headline inflation 50 bps below the baseline. Conversely, global food prices could harden in view of the fragile geopolitical outlook and sustained input price pressures on critical inputs like energy and fertilisers. Furthermore, unseasonal heavy rainfalls during the harvesting period could impact the domestic crop. In such a scenario, there could be upward pressures on food prices and headline inflation could be around 50 bps above the baseline (Charts I.11b and I.12b).

1.5 Conclusion

The Indian economy is advancing steadily, and is expected to be one of the fastest growing major economies in 2022. The above-normal south-west monsoon, improved reservoir position, government's capex push, improvement in capacity utilisation, a broad-based revival in credit growth, strong corporate and bank balance sheets, upbeat consumer and business confidence and receding threat of the pandemic are all factors likely to provide impetus to growth. While inflation has eased somewhat from the April high, supported by some correction in global prices, it has ruled above the upper tolerance threshold around the target since January 2022. Monetary policy has moved into the withdrawal of accommodation mode and remains focussed to ensure that inflation returns to the target while supporting growth. The daunting global environment, however, imparts considerable uncertainty to the outlook.

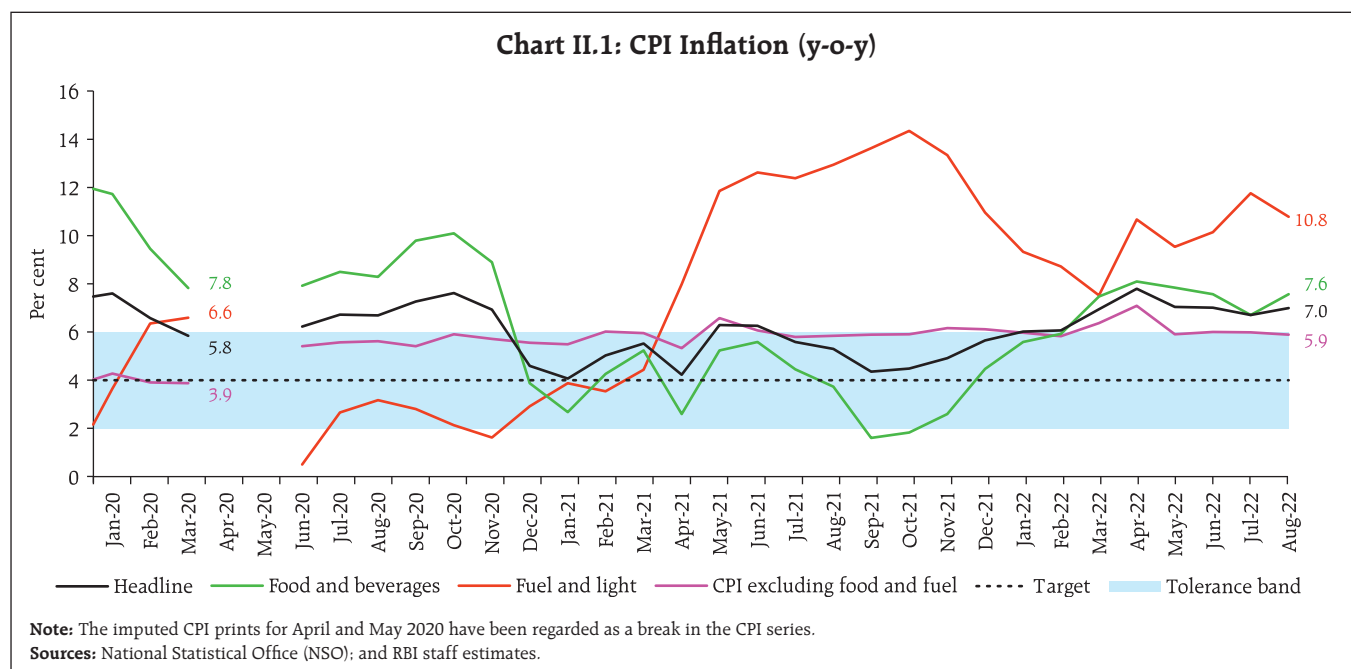
II. Prices and Costs

The trajectory of consumer price index (CPI) inflation since February 2022 has been altered by spillovers from the conflict in Ukraine. CPI inflation peaked in April 2022 and has since then moderated but persists above the pre-war levels and also above the upper tolerance band. During H1:2022-23, industrial and farm input pressures remained firm, notwithstanding some softening. Nominal rural wage growth was muted.

Since February 2022, the trajectory of headline CPI inflation¹ has been altered by spillovers from adverse global commodity price shocks triggered by the conflict in Ukraine. In February, it was anticipated that the pandemic-induced global supply chain disruptions would ease with the ebbing of COVID-19 infections, the combination of domestic supply side measures and a normal monsoon would bring about

a durable softening of domestic inflation over the course of the year. The war upended this narrative with a broad-based spike in global commodity prices, the resurgence of supply chain and logistics bottlenecks, sanctions and second-round effects. Global financial market volatility engendered by aggressive monetary tightening and consequent spillovers to domestic financial markets exacerbated inflationary pressures.

Headline CPI inflation was already testing the upper tolerance threshold of 6 per cent during January-February 2022, due to adverse base effects, and a sticky core component.² Starting March, the fallout of the adverse global commodity price shocks spread across items. In April, the heat wave and consequent production losses added to a sharp pick-up in prices. As a result, headline inflation surged by 173 basis points in two months – from 6.1 per cent in February to 7.8 per cent in April

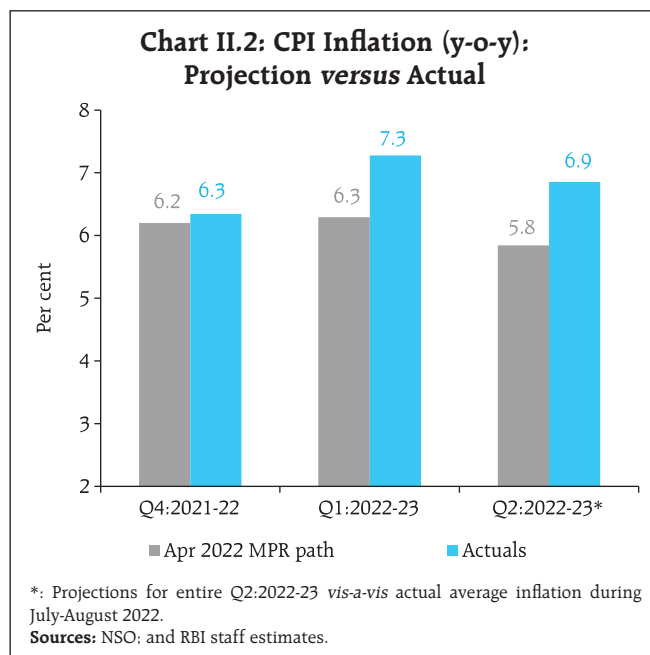


¹ Headline inflation is measured by year-on-year (y-o-y) changes in the all-India consumer price index (CPI) produced by the National Statistical Office (NSO).

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.

across food, fuel and core components. Judicious supply side interventions by the government and some softening of global commodity prices from their peak March 2022 levels enabled inflation to moderate to 6.7 per cent in July before it edged up to 7.0 per cent in August on a surge in food inflation (Chart II.1).

The Reserve Bank of India (RBI) Act enjoins the RBI to set out deviations of actual inflation outcomes from projections, if any, and explain the underlying reasons thereof. The April 2022 MPR projected inflation at 6.3 per cent for Q1:2022-23 and 5.8 per cent for Q2. War-induced price pressures as well as domestic supply shocks turned out to be stronger and more persistent than anticipated, resulting in actual inflation exceeding projections by around 100 bps each in Q1 and Q2 (July-August) (Chart II.2). This came about largely from substantial upward surprises in food inflation.³ The unprecedented increase in global food prices in March led to sharp increases in domestic prices of edible oils, animal-based proteins through high feed costs, and wheat through export linkages. At the same time, the adverse impact of the intense heat wave caused damage to the *rabi* wheat crop, and tomato prices jumped by 158.4 per cent (on a year-on-year basis) in June 2022. Processed food prices also registered increases as higher input costs were passed on to selling prices. The depreciation of the Indian rupee from the baseline of ₹76 per US\$ to around ₹79-80 per US\$ by August-September also contributed to projection errors, partly offset



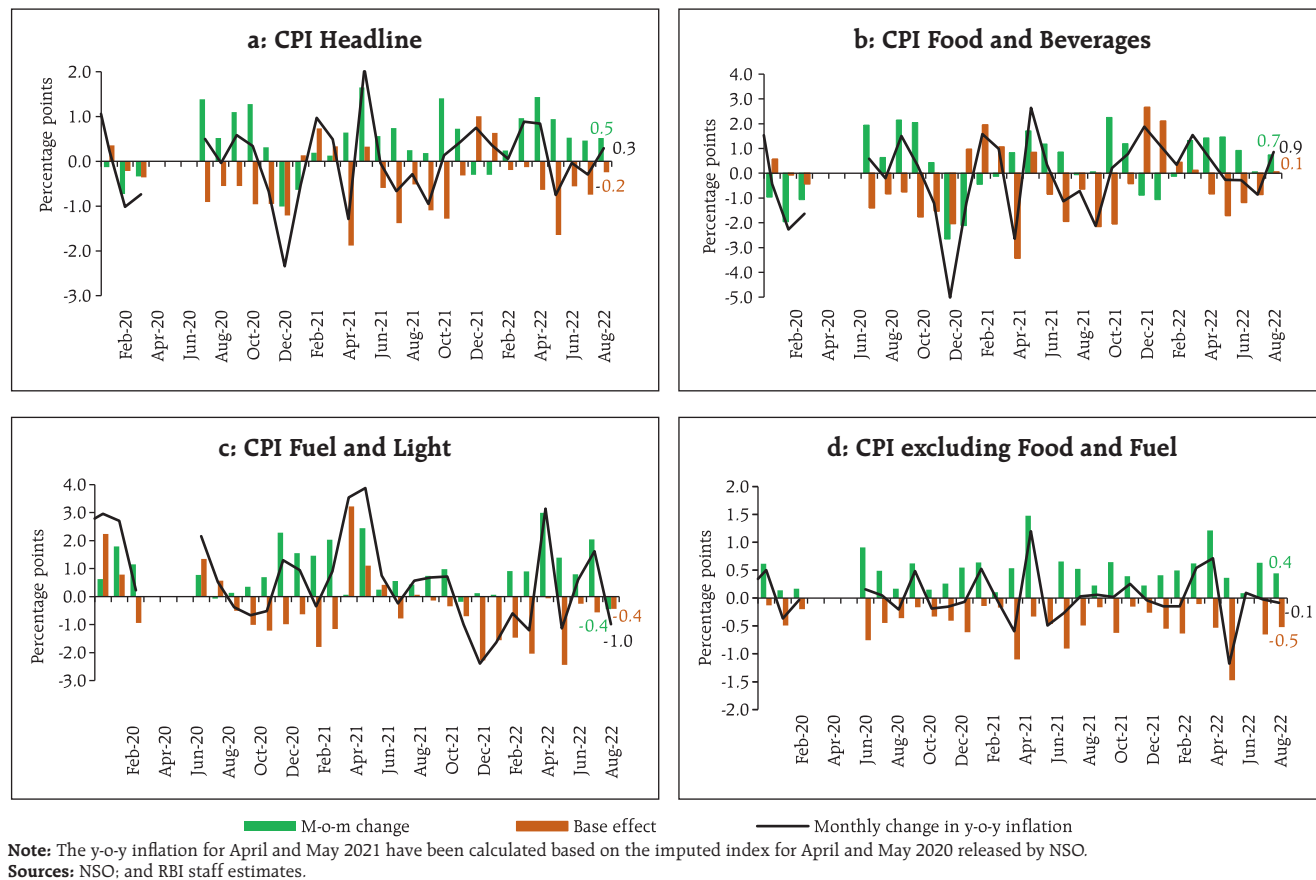
by the cut in excise duties on petrol and diesel in May 2022.

II.1 Consumer Prices

As explained in the preceding section, the surge in headline inflation in April was sharp and broad-based. Thereafter, a deceleration of the momentum of prices, supported by a large favourable base effect, brought down inflation to 7.0 per cent in May-June.⁴ The deceleration in momentum in May was located in the core component, even as food price momentum remained robust. In June, headline momentum moderated further, across all major groups. In July, even as headline CPI momentum remained unchanged at June level, favourable base effect led to a softening

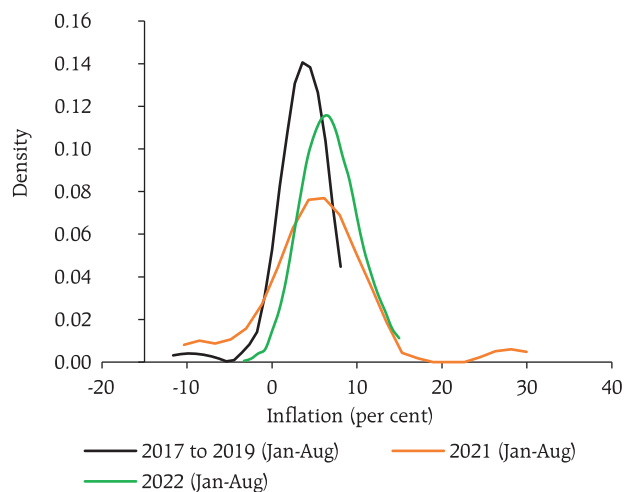
³ The April 2022 MPR had largely accounted for the persistence of international crude prices at elevated levels during 2022-23, with an assumption of US\$ 100 per barrel.

⁴ A change in CPI 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.3: CPI Inflation – Momentum and Base Effects

in inflation by 30 bps to 6.7 per cent. August was the third successive month with a steady momentum of 0.5 per cent; inflation, however, edged up by around 30 basis points as the favourable base effects waned (Chart II.3).

The mean of the CPI inflation distribution rose to 6.8 per cent in 2022 (January-August) from 5.3 per cent during the corresponding period in 2021 and the pre-COVID average of 3.4 per cent for 2017-19 (January-August). This was accompanied by higher median rates and lower dispersion in the sub-group/group-wise distribution of inflation rates signifying generalisation of inflation (Chart II.4), and heightened uncertainty about future inflation (Box II.1).

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

Sources: NSO; and RBI staff estimates.

Box II.1: Inflation and Inflation Uncertainty in India

Sustained high inflation can lead to higher uncertainty and allocative inefficiency (Friedman, 1977; Ball, 1992). The impact of inflation variability can, however, be ambiguous, depending on whether the central bank tolerates higher inflation (Cukierman and Meltzer, 1986) or it is committed to the inflation target and adopts a contractionary policy (Holland, 1995).

Using CPI data (month-on-month percentage changes of seasonally adjusted data) for the period April 2005 to July 2022, time-varying inflation uncertainty (or inflation

volatility) is estimated by employing a generalized autoregressive conditional heteroskedasticity (GARCH) model. Three specifications are estimated to address the various hypotheses using GARCH (2,1)⁵ estimates. Model I is the baseline model; in Model II, inflation rate is added to assess the Friedman-Ball hypothesis; in Model III, uncertainty (*i.e.*, the variance of inflation) is included in the mean equation to explore the Cukierman–Meltzer/Holland hypothesis (Table II.1.1).

The sum of ARCH and GARCH coefficients is in the range of 0.83 to 0.96 (*i.e.*, less than 1), suggesting that inflation volatility exhibits high degree of persistence but is mean reverting (Chart II.1.1).

The level of inflation is seen to have a positive impact on the variance of inflation (Model II), providing support for the Friedman-Ball hypothesis. Inflation volatility is seen to have a negative impact on the rate of inflation in line with the Holland hypothesis (Model III). Granger causality analysis indicates causality running from inflation to inflation volatility (Table II.1.2). Overall, the analysis suggests that high levels of inflation can raise uncertainty about future inflation and impinge upon inflation expectations, stressing the need for keeping inflation around the target.

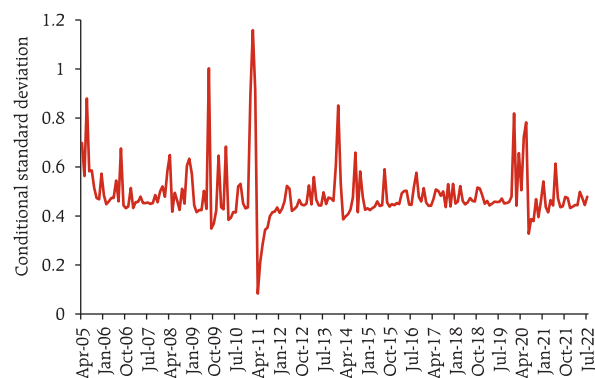
Table II.1.1: Inflation and Inflation Volatility: Estimates of GARCH Models

Variable	Model I	Model II	Model III
<i>Mean Equation</i>			
Constant	0.46*** (0.05)	0.32*** (0.04)	-0.37*** (0.14)
Inflation (-1)	0.22*** (0.06)	0.27** (0.06)	0.25*** (0.06)
Log(GARCH)	-	-	-0.50*** (0.07)
<i>Variance Equation</i>			
Constant	0.04 (0.03)	-0.01 (0.01)	0.01* (0.01)
ARCH(-1)	0.25*** (0.09)	0.15** (0.07)	0.47*** (0.10)
ARCH(-2)	-0.23*** (0.08)	-0.15** (0.06)	-0.45*** (0.10)
GARCH(-1)	0.83*** (0.18)	0.82*** (0.06)	0.94*** (0.03)
Inflation	-	0.09*** (0.02)	-
<i>Diagnostics</i>			
ARCH-LM (3)	0.43 (0.73)	1.58 (0.20)	0.46 (0.71)
ARCH-LM (6)	0.61 (0.72)	0.94 (0.47)	0.82 (0.55)
Q ² (3)	1.41 (0.77)	4.20 (0.24)	1.39 (0.71)
Q ² (6)	3.21 (0.78)	6.01 (0.42)	4.85 (0.56)
Engle-Ng Sign-Bias Test	2.20 (0.53)	4.34 (0.23)	2.69 (0.44)

Note: ***, ** and * indicate significance at 1, 5 and 10 per cent levels, respectively. Figures in parentheses indicate standard errors for mean and variance equations and p-values for the diagnostic tests. Inflation has been calculated as the seasonally adjusted month-over-month increase in prices. The sample period for the analysis is April 2005-July 2022.

Source: RBI staff estimates.

Chart II.1.1: Conditional Standard Deviation of Inflation based on GARCH (2,1)



Note: For April and May 2020, imputed indices released by NSO have been used.
Source: RBI staff estimates.

(Contd.)

⁵ A conditional least square estimation of the ARMA (1,1) model confirms that there are significant ARCH effects.

Table II.1.2: Causality between Inflation and Inflation Volatility

Null Hypothesis	Lag 3	Lag 6
Inflation does not Granger cause Inflation Volatility	6.75***	3.54***
Inflation Volatility does not Granger cause Inflation	1.90	1.02

Note: *** indicates significance at 1 per cent level.

Source: RBI staff estimates.

References:

Friedman, M. (1977), "Nobel Lecture: Inflation and Unemployment", *Journal of Political Economy*, 85(3), 451-472.

Ball, L. (1992), "Why does High Inflation Raise Inflation Uncertainty?", *Journal of Monetary Economics*, 29(3), 371-388.

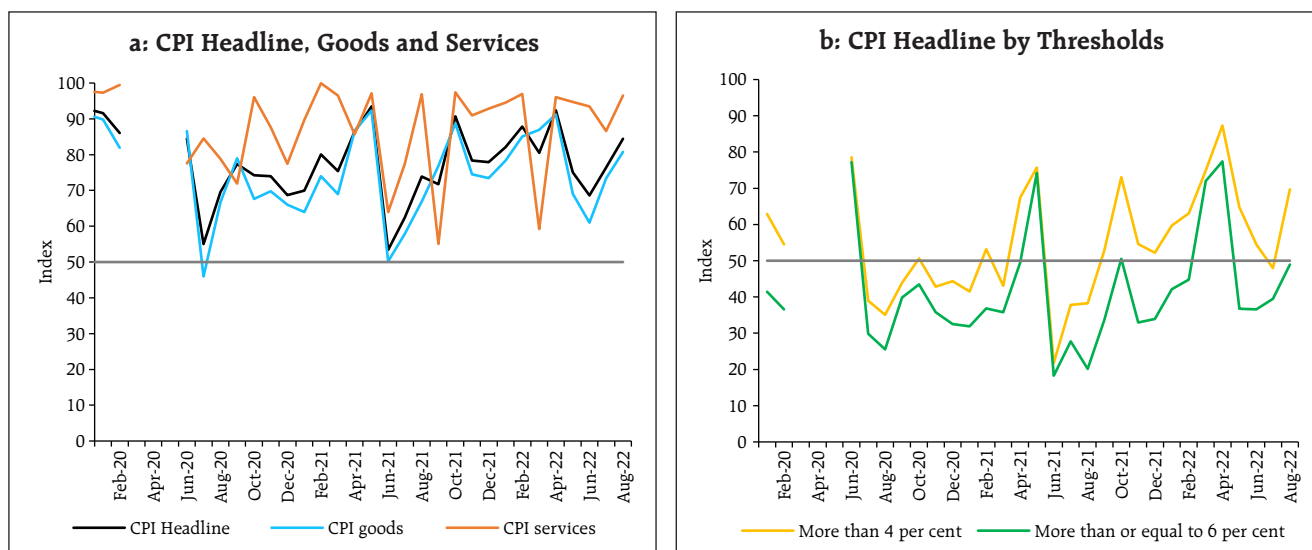
Cukierman, A., & Meltzer, A. H. (1986), "A Theory of Ambiguity, Credibility, and Inflation under Discretion and Asymmetric Information", *Econometrica*, 54(5), 1099-1128.

Holland, A. S. (1995), "Inflation and Uncertainty: Tests for Temporal Ordering", *Journal of Money, Credit and Banking*, 27(3), 827-837.

Balaji, B., Durai, S., & Ramachandran, M. (2016). "The Dynamics between Inflation and Inflation Uncertainty: Evidence from India", *Journal of Quantitative Economics*, 14(1), 1-14.

Diffusion indices (DIs)⁶ also attest to generalised price increases across the CPI basket during March-April 2022 (Chart II.5a). A majority of the items in the CPI basket showed threshold DIs⁷ in excess of 4 per cent and 6 per cent, based on a seasonally adjusted

annualised rate (saar). Though there was some let up during May-June, the spread of price increases accelerated during July-August. In August, a majority of CPI basket registered prices increases in excess of 4 per cent (saar) (Chart II.5b).

Chart II.5: CPI Diffusion Indices (M-o-M Seasonally Adjusted)

Sources: NSO; and RBI staff estimates.

⁶ 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 is above 50 for the diffusion index, 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.

⁷ 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.

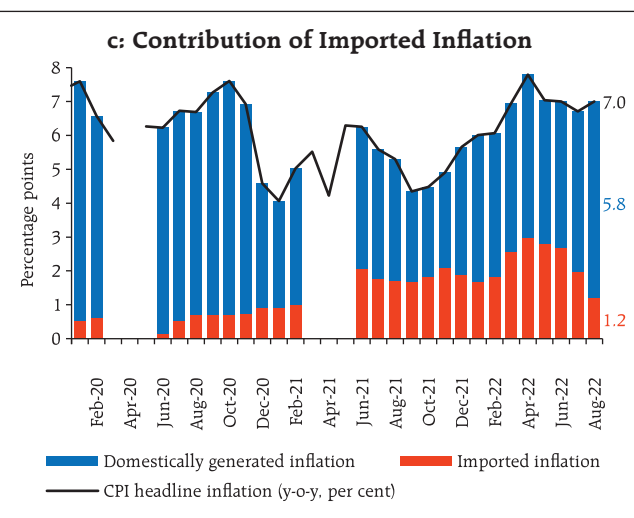
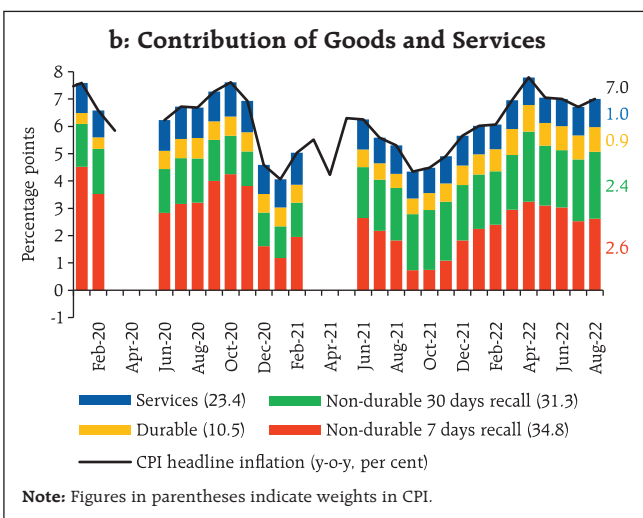
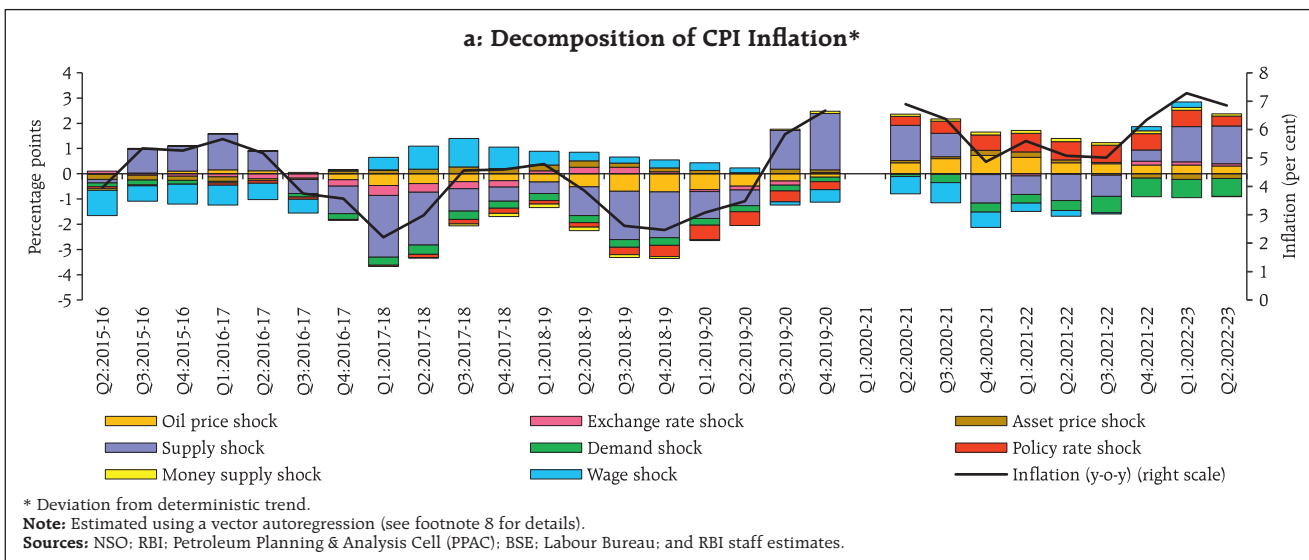
II.2 Drivers of Inflation

A historical decomposition of inflation using vector autoregression (VAR)⁸ analysis to ascertain the relative role of various macro factors indicates that the rise in inflation during H1:2022-23 can be primarily attributed to adverse supply-side shocks from food

along with fuel price shocks, while aggregate demand conditions continued to exert downward pressure on inflation (Chart II.6a).

During March-August 2022, goods inflation contributed 86 per cent of headline inflation. Perishables (non-durable goods with a 7-day

Chart II.6: Drivers of CPI Inflation



Sources: NSO; and RBI staff estimates

⁸ Historical decomposition estimates the contribution of each shock to the movements in inflation over the sample period (Q4:2010-11 to Q2:2022-23) 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.

recall⁹) like milk, tomatoes, potatoes, edible oils, cooked meals and chicken as well as semi-perishable goods (non-durable goods with a 30-day recall), particularly, petroleum products like kerosene, liquified petroleum gas (LPG) and petrol along with cereals and medicines were the main drivers of goods inflation (Chart II.6b). Durable goods contributed 12.8 per cent of overall inflation. The contribution of services (with a weight of 23.4 per cent in overall CPI) remained muted at around 14 per cent of headline inflation (Chart II.6b).

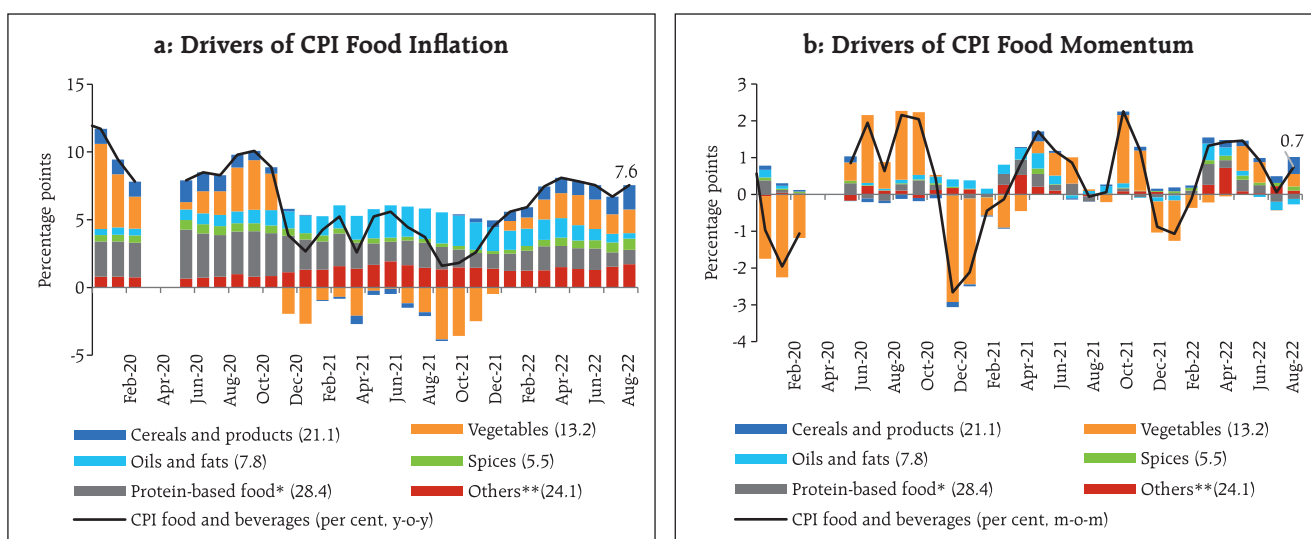
The increase in global commodity prices following the conflict in Ukraine contributed to a surge in the contribution of imported components¹⁰ to headline inflation during March-June 2022. Subsequently, the decline in international commodity prices in July-

August 2022 lowered imported inflation. The cut in central excise duties on petrol and diesel in May 2022 reduced domestically generated inflation (Chart II.6c).

Food

Food and beverages (with a weight of 45.9 per cent in CPI) inflation rose to 8.1 per cent in April 2022, owing to global supply shortages and adverse domestic weather conditions. Thereafter, food inflation eased to 6.7 per cent in July, supported by the Government's supply-side measures, some easing of international food prices and a substantial correction in tomato prices. In August, food inflation turned around to register a substantial pick-up, with cereals and vegetables being its key drivers (Chart II.7a and II.7b).

Chart II.7: CPI Food Inflation



*: Includes meat & fish, egg, milk and pulses.

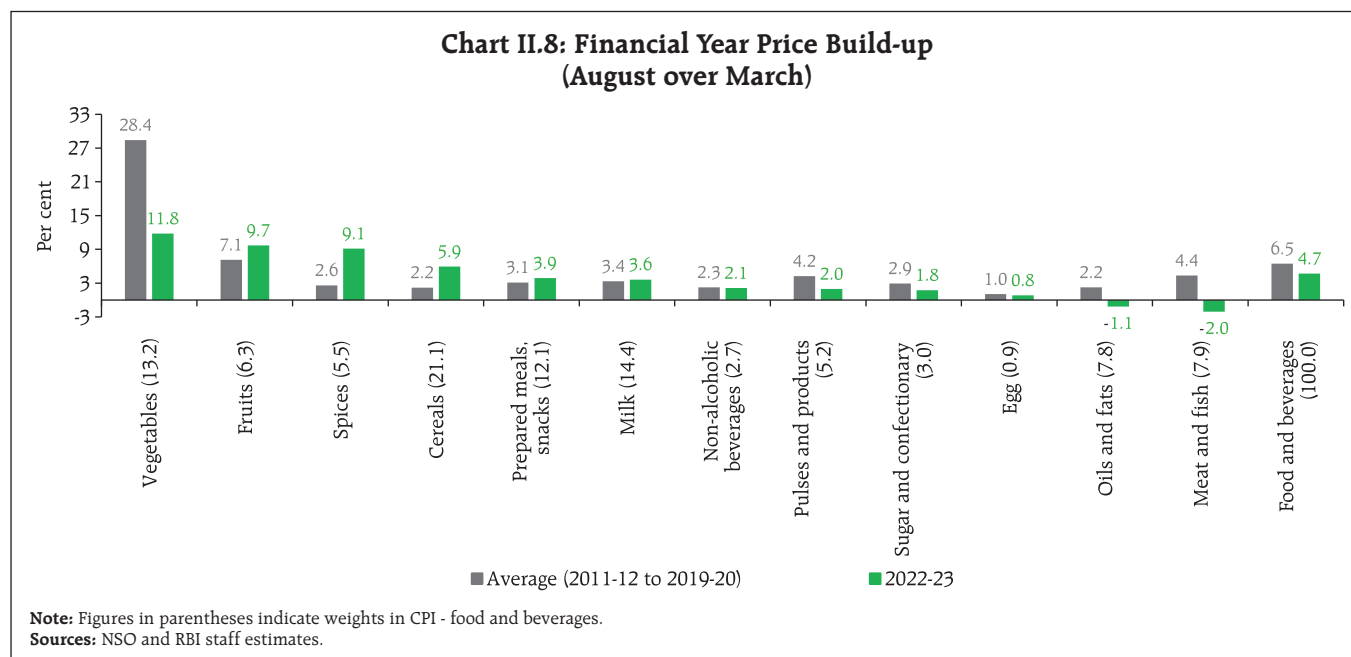
**: Includes fruits, sugar, non-alcoholic beverages and prepared meals.

Note: Figures in parentheses indicate weights in CPI food and beverages.

Sources: NSO; and RBI staff estimates.

⁹ 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.

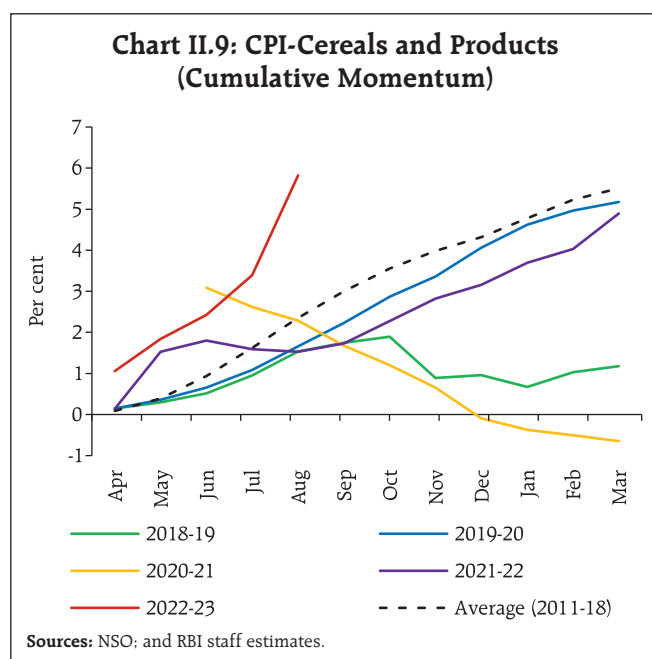
¹⁰ Global commodities that drive domestic prices include petroleum products; coal; electronic goods; gold; silver; chemical products; metal products; textiles; cereals; milk products, and vegetables oils – these together have a weight of 36.4 per cent in the CPI basket.



Even as food inflation remained elevated, the food price build-up in the current financial year (August over March) so far was muted relative to historical patterns. First, food prices registered a sharp pick-up in March 2022 itself, primarily on account of meat and fish, and edible oils. Second, while the price build-up in cereals (which constitutes more than a fifth of the food basket) was higher than its long-term average as was those of fruits, spices, prepared meals and milk, these were offset by a substantial correction in edible oils, and meat and fish prices from historic highs in May and June. Third, the summer seasonal increase in vegetable prices was lower than usual due to a softer build-up in onion, garlic and some other vegetables prices in view of higher production (Chart II.8).

Inflation in the prices of cereals (weight of 9.7 per cent in the CPI and 21.1 per cent in the food and beverages group) rose from 5.0 per cent in March 2022 to 9.6 per cent in August driven by sharp pick up in momentum (Chart II.9). Within cereals, wheat prices have increased sharply since March on account of lower domestic production (-2.5 per cent in 2021-22) due to heat waves in major wheat producing states, elevated global prices due to the war, higher exports

(157 per cent y-o-y during April-July 2022), and decline in stocks (0.9 times the buffer norms as on September 1, 2022). In response, restrictions on wheat exports were imposed since May 2022, and exports of wheat flour were banned from August 27, 2022. Rice prices increased due to the substitution of wheat by rice under *Pradhan Mantri Garib Kalyan Anna Yojana* (PMGKAY) for May-September 2022, higher exports



(9.0 per cent y-o-y during April-July 2022), and a fall in area under *kharif* sowing and expected lower production. Large stocks of rice (2.6 times the buffer norm as of September 1, 2022) and restrictions on broken rice exports along with imposition of 20 per cent export duty on rice other than basmati and par-boiled rice are expected to withhold undue price pressures.

Vegetable prices (weight of 6.0 per cent in the CPI and 13.2 per cent in the food and beverages group) inflation remained in double digits during March-August 2022, peaking in May. The spike in tomato prices (113.5 per cent during April-June 2022), along with price increases in other vegetables reflecting the usual summer uptick, remained the main drivers (Chart II.10). The negative contribution of onions and garlic, on an average, during April-August partly offset the inflationary pressures.

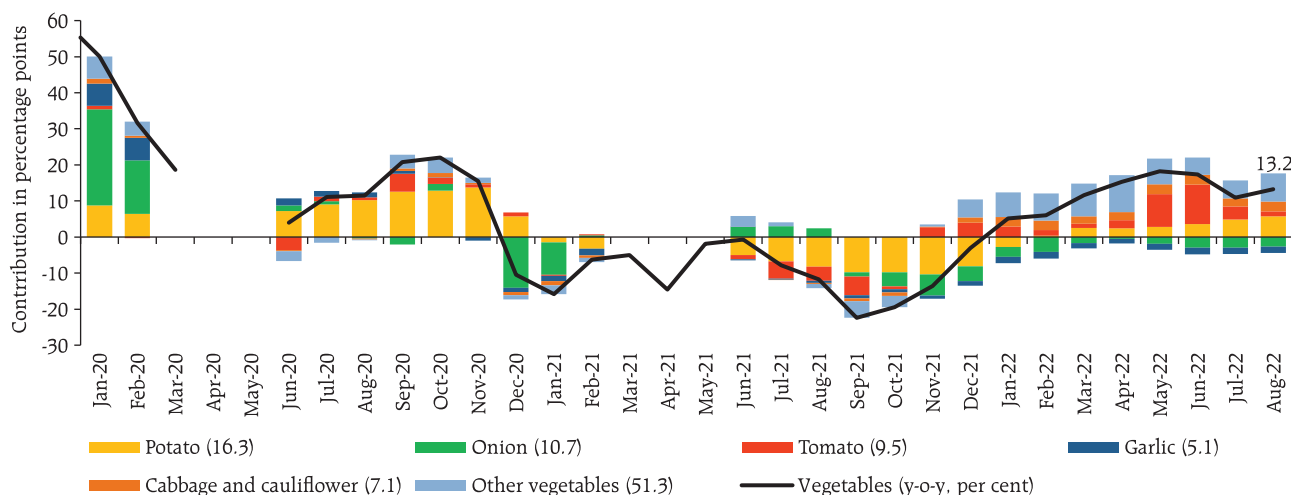
Among key vegetables, onion prices moderated during March-May 2022 on account of higher production (an increase of 19 per cent in 2021-22) and record procurement (buffer stock of 2.5 lakh metric tonnes (LMT) in 2022-23). Subsequently, prices rose during June-August 2022 in line with the usual seasonal

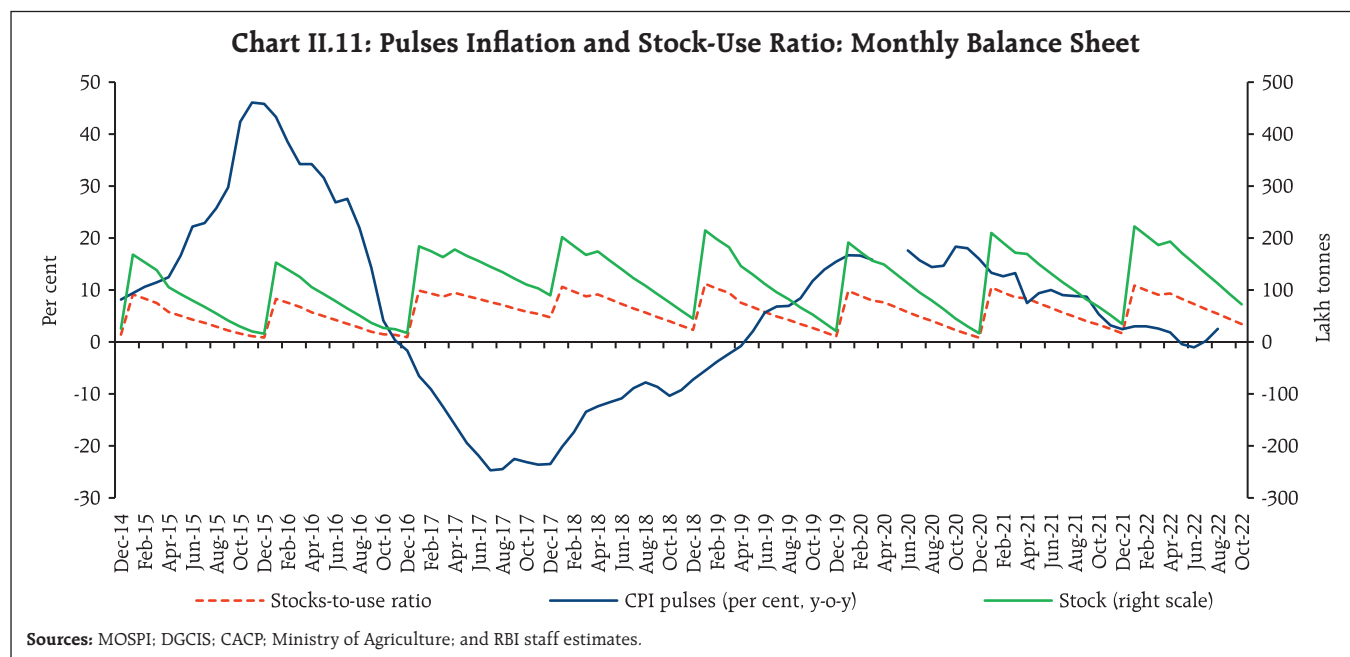
pattern. Potato prices increased during March-August 2022 due to lower production ((-) 4.6 per cent in 2021-22). To rein in price pressures, free imports of potatoes were allowed from Bhutan until June 30, 2023. Tomato prices picked up dramatically during April-June 2022 due to the decline in production ((-) 4.0 per cent in 2021-22) coming from lower area sown, heat waves in north India and excess rains and cyclone in Karnataka. The upbeat production response to elevated prices led to robust *mandi* arrivals and the easing of tomato prices during July-August 2022.

Inflation in prices of fruits (weight of 2.9 per cent in the CPI and 6.3 per cent within the food and beverages group) increased from 2.5 per cent in March 2022 to 7.4 per cent in August due to higher prices of bananas, apples, grapes and dry fruits. A spike in mango prices in April 2022 due to crop damage caused by heat waves and unseasonal rains also contributed to fruit price momentum.

Pulses (plant-based protein) price inflation (weight of 2.4 per cent in the CPI and 5.2 per cent in the food and beverages group) moderated from March 2022 until June after which it picked up during July-August. Prices moderated in Q1:2022-23 in line with

Chart II.10: Drivers of Vegetable Inflation (y-o-y)





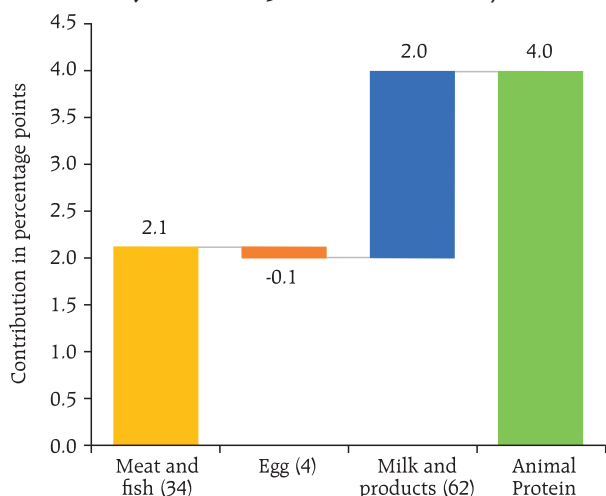
supply side measures by the government, including the extension of *tur* and *urad* imports under the 'free category' until March 31, 2023; the reduction in Agriculture Infrastructure and Development Cess (AIDC) on lentils to 0 per cent from 10 per cent extended till March 31, 2023; and higher production (8.8 per cent in 2021-22). However, inflation in pulses picked up gently during July-August, driven by shortfall in *kharif* sowing and the expected shortfall in production of *tur* and *urad*. Adverse base effects also contributed to the pick up in pulses inflation. The higher stock-to-use (STU) ratio (Chart II.11), aggressive procurement for central pool and supply-side interventions – like open market operations along with the decision to release *chana dal* at a discount to states and union territories (UTs) for welfare schemes – are, however, expected to contain pressures in pulses price in H2.

Regarding animal-based protein items, prices increased sharply in H1:2022-23, driven by meat and fish (weight of 3.6 per cent in the CPI and 7.9 per cent within the food and beverages group) and milk and products (weight of 6.6 per cent in the CPI and 14.4 per cent within the food and beverages group) (Chart II.12). In the case of meat and fish, prices rose during March-June 2022, reflecting feed cost pressures

amidst the early onset of summer, accompanied by heat waves. Price pressures eased in July-August 2022 due to reduced seasonal demand (on account of *Sravana* month) and imports of genetically modified (GM) soymeal. In contrast, a fall in prices along with favourable base effects dragged eggs price into deflation during April-August 2022. Milk and products prices increased consistently during March-August 2022, as major milk cooperatives (like Amul and Mother Dairy) raised retail prices by ₹2 per litre each in March and August 2022, citing an increase in input costs. This was followed by price increases by other state cooperatives.

Inflation in 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) eased during H1:2022-23, reaching 4.6 per cent in August, after remaining in double digits for more than two years (Chart II.13). The moderation in inflation was supported by easing global prices, supply-side measures undertaken by the government and higher domestic production (4.9 per cent in 2021-22). Global prices of edible oils, which had surged in March with the onset of the war, corrected with the lifting of the export ban (imposed on April 28, 2022) effective from May 23, 2022, the

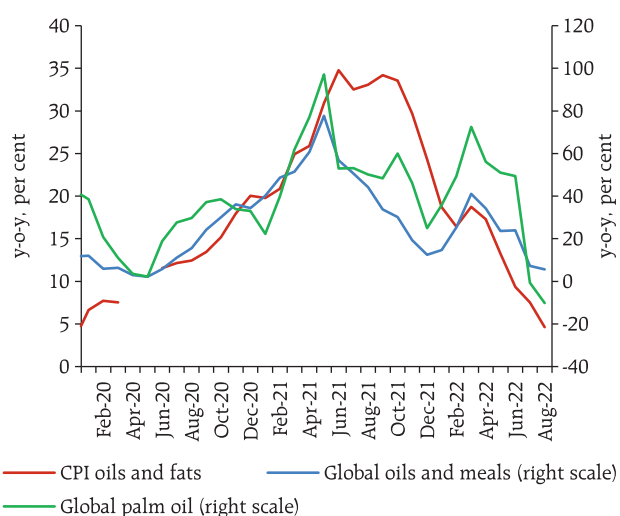
**Chart II.12: Drivers of Animal Protein Prices
(H1:2022-23 over H2:2021-22)**



Notes: Figure in parentheses indicate weight in CPI-animal protein group. H1:2022-23 refers to April-August.
Sources: NSO and RBI staff estimates.

removal of export levy until August 31, 2022, and the reduction in export duties by Indonesia. Price pressures also abated due to the supply side steps by the government, including an extension of stock limits on edible oils and oilseeds up to December

**Chart II.13: Movement in Edible Oil Prices:
Global vs Domestic**



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

31, 2022, the reduction in basic customs duty (BCD) to 0 per cent till March 31, 2023, allocation of tariff rate quota (TRQ) import of 2.0 million tonnes each for crude soybean and sunflower oil for the financial year 2022-23 and 2023-24 at 0 per cent BCD and AIDC and hike in minimum support prices (MSPs) of *kharif* oilseeds for 2022-23 (5.4 per cent to 8.9 per cent increase). On the other hand, rising milk prices resulted in upside pressures in ghee and butter prices.

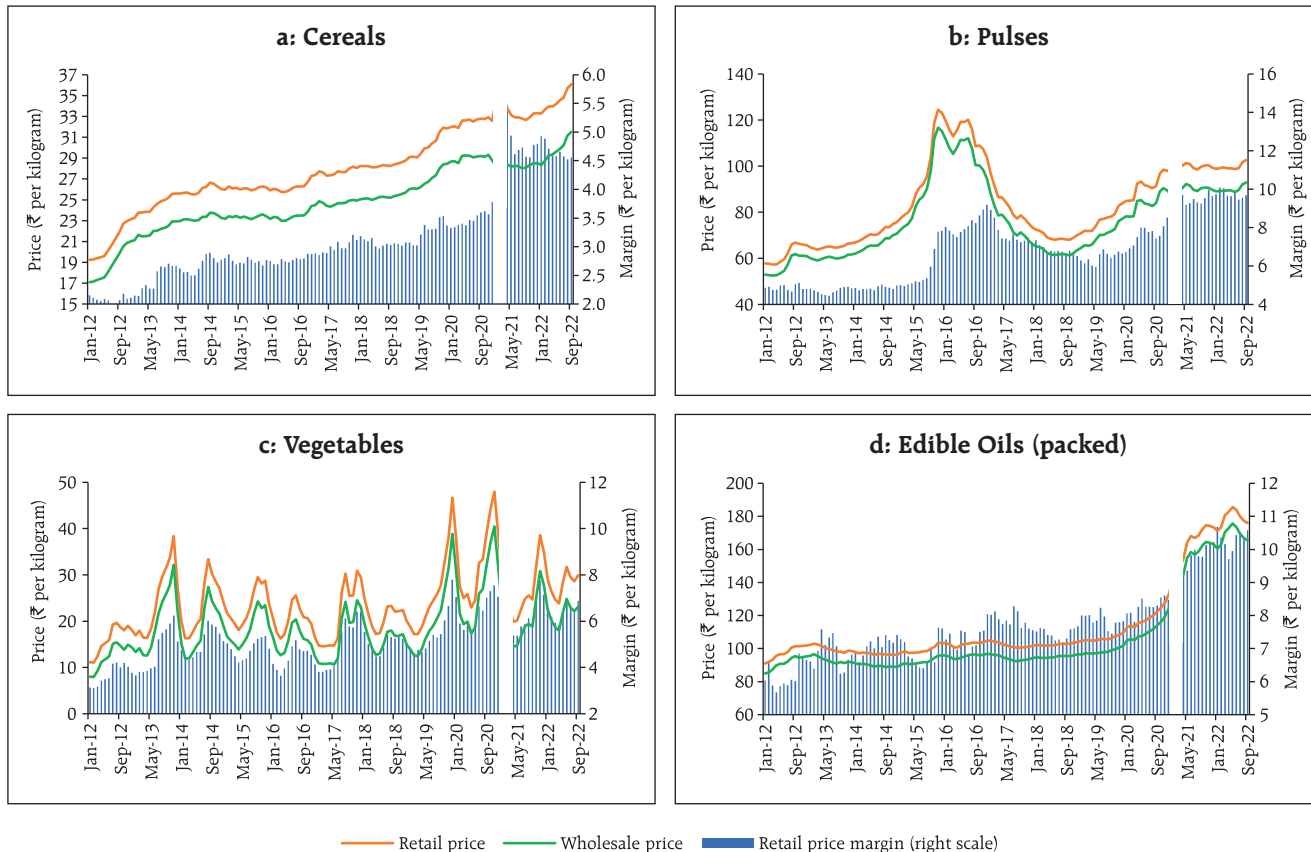
Prices of sugar and confectionery (weight of 1.4 per cent in the CPI and 3.0 per cent in the food and beverages group) remained muted during March-July 2022 on the back of higher production (7.7 per cent increase in sugarcane production in 2022-23) and export restrictions on sugar effective from June 1, 2022 to ensure ample domestic supplies. However, prices increased in August 2022 on higher exports (which rose by 32.5 per cent y-o-y during April-July 2022) coming from a relaxation of export limits and from expectations of a healthy festive demand.

Among other food items, inflation in prices of spices remained in double digits during H1:2022-23, reflecting lower production ((-) 1.9 per cent in 2021-22), especially in the case of key spices like coriander, cumin, black pepper and red chillies. Furthermore, prepared meals witnessed a rise in prices, due to an increase in input costs such as edible oils, LPG and transport charges.

Retail Margins

Retail price margins – the difference of retail and wholesale prices¹¹ – for cereals and pulses, which had

¹¹ 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 (DCA).

Chart II.14: Retail and Wholesale Prices and Margins

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

been on the rise since the outbreak of the COVID-19 pandemic, remained at elevated levels during H1. Margins in edible oils moderated somewhat in April 2022 due to a higher degree of softening in retail mustard oil prices relative to wholesale prices. In the case of vegetables, margins rose in May-June 2022, driven by the sharp uptick in tomato retail prices, but they moderated subsequently with the correction in tomato prices (Chart II.14).

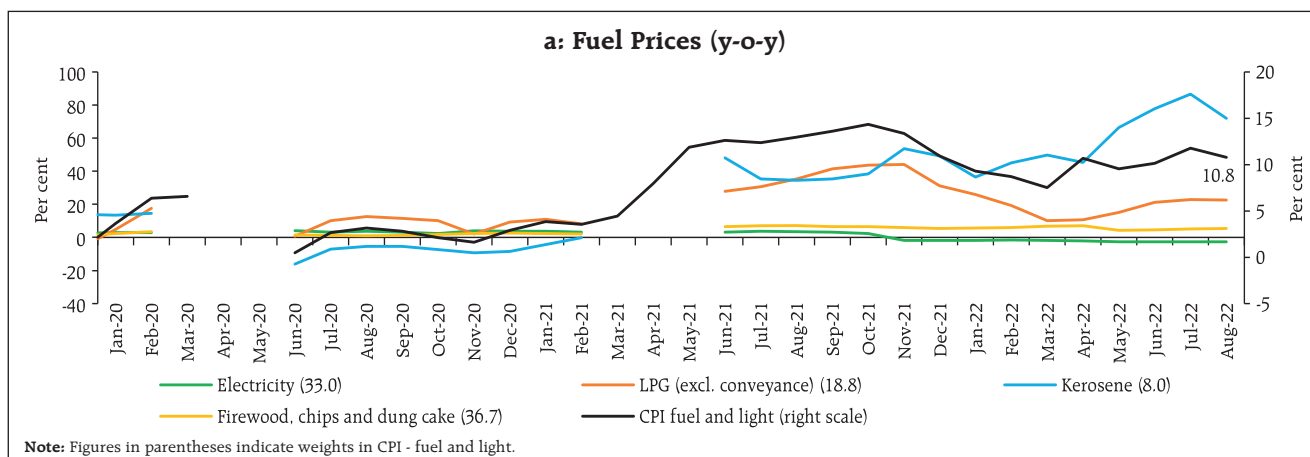
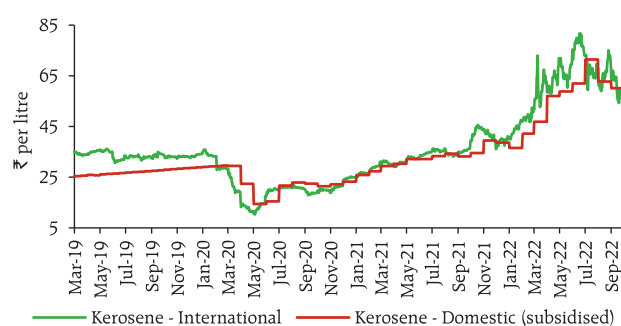
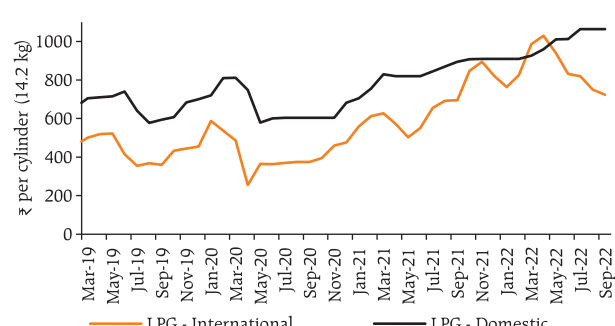
Fuel

CPI fuel inflation surged from 7.5 per cent in March 2022 to 11.8 per cent by July 2022 on the back of sharp increases in LPG and subsidised kerosene (PDS) prices which, in turn, reflected the sharp jump in global energy prices following the conflict in Ukraine. Fuel inflation moderated to 10.8 per cent

in August due to decline in kerosene (PDS) prices reflecting pass through of the fall in international prices. Electricity prices have remained in deflation in 2022 so far (Chart II.15).

Core

Core inflation, *i.e.*, CPI inflation excluding food and fuel, increased sharply after the start of the war to 7.1 per cent in April 2022 from 5.8 per cent in February. It moderated thereafter on favourable base effects, the reduction in excise duties on petrol and diesel and some deceleration in price momentum. During June-August, core inflation remained steady at around 6.0 per cent, including when other volatile items such as petrol, diesel, gold and silver are excluded (Table II.1).

Chart II.15: CPI Fuel Group Inflation**b: Kerosene: Domestic and International Prices****c: LPG: Domestic and International Prices**

Notes: (1) The indicative international price for kerosene is the Singapore Jet Kero spot price.

(2) 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.

(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). Domestic prices of LPG are monthly average prices.

Sources: NSO; Bloomberg; IOCL; and RBI staff estimates.

Table II.1: Exclusion-based Measures of Core Inflation (y-o-y)

Month	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)
Jun-21	6.1	5.3	5.4
Sep-21	5.9	5.2	5.6
Dec-21	6.1	5.6	5.9
Jan-22	6.0	5.6	5.8
Feb-22	5.8	5.6	5.7
Mar-22	6.4	6.2	6.1
Apr-22	7.1	6.5	6.4
May-22	5.9	5.5	5.5
Jun-22	6.0	6.1	6.1
Jul-22	6.0	6.3	6.4
Aug-22	5.9	6.2	6.2

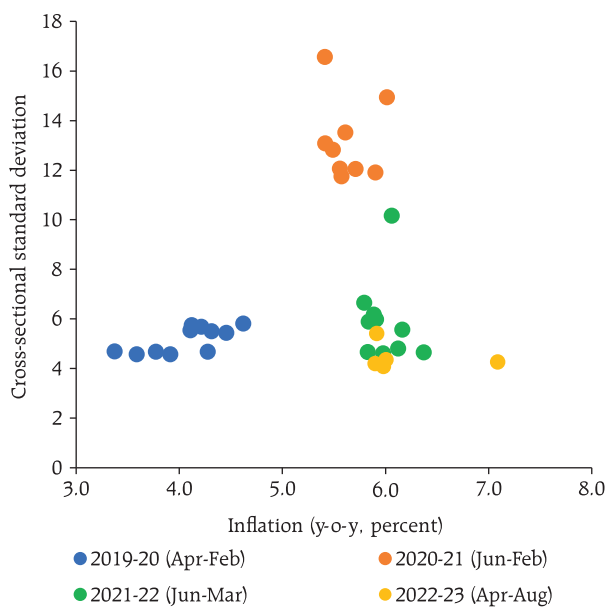
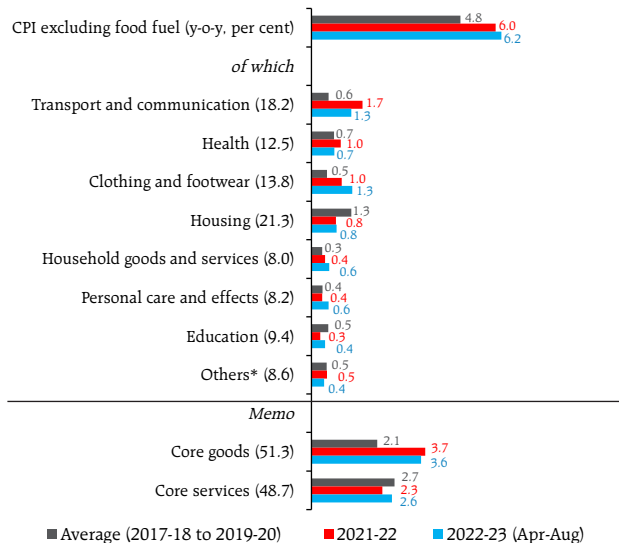
Notes: (1) Figures in parentheses indicate weights in CPI.

(2) Derived as residual from headline CPI.

Sources: NSO; and RBI staff estimates.

Core inflation has been persistent and elevated since 2021, due to repeated cost-push shocks in manufacturing and services (Chart II.16). During 2022-23 (April-August), core inflation averaged 6.2 per cent (5.9 per cent a year ago), with pressures broad-based, particularly in the goods component (Chart II.17).

The jump in core inflation by 126 basis points between February and April 2022 was considerably influenced by spillovers from the increases in international crude oil and gold prices following the start of the war in end-February. As international crude oil prices inched upwards of US\$ 120 per barrel in March, domestic petrol and diesel pump prices rose by around ₹10 per litre between March 22 and April

Chart II.16: CPI Inflation excluding Food and Fuel: Persistence**Chart II.17: Contribution to CPI excluding Food Fuel (Core) Inflation (in percentage points)**

6, 2022 and then remained unchanged till May 22, 2022. Pump prices then fell, following the reduction

in excise duties by ₹8 per litre on petrol and by ₹6 per litre on diesel (Chart II.18).

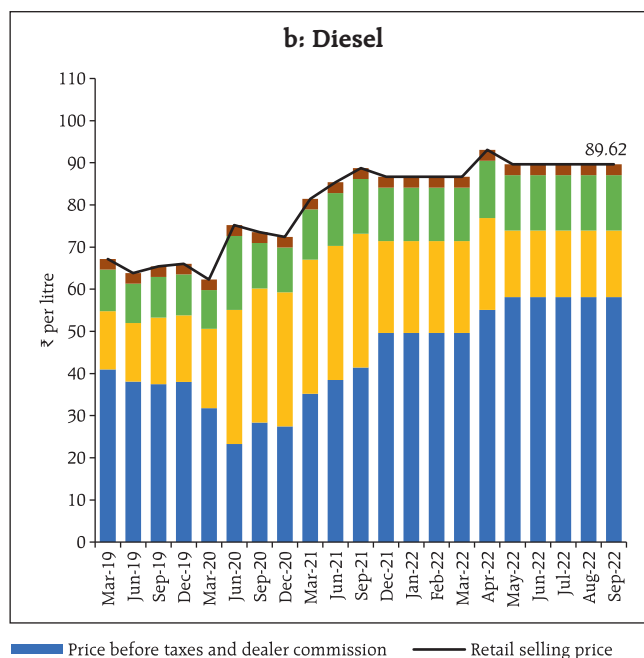
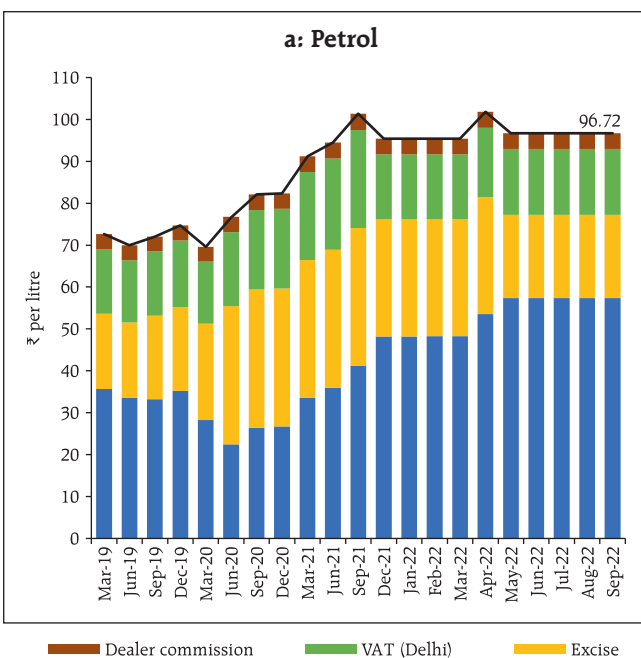
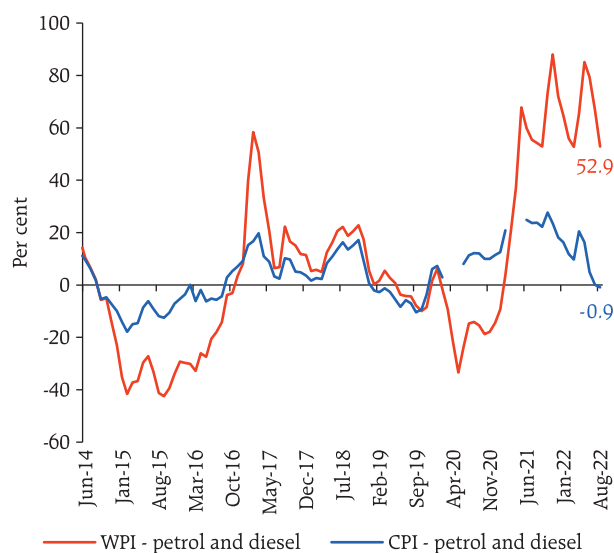
Chart II.18: Price Build-Up (IOCL Delhi Prices)

Chart II.19: Petrol and Diesel Inflation (y-o-y)

Coupled with favourable base effects, the cut in excise duties resulted in CPI petrol and diesel prices moving to the deflationary zone by August 2022. Price increases in WPI petrol and diesel were higher at 53 per cent (y-o-y) in August, largely reflecting the fact that indirect taxes are included in CPI but excluded from WPI (Chart II.19). On the whole, the reduction in excise duties had a direct softening impact of 43 bps on core inflation and 20 bps on headline inflation. The decline in gold prices during May-July also contributed to the moderation of core inflation.

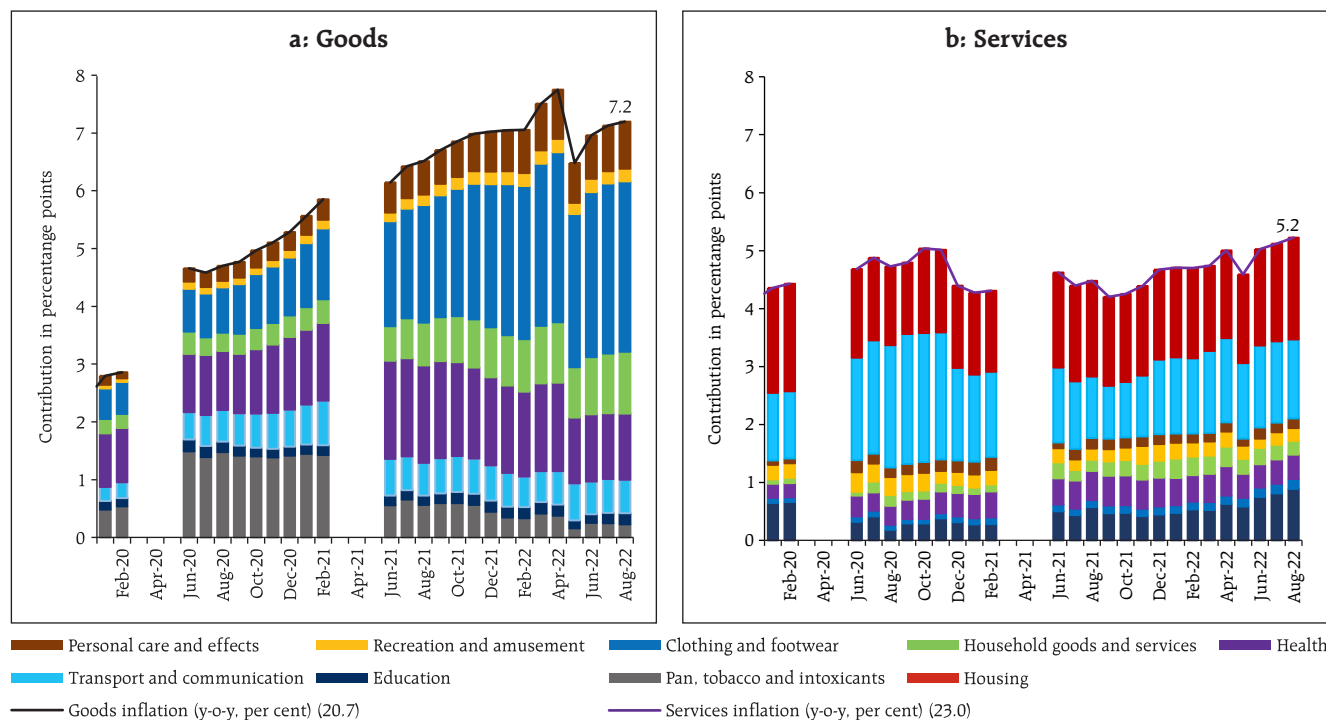
Threshold diffusion indices for CPI excluding food, fuel, petrol, diesel, gold and silver indicate that a large majority of items exhibited price increases in excess of 4 per cent and 6 per cent (on a saar basis) during March-April 2022. Although pressures relaxed to some extent during May-July, these firmed up again for a majority of items in August (Chart II.20).

Inflation in CPI excluding food, fuel, petrol, diesel, gold and silver registered increases across both goods and services during March-August 2022, reflecting

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

pass-through of pent-up input cost pressures to output prices (Chart II.21a). During this period, core goods inflation remained significantly higher than core services inflation. Inflation in the goods component (with a weight of 20.7 per cent in the headline CPI) increased from 7.1 per cent in February 2022 to 7.7 per cent in April, driven by clothing and footwear items, household goods and personal care items (including fast-moving consumer goods (FMCGs) and household utensils) along with health, transport and communications goods. Though core goods inflation moderated to 6.5 per cent in May, the respite was short-lived as it edged up by around 72 bps during June-August, coming mainly from a further rise in inflation in clothing and footwear, and household goods and personal care items.

Core services inflation (with a weight of 23.0 per cent in the headline CPI) also rose from 4.7 per cent in February 2022 to 5.2 per cent in August (Chart II.21b), due to pressures from education (tuition and other fees), transport services (bus/tram/taxi fare, airfare, steamer/boat charges) and housing. Despite some rise, inflation in housing, the largest

Chart II.21: Contributions to CPI Inflation excluding Food, Fuel, Petrol, Diesel, Gold and Silver

component in services, remained muted in H1 (averaging 3.8 per cent between April-August).

Like exclusion-based core inflation indicators, trimmed mean measures¹² point towards a generalised upsurge in inflation with a peak in April 2022 and some moderation thereafter till July. The trimmed measures picked up again in August (Table II.2).

Other Measures of Inflation

Inflation measured by sectoral CPIs for agricultural labourers (CPI-AL) and rural labourers (CPI-RL) remained below CPI headline inflation during July 2020-June 2022. Lower food inflation, combined with the high weightage of food in the CPI-AL and the CPI-RL *vis-à-vis* the CPI, contributed to the lower inflation

prints during this period. In August 2022, with the rise in food prices, CPI-AL and CPI-RL inflation moved close to/marginally above CPI headline inflation. Inflation measured by the CPI for industrial workers (CPI-IW) persisted below the CPI headline during March-July

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

Month	5% trimmed	10% trimmed	25% trimmed	Weighted Median
Jun-21	5.7	5.2	5.0	5.2
Sep-21	5.0	4.9	4.8	4.3
Dec-21	5.8	5.4	5.2	4.7
Jan-22	5.9	5.6	5.3	5.1
Feb-22	6.0	5.7	5.3	5.6
Mar-22	6.6	6.3	6.1	6.1
Apr-22	7.3	7.0	6.6	6.5
May-22	6.4	6.1	5.5	5.7
Jun-22	6.2	6.0	5.7	5.7
Jul-22	6.1	6.0	5.7	5.7
Aug-22	6.6	6.4	6.2	6.5

Sources: NSO; and RBI staff estimates.

¹² 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.

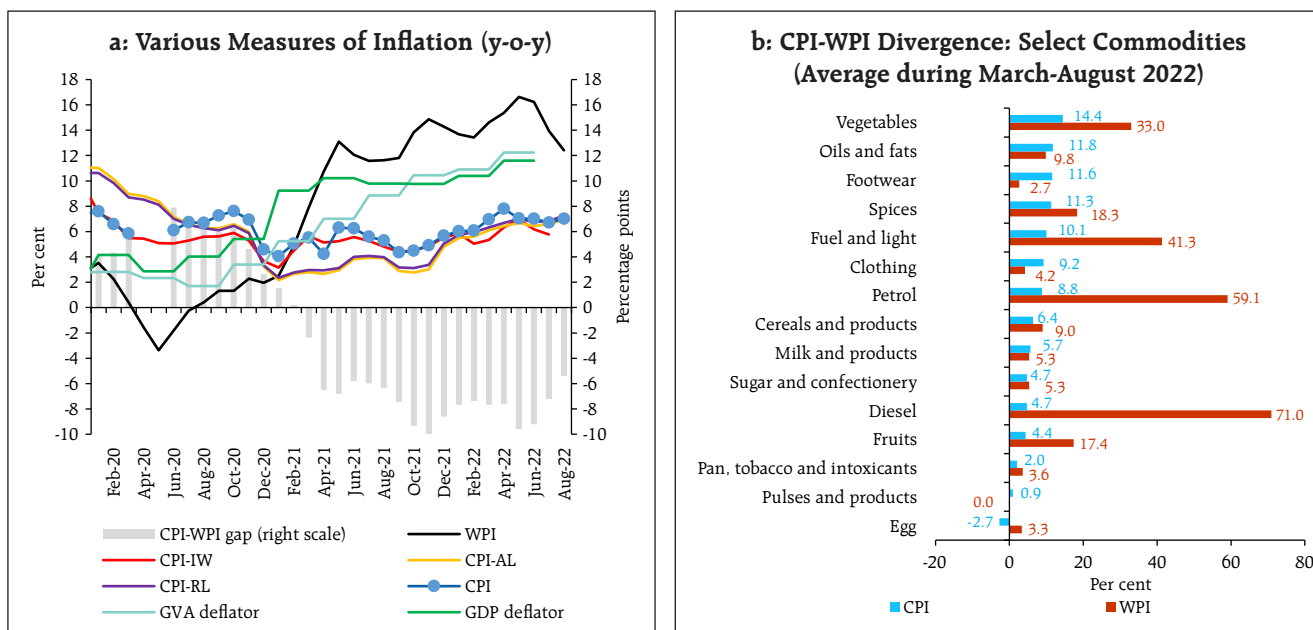
2022 as food inflation was generally lower in the CPI-IW vis-à-vis the CPI. Moreover, lower housing inflation in CPI-IW, paired with high weightage of housing vis-à-vis the headline, also added to the softness in CPI-IW inflation prints.

WPI inflation has been in double digits since April 2021 and increased to an all-time high of 16.6 per cent (as per the WPI series, 2011-12=100) in May 2022 before moderating during June-August. Despite strong favourable base effects, the spike in crude oil and commodity prices following the war drove WPI inflation during March-May 2022. The steep rise in international commodity prices resulted in WPI non-food manufactured products inflation persisting in double digits during May 2021-May 2022. WPI inflation moderated to 12.4 per cent in August 2022 on account of an easing of price pressures in basic metals, textiles, and food products, particularly vegetable and animal oils and fats, in an environment of favourable base effects. In line with WPI inflation,

the deflators for gross value added (GVA) and gross domestic product (GDP) edged up sharply between Q4:2021-22 to Q1:2022-23 (Chart II.22a).

During March-August 2022, all the major subgroups of WPI remained substantially above their corresponding CPI subgroups (Chart II.22b). Petrol and diesel prices inflation in WPI exceeded CPI inflation, largely reflecting the reductions in excise duty and state VAT rates which are captured in CPI but are excluded in WPI. High energy prices in the international market are mirrored in the fuel and power group of the WPI. The spike in international commodity prices and industrial intermediaries resulted in a hardening of WPI non-food manufactured products inflation, which also contributed to WPI inflation ruling above the CPI. Within food, WPI inflation was higher than CPI in cereals, vegetables, fruits, eggs and spices. Moreover, WPI does not include services, which is witnessing lower inflation compared with goods inflation in the CPI.

Chart II.22: Alternative Measures of Inflation

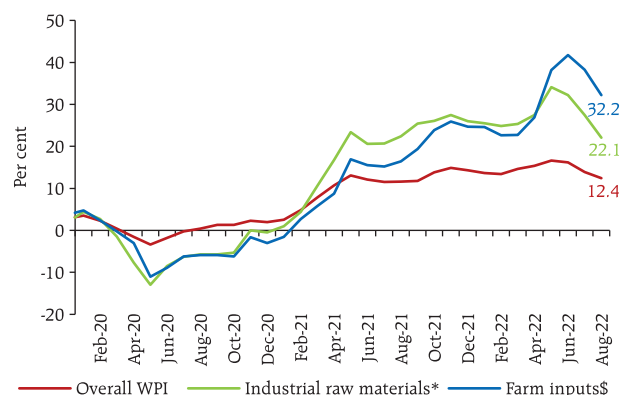


Sources: NSO; Labour Bureau; Ministry of Commerce and Industry; and RBI staff estimates.

II.3 Costs

During H1:2022-23 (up to August), cost pressures measured by WPI inflation in industrial raw materials and farm inputs remained firm, notwithstanding some softening. Inflation in the prices of industrial inputs – such as high-speed diesel (HSD), naphtha, aviation turbine fuel (ATF), bitumen, petroleum coke, and furnace oil – which had peaked at 34.1 per cent in May 2022 under the impact of high crude oil prices moderated to 22.1 per cent in August with the correction in crude prices (Chart II.23). After hardening during March-May 2022, the prices of non-food primary articles eased from June 2022 due to the moderation in the prices of fibres and oilseeds mirroring international price trends. Prices of minerals, despite mixed trends and high volatility, broadly eased during March-August 2022. During July-August 2022, the pressures on industrial raw materials prices ebbed in line with the easing global metal prices. The export duty hike on iron ore and certain steel products also helped to contain price pressures (Chart II.23). The farm input price inflation was largely driven by increase in HSD prices, agricultural and forestry machinery, fodder on account of dry weather conditions, and fertilisers. Inflation in price of WPI

Chart II.23: 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.

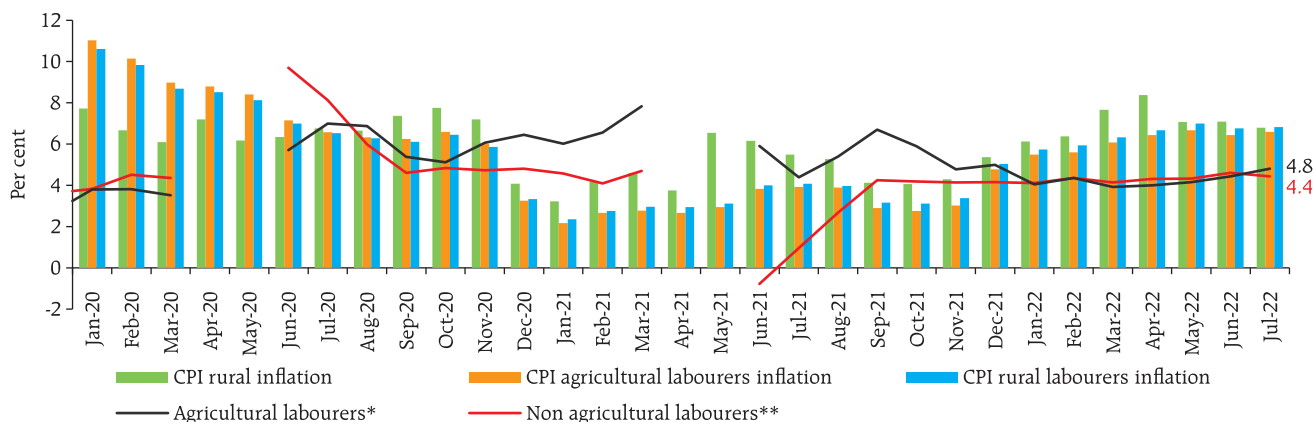
\$: Comprise high speed diesel, fodder, electricity, fertilisers, pesticides, and agricultural and forestry machinery from WPI.

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

electricity – a key input in both industrial and farm inputs – increased sharply due to positive momentum as well as adverse base effects.

Nominal rural wage growth for both agricultural and non-agricultural labourers remained muted during H1:2022-23 (up to July) (Chart II.24). This can be expected to contain the build-up of a wage-price spiral (Box II.2).

Chart II.24: 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 and 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 2020 and 2021 were not released.

Sources: NSO; Labour Bureau; and RBI staff estimates.

Box II.2: An Examination of the Rural Prices and Wages Dynamics in India

Available data on rural wages and rural consumer price indices show episodes of co-movement as well as marked divergences (notably July 2010-October 2013 when rural real wages registered sharp increases, outpacing CPI inflation) (Chart II.2.1).

In order to explore wage-price dynamics, a state-level cointegration panel analysis of the relationship between rural prices (using data for CPI-Rural) and rural wages (for agricultural and non-agricultural workers) for the pre-COVID period of April 2017 to February 2020 is undertaken. Pedroni's panel tests suggest the existence of a long-term cointegrating relation between wages and prices. The long and short-run dynamics are examined on the basis of the Pooled Mean Group (PMG) estimator (Pesaran *et al.*, 1999). The long-run coefficients are below unity in both the prices and wage equations (0.41 and 0.57, respectively), indicating less than proportional increase in prices in response to wage shocks and *vice versa*. Turning to short-run dynamics, the coefficients of the error correction term (ECT) in both the equations

Table II.2.1: Rural Wages and Rural Prices – Panel Cointegration Results

Price Equation: $\Delta \ln(\text{price})$		Wage Equation: $\Delta \ln(\text{wage})$	
Long run equation: $\ln(\text{price}) = a \times \ln(\text{wage}) + ECT$		Long run equation: $\ln(\text{wage}) = a \times \ln(\text{price}) + ECT$	
a	0.40*** (0.04)	a	0.57*** (0.07)
Short run equations			
ECT	-0.14*** (0.02)	ECT	-0.12** (0.05)
$\Delta \ln(\text{wage})$	-0.05 (0.06)	$\Delta \ln(\text{price})$	-0.03 (0.08)
$\Delta \ln(\text{price})$ (-1)	0.16*** (0.05)	$\Delta \ln(\text{wage})$ (-1)	-0.00 (0.06)
$\Delta \ln(\text{wage})$ (-1)	-0.11* (0.06)	$\Delta \ln(\text{price})$ (-1)	-0.22 (0.15)
Rainfall deviation	0.00*** (0.00)	Rainfall deviation	-0.00 (0.00)
Constant	0.37** (0.05)	Constant	0.39** (0.15)

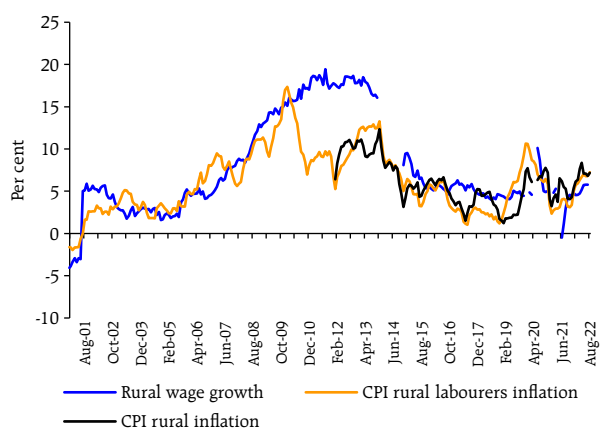
Note: ***, ** and * indicate significance at 1, 5 and 10 per cent levels, respectively. Figures in parentheses indicate standard errors.

1. The sample consists of 17 major states for the period April 2017 to Feb 2020.

2. Rural wages have been calculated as a simple average of the rural agricultural and rural non-agricultural wages, following Kundu (2019).

Source: RBI staff estimates.

Chart II.2.1: Rural Wage Growth and Rural Inflation



Sources: NSO; Labour Bureau; and RBI staff estimates.

are significant: in the case of any shock, both prices and wages adjust quickly towards their long-run levels, and the speed of adjustment in prices is somewhat faster than in wages (Table II.2.1).

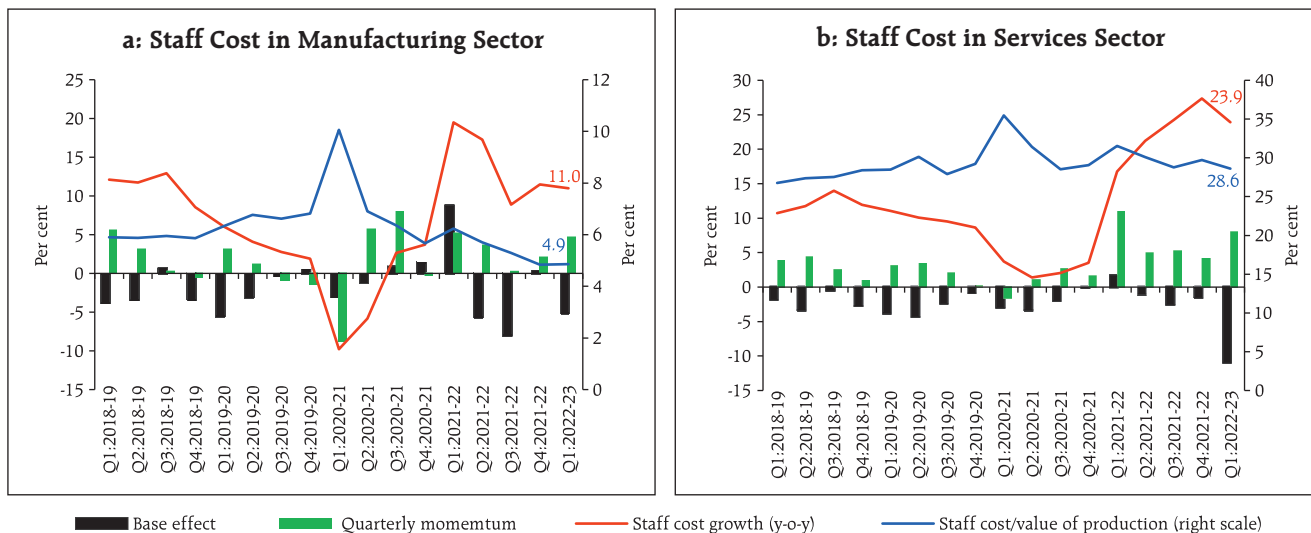
References:

Pesaran, M. Hashem, Yongcheol Shin, and Ron Smith (1999), "Pooled Mean Group Estimation of Dynamic Heterogeneous Panels", *Journal of the American Statistical Association*, 94.446, pp. 621-634.

Kundu, Sujata (2019), "Rural Wage Dynamics in India: What Role does Inflation Play", *RBI Occasional Paper*, 40, pp. 51-84.

In the organised sector, growth in staff cost (y-o-y basis) decelerated in Q1:2022-23 in both manufacturing and services sectors. The share of staff cost in the value of production was

broadly unchanged in the manufacturing sector in Q1 compared to the previous quarter, while it decreased marginally in the services sector (Chart II.25).

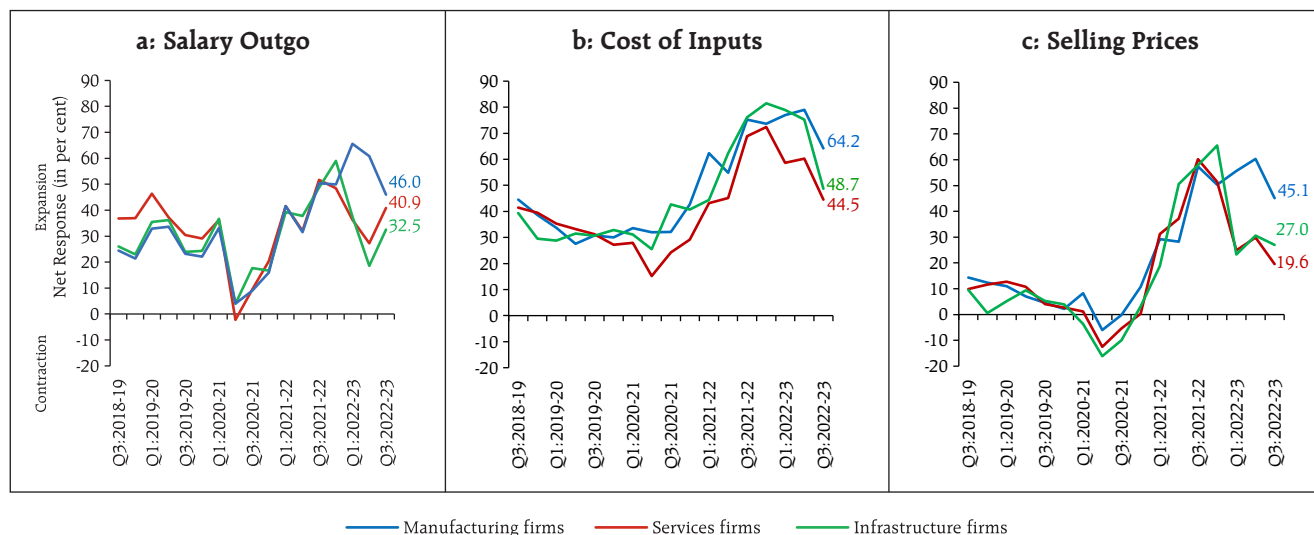
Chart II.25: Labour Cost in Manufacturing and Services

Note: The staff cost growth (y-o-y) is based on common set of companies.

Sources: Capitaline database; and RBI staff estimates.

As per the firms polled in the Reserve Bank's enterprise surveys¹³, the pace of salary outgoes for the manufacturing sector is expected to moderate in Q3:2022-23 while the services and infrastructure

sectors may see higher pressures. Input costs and selling prices for the manufacturing, services and infrastructure sector firms are likely to soften in Q3 (Chart II.26).

Chart II.26. Expectations of Cost Conditions (Net Response)

Note: 'Net response' is the difference between the percentage of respondents reporting increase in prices and those reporting decrease.

Sources: Reserve Bank's Industrial Outlook Survey; Services & Infrastructure Outlook Survey; and RBI staff estimates.

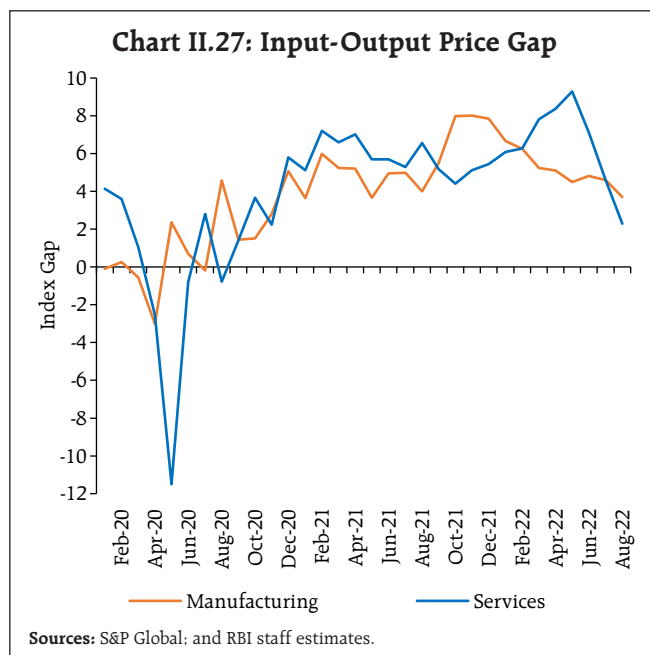
¹³ Industrial Outlook Survey; and Services and Infrastructure Outlook Survey.

One-year ahead business inflation expectations after peaking in April 2022, fell during May-July but ticked up in August 2022, according to the survey by the Indian Institute of Management, Ahmedabad.¹⁴ Survey respondents also reported that cost pressures re-emerged in August and optimism on sales and profit margins fell.

According to manufacturing firms polled in the purchasing managers' index (PMI) surveys, while input prices rose, there was an easing of the momentum during May-August 2022 due to softening metal and intermediate goods prices. In PMI services, input prices remained elevated, with an easing of the momentum in June-August 2022. Output price inflation for both manufacturing and services sectors was benign relative to input price inflation and the input-output price gap has moderated due to the softening input prices momentum, coupled with gradual pass-through of cost burdens (Chart II.27).

II.4 Conclusion

Inflationary pressures have escalated globally due to the successive black swan events – the COVID-19 pandemic and the conflict in Ukraine. Mirroring global developments, India also experienced a sharp pick-up in inflationary pressures in H1, following the jump in global commodity prices as well as due to adverse



domestic weather shocks. Consumer price inflation peaked in April 2022. It has since then moderated, but persists above the pre-war levels and also above the upper tolerance band. Its return to the target is expected to be gradual. The outlook is, however, fraught with considerable uncertainties, given the highly volatile geopolitical situation, spillovers from the elevated global financial market volatility and recurring adverse climatic conditions. Monetary policy remains focused on ensuring that inflation remains within the target going forward, while supporting growth.

¹⁴ The monthly Business Inflation Expectations Survey (BIES) of the Indian Institute of Management, Ahmedabad, polls a panel of businesses, primarily the manufacturing sector, about their inflation expectations in the short and medium term. The latest survey (August 2022 round) was based on the responses of around 900 companies.

III. Demand and Output

Domestic economic activity exhibited resilience in H1:2022-23. The buoyancy in aggregate demand was supported by private consumption and investment demand. Geopolitical tensions, tightening of global financial markets and global economic slowdown, however, pose downside risks to the domestic outlook.

Domestic economic activity exhibited resilience in H1:2022-23 in spite of some moderation in momentum relative to H2:2021-22. With the recovery of manufacturing and contact-intensive services, aggregate supply conditions are improving. Aggregate demand is underpinned by private consumption, which is holding up well and set to be boosted in the festival season. Investment activity gained traction with robust government capex. On the other hand, subdued government consumption and the contraction in net exports have operated as drags. Headwinds from intensified geopolitical tensions, elevated international commodity prices, heightened

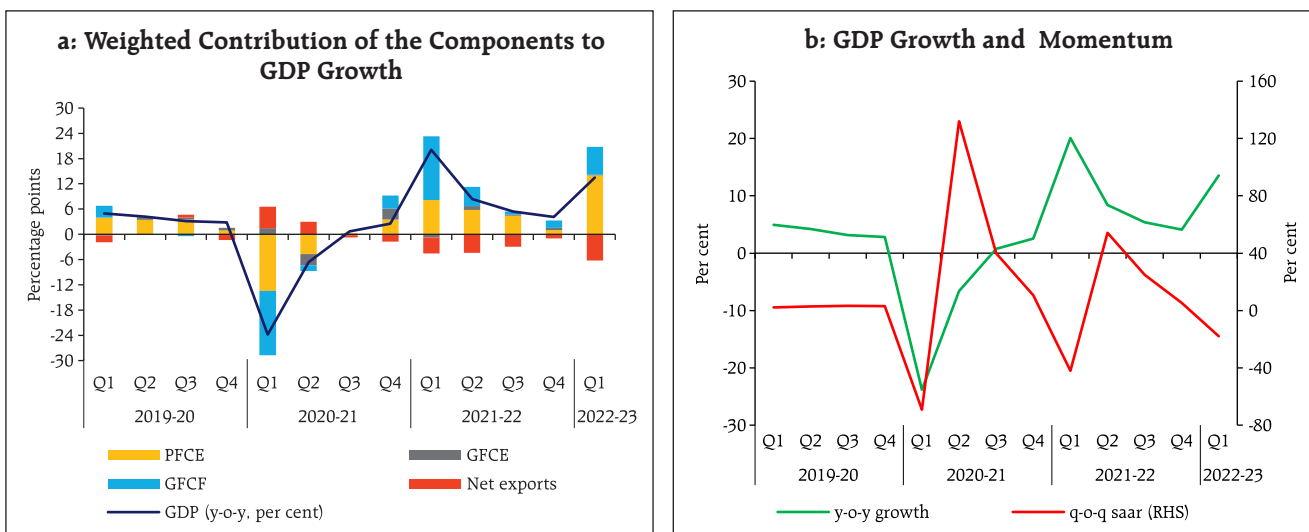
volatility in global financial markets, and slowdown in external demand are the key downside risks to the outlook.

III.1 Aggregate Demand

Real gross domestic product (GDP) posted a growth of 13.5 per cent (year-on-year, y-o-y) in Q1:2022-23, aided by favourable base effects. Accordingly, real GDP surpassed pre-pandemic level by 3.8 per cent (Chart III.1 and Table III.1). All constituents of aggregate demand recorded expansion in Q1 and were above their respective pre-pandemic levels.

The momentum – the quarter-on-quarter (q-o-q) seasonally adjusted annualised growth rate (saar) – was, however, negative in Q1:2022-23, pulled down by government consumption and a sharp jump in imports (Chart III.1a and b). Available data for Q2 indicate that aggregate demand remained buoyant, supported by the ongoing recovery in private consumption and investment demand.

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	2020-21 (FRE)	2021-22 (PE)	Weighted Contribution*		2020-21				2021-22				2022-23
			2020-21	2021-22	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Private final consumption expenditure	-6.0	7.9 (1.4)	-3.4	4.5	-23.7	-8.3	0.6	6.5	14.4 (-12.7)	10.5 (1.3)	7.4 (8.0)	1.8 (8.3)	25.9 (9.9)
Government final consumption expenditure	3.6	2.6 (6.3)	0.4	0.3	13.6	-22.9	-0.3	29.0	-4.8 (8.2)	8.9 (-16.1)	3.0 (2.6)	4.8 (35.1)	1.3 (9.6)
Gross fixed capital formation	-10.4	15.8 (3.8)	-3.3	4.8	-45.3	-4.5	-0.6	10.1	62.5 (-11.2)	14.6 (9.5)	2.1 (1.5)	5.1 (15.7)	20.1 (6.7)
Exports	-9.2	24.3 (12.8)	-1.8	4.6	-25.5	-6.4	-8.6	3.7	40.8 (4.8)	20.7 (12.9)	23.1 (12.5)	16.9 (21.2)	14.7 (20.2)
Imports	-13.8	35.5 (16.8)	-3.2	7.5	-41.1	-17.9	-5.2	11.7	61.1 (-5.1)	41.0 (15.7)	33.6 (26.7)	18.0 (31.8)	37.2 (30.3)
GDP at market prices	-6.6	8.7 (1.5)	-6.6	8.7	-23.8	-6.6	0.7	2.5	20.1 (-8.5)	8.4 (1.2)	5.4 (6.2)	4.1 (6.7)	13.5 (3.8)

Note: *: Component-wise 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.

Source: National Statistical Office (NSO).

GDP Projections versus Actual Outcomes

The April 2022 Monetary Policy Report (MPR) had projected real GDP growth at 16.2 per cent for Q1:2022-23. Actual growth undershot the projection by 270 basis points (bps) (Chart III.2), due to a larger-than-expected drag from net exports and sluggish growth in government expenditure. The growth in

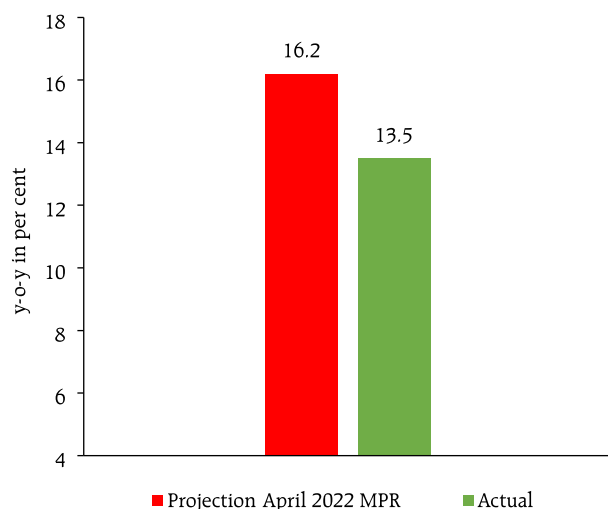
imports at 37.2 per cent in Q1 surprised significantly on the upside.

III.1.1 Private Final Consumption Expenditure

Private final consumption expenditure (PFCE) – the mainstay of aggregate demand – recorded a solid growth of 25.9 per cent in Q1:2022-23 and its share in overall GDP inched up to 59.9 per cent from 54.0 per cent a year ago. Expanded vaccination coverage and milder new COVID-19 infections (Chart III.3) provided a fillip to consumer confidence and discretionary spending, particularly on travel, hotels and restaurants, recreation and culture.

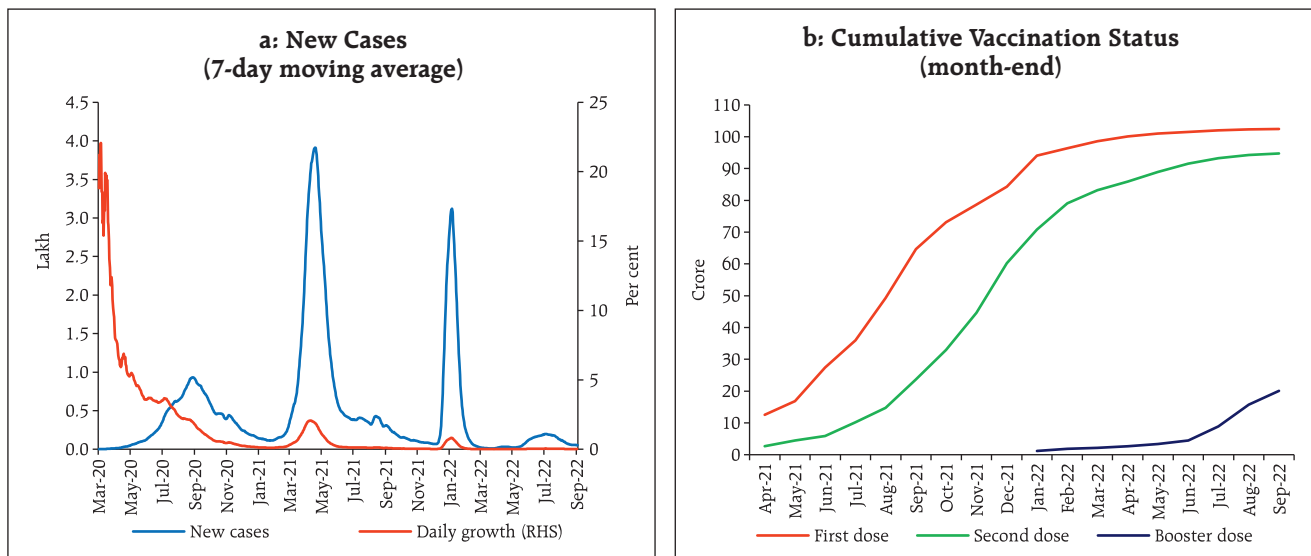
Amongst the high frequency indicators (HFIs) of urban consumption, domestic air passenger traffic recorded a sustained recuperation, *albeit* still lagging its pre-pandemic levels (Chart III.4a). Passenger vehicle sales posted strong growth in Q1 and Q2, surging past pre-pandemic levels, despite headwinds from protracted supply chain disruptions (Chart III.4b). The production of consumer durables gained traction, boosted by discretionary spending (Chart III.4c). Improving urban consumption was also reflected in the acceleration in bank credit to households (Chart III.4d).

Chart III.2: GDP Growth: Projection versus Actual - Q1:2022-23



Sources: NSO and RBI staff estimates.

Chart III.3: COVID Infections and Vaccination

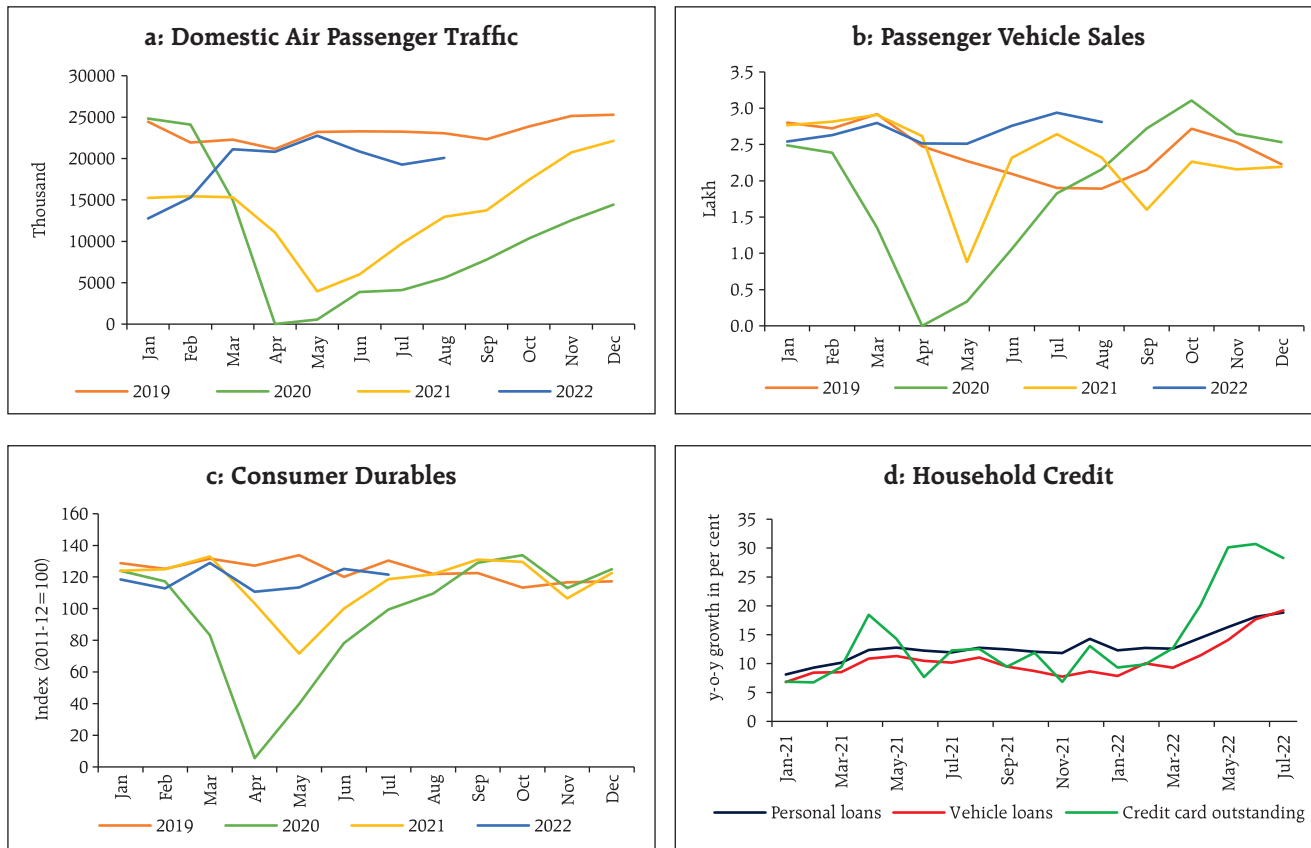


Source: Ministry of Health and Family Welfare (MoH&FW).

Rural demand remained muted in Q1:2022-23, with some signs of recovery in Q2. Work demanded under

the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) declined sharply in July-

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



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

Chart III.5: Rural Demand: High Frequency Indicators

Sources: Tractor Manufacturers Association; Society of Indian Automobile Manufacturers (SIAM); NSO; and Ministry of Chemicals and Fertilisers.

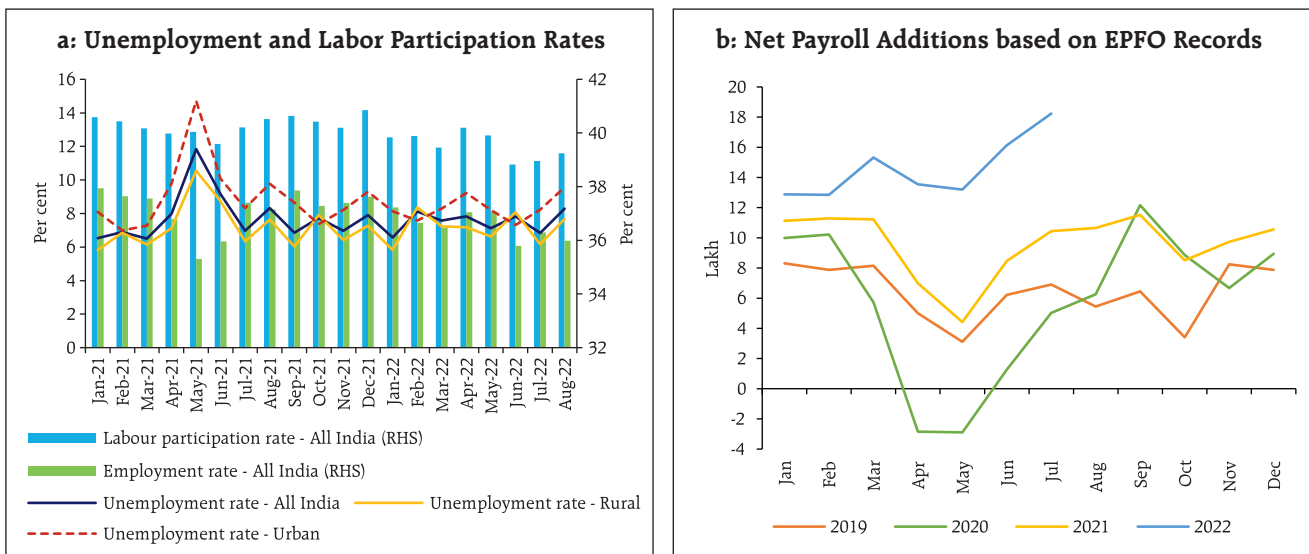
August 2022, with improving conditions in the rural farm labour market. Motorcycle sales expanded y-o-y and exceeded pre-pandemic levels in August. The production of consumer non-durables remained subdued in H1. Tractor sales remained above their pre-pandemic levels, although they were lower y-o-y in July-August partly due to the high base of record sales registered last year. Fertiliser sales recovered in August with the progress of *kharif* sowing (Chart III.5).

As per the Centre for Monitoring Indian Economy's (CMIE) Consumer Pyramids data, the labour force participation rate recovered in Q2 from the dip seen in June, which pulled up the unemployment rate in August across urban and rural segments (Chart III.6a). The Employees' Provident Fund Organisation (EPFO) payrolls data pointed to improving employment

conditions in the organised sector during July 2022 (Chart III.6b). According to *Naukri Jobspeak* data, increased hiring was witnessed in hospitality, retail, insurance, real estate, banking and financial services segments.

III.1.2 Gross Fixed Capital Formation

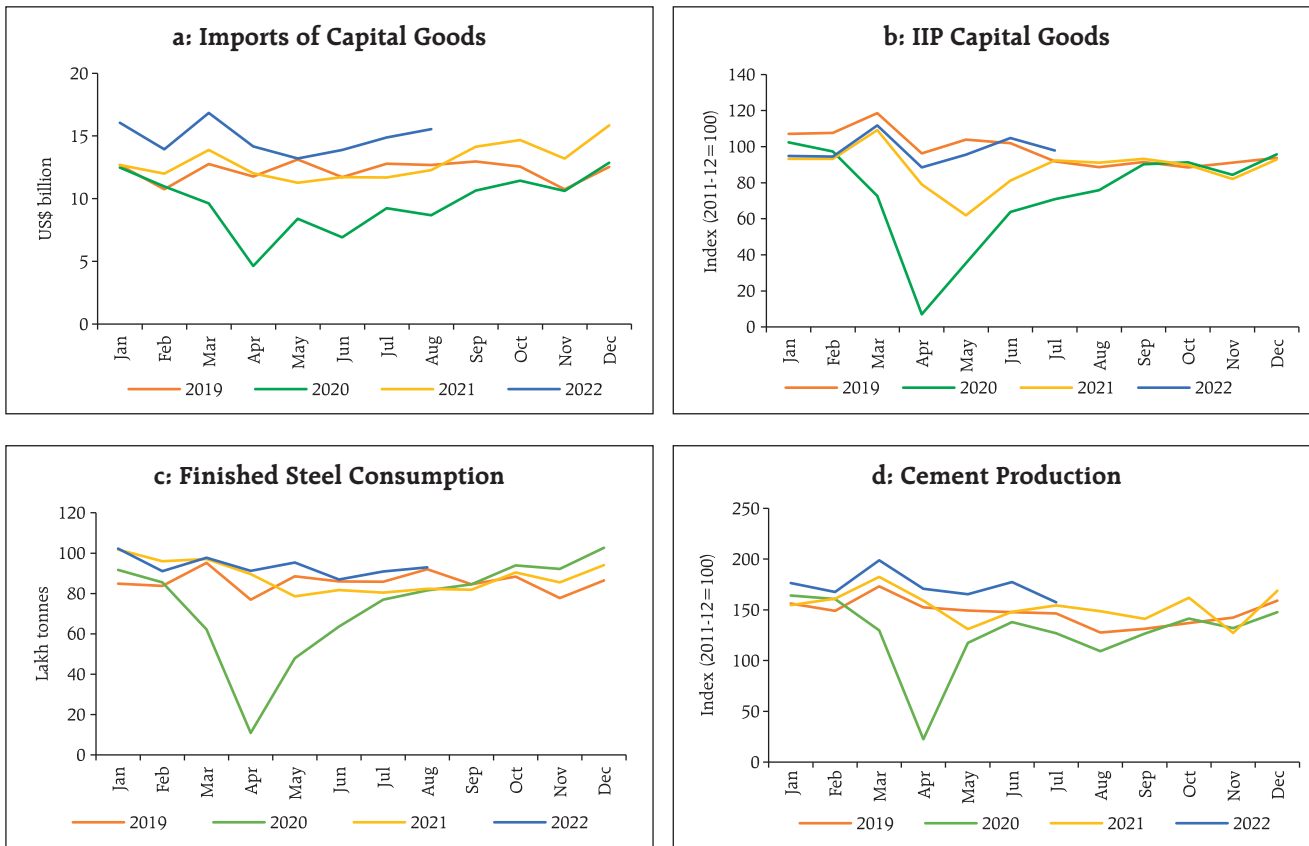
Gross fixed capital formation (GFCF) recorded a growth of 20.1 per cent in Q1:2022-23; consequently, the share of GFCF in GDP rose to 34.7 per cent in Q1 from 32.8 per cent a year ago. Construction activity exhibited buoyancy, with the housing sector recording an uptick in terms of both units launched and sold during Q1. The proximate coincident indicators of construction activity – steel consumption and cement production – posted strong growth in H1

Chart III.6: Employment Situation in India

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

(Chart III.7). Imports of capital goods were led by electronics goods while the domestic production of

capital goods crossed its pre-pandemic level in June-July 2022.

Chart III.7: Indicators of Investment Demand

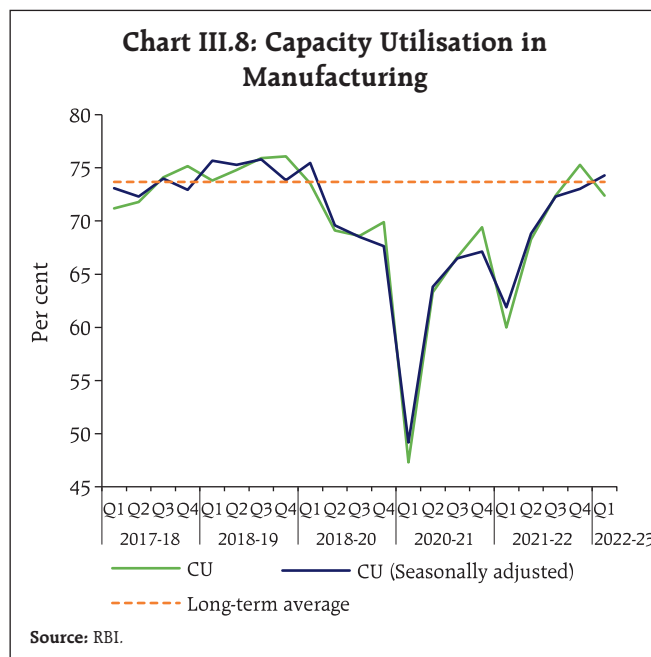
Sources: DGCI&S; NSO; Joint Plant Committee; and Office of Economic Adviser.

According to the RBI's survey¹, capacity utilisation (CU) in the manufacturing sector declined to 72.4 per cent in Q1:2022-23 from 75.3 per cent in the previous quarter, reflecting seasonal pattern. Seasonally adjusted capacity utilisation, however, rose to 74.3 per cent in Q1:2022-23 – the highest in the last three years – from 73.0 per cent in the previous quarter (Chart III.8). Manufacturing firms recorded a sequential uptick in new orders during Q1:2022-23. Infrastructure firms displayed optimism on the overall business situation, turnover and employment in Q2:2022-23.

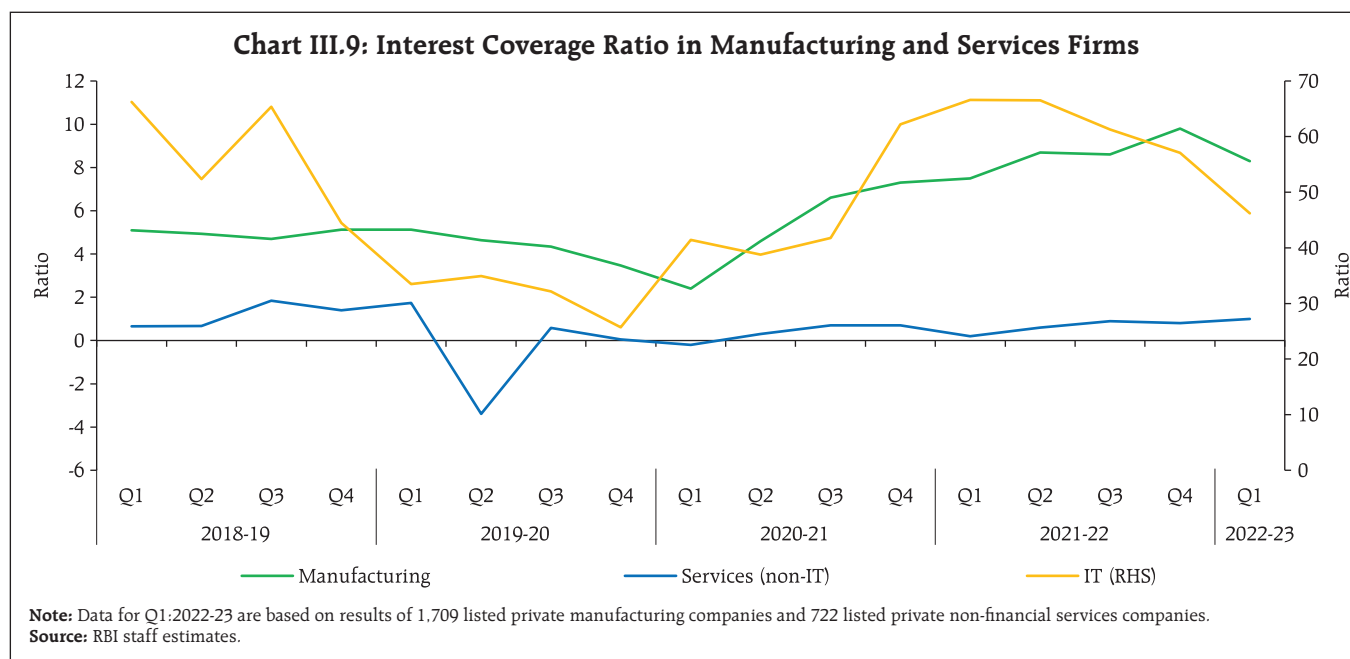
The interest coverage ratio (ICR)² of listed non-financial private companies in the manufacturing and information technology (IT) sectors remained high in Q1:2022-23, and indicates comfortable debt servicing capacity and conducive conditions for expansion in capacity (Chart III.9).

III.1.3 Government Consumption

The growth in government final consumption expenditure (GFCE) remained muted at 1.3 per cent in



Q1:2022-23 [(-) 4.8 per cent a year ago], which dampened GDP growth (Table III.1). Revenue expenditure of the central government rose by 4.8 per cent (y-o-y) during April-July 2022 as against a contraction of 7.0 per cent



¹ Survey of order books, inventories and capacity utilisation.

² Interest coverage ratio is the ratio of earnings before interest and taxes (EBIT) to interest expenses and measures a company's capacity to make interest payments on its debt. The minimum value for a viable ICR is 1.

Table III.2: Central Government's Tax Collections

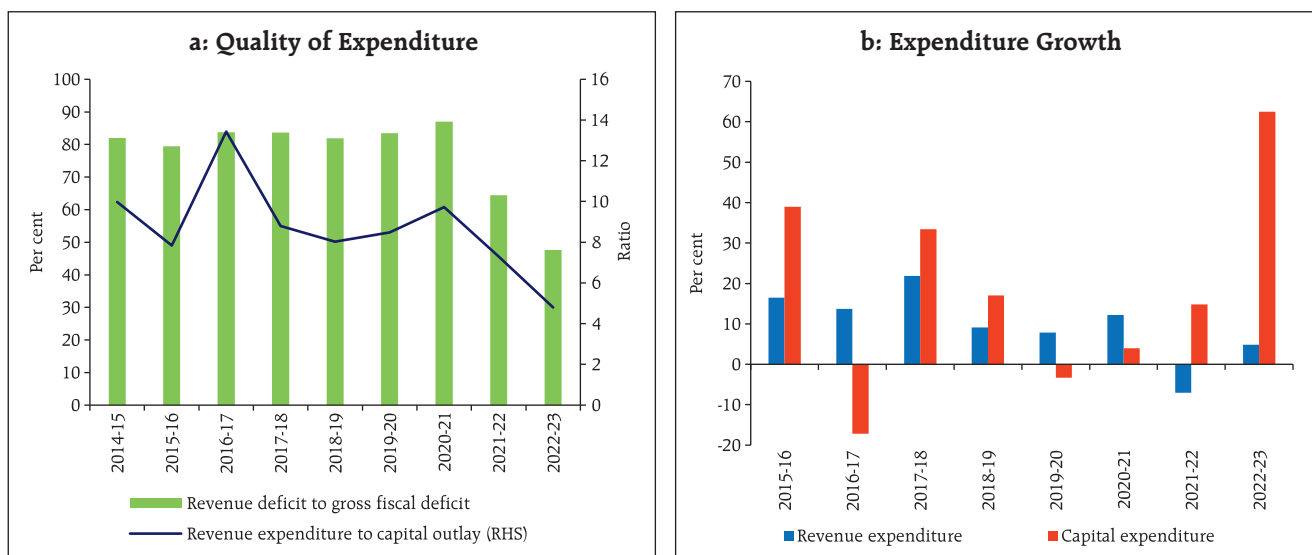
Item	₹ thousand crore				Per cent			
	Budget Estimates		Actuals		Per cent to BE		Growth Rate	
	2021-22	2022-23	Apr-July 2021	Apr-July 2022	Apr-July 2021	Apr-July 2022	Apr-July 2021	Apr-July 2022
A. Direct taxes	1,108.00	1,420.00	314.5	446.4	28.4	31.4	110.9	41.9
Of which								
1. Corporation tax	547	720	145.9	196.5	26.7	27.3	171.5	34.7
2. Income tax	548.5	680	161.2	241.8	29.4	35.6	76.7	50.0
B. Indirect taxes	1,109.10	1,337.80	381.4	423.0	34.4	31.6	65.2	10.9
Of which								
1. GST	633.3	783.7	221.0	284.2	34.9	36.3	60.4	28.6
2. Custom duties	136	213	58.0	51.0	42.6	23.9	144.1	-12.0
3. Union excise duties	335	335	100.4	85.1	30	25.4	47.9	-15.2
C. Gross tax revenue	2,217.10	2,757.80	695.9	869.5	31.4	31.5	83.1	24.9
D. Assignment to States/UTs	665.6	816.6	165.1	201.1	24.8	24.6	-6.2	21.8
E. Net tax revenue	1,545.40	1,934.80	529.2	666.2	34.2	34.4	161.0	25.9

Note: GST also includes UT-GST.

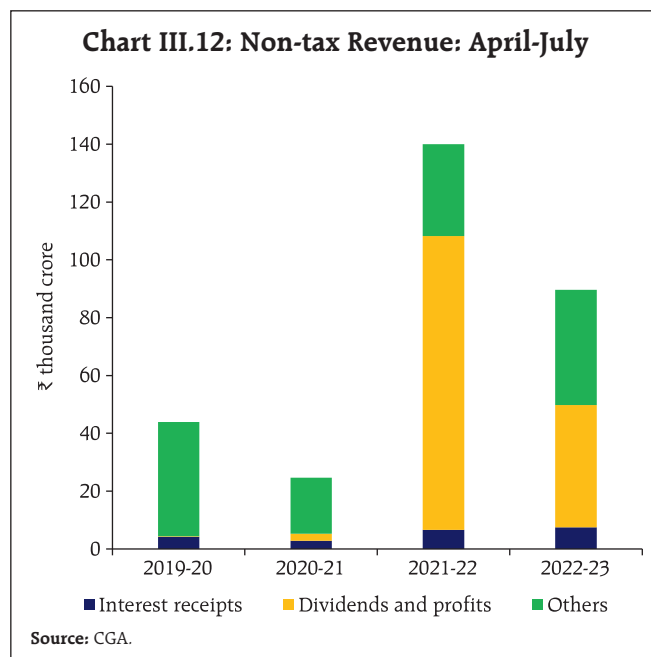
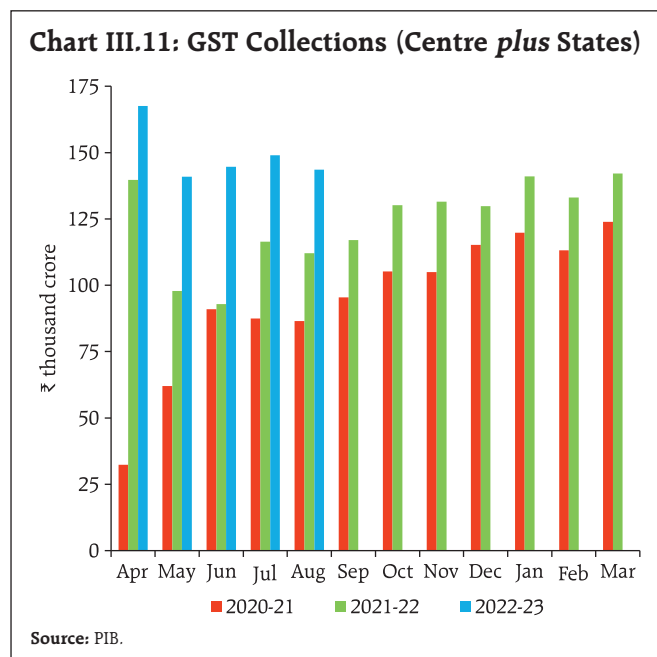
Sources: Union Budget Documents and CGA.

a year ago. Component-wise, the impact of higher outgoes on interest payments was cushioned by lower spending on major subsidies, especially food. Capital outlay, on the other hand, surged by 59.4 per cent during April-July 2022, reflecting the government's sustained thrust on infrastructure. This led to a

qualitative improvement in spending – the revenue expenditure to capital outlay (RECO) ratio decreased to 4.8 in April-July 2022 from 7.3 in the corresponding period of the previous year (Chart III.10a). Frontloaded capital expenditure was driven by increased spending in road and railway sectors (Chart III.10b).

Chart III.10: Centre's Expenditure during April-July

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



On the receipts side, the central government's gross tax revenues remained buoyant, registering a growth of 24.9 per cent during April-July 2022, driven by direct tax and GST collections (Table III.2). Monthly GST collections (Centre *plus* states) remained above ₹1.4 lakh crore since March 2022, benefitting from improving economic activity and compliance (Chart III.11). Union excise duties and customs duties, however, contracted on the back of cuts in excise duty on petrol and diesel in May 2022 and a reduction in customs duty on commodities such as cotton and palm oil.

The central government's non-tax revenues fell during April-July due to lower dividends and profits (Chart III.12). The recently concluded 5G spectrum auctions would provide a total revenue of ₹1.5 lakh crore; of this, the first annual instalment would amount to ₹17,875 crore. Disinvestment receipts jumped to ₹24,560 crore from ₹8,371 crore, driven by the proceeds of the initial public offer (IPO) of the Life Insurance Corporation (LIC).

During April-July 2022, the gross fiscal deficit (GFD) and the revenue deficit (RD) of the central

government at 20.5 per cent and 16.4 per cent of the full-year budget estimate (BE), respectively, were lower than in the previous year.

As regards state governments, their consolidated GFD is budgeted at 3.3 per cent of their consolidated GSDP in 2022-23³ – within the 4 per cent⁴ limit allowed by the Centre – supported by a healthy growth in revenue receipts (Table III.3 and Chart III.13a).

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

(Per cent of GSDP)

Item	2020-21 (A)	2021-22 (BE)	2021-22 (PA)	2022-23 (BE)
Revenue Deficit	1.8	0.8	0.4	0.4
Gross Fiscal Deficit	3.8	3.6	2.7	3.3
Primary Deficit	2.0	1.7	1.1	1.5

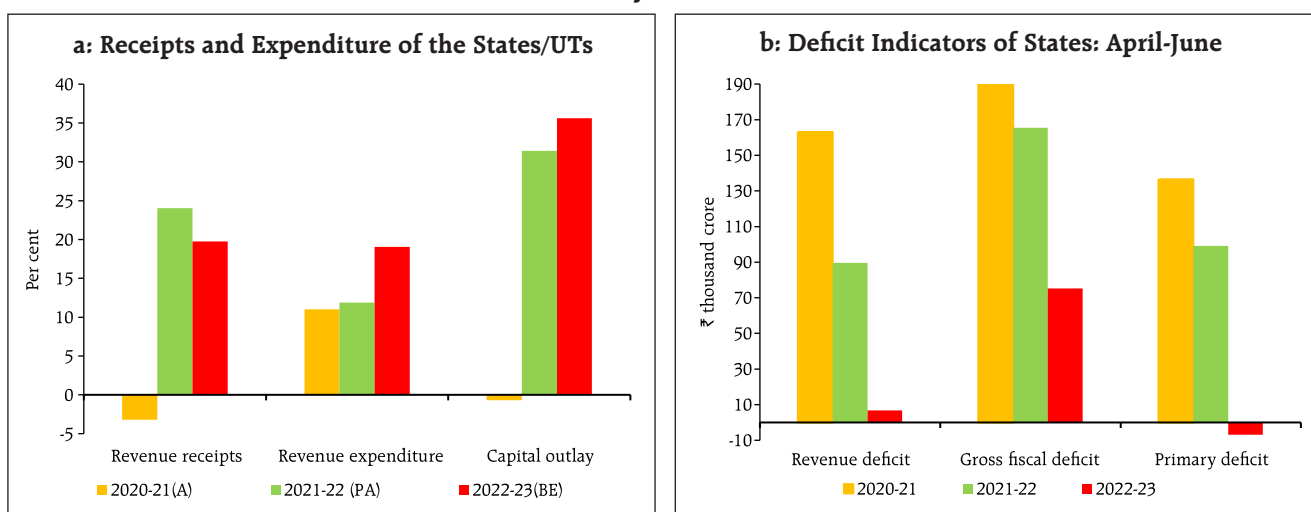
A: Accounts; BE: Budget Estimates; PA: Provisional Accounts.

Note: Data pertain to 29 states and UTs.

Sources: Budget Documents of State Governments; Comptroller and Auditor General (CAG) of India.

³ The data for 2022-23 pertain to 29 states/UTs. The estimates for 2021-22 (PA) have been worked out by collating the accounts (A) data for 27 states from Comptroller and Auditor General (CAG) of India, and the Budget Estimates for 2021-22 for 2 states/UT from their respective Budget Documents of 2021-22.

⁴ Of this 0.5 per cent will be tied to power sector reforms.

Chart III.13: Trend in Key Indicators of the States/UTs

Notes: 1. Data in panel a pertain to 29 states/UTs.

2. Data in panel b pertain to 26 states.

Sources: Budget Documents of State Governments and CAG.

The states have continued their focus on capital expenditure, with a budgeted growth of 36 per cent in capital outlay. This would increase the capital outlay-GSDP ratio to 2.7 per cent in 2022-23 from 2.2 per cent in 2021-22 (PA). According to available data, the states' GFD declined substantially in Q1:2022-23 on account of higher revenues and devolution from the Centre (Chart III.13b). Revenue expenditure of states grew by 14.3 per cent while capital expenditure contracted by 9.6 per cent.

The Union Budget 2022-23 provided for a 50-year interest-free loan of ₹1 lakh crore to states under the 'Special Assistance to States for Capital Investment' scheme, over and above the borrowing limit of 4 per cent of GSDP. In August 2022, the Centre released two instalments of tax devolution

amounting ₹1.16 lakh crore to the states to boost their capex.

In the Union Budget 2022-23, gross and net market borrowings were placed at ₹14.95 lakh crore and ₹11.19 lakh crore, respectively. Taking into account the switch operations conducted just before the Union Budget 2022-23, the gross market borrowings through dated securities for 2022-23 are estimated at ₹14.31 lakh crore. The centre's gross issuances of market borrowings during H1:2022-23 (up to September 27, 2022) were ₹7.96 lakh crore (55.6 per cent of the full year's budgeted amount) as against ₹8.45 lakh crore planned in the calendar for H1 (Table III.4). The weighted average cost and maturity of issuances during H1 (up to September 27, 2022) were 7.3 per cent and 15.7 years, respectively, as

Table III.4: Government Market Borrowings

(₹ crore)

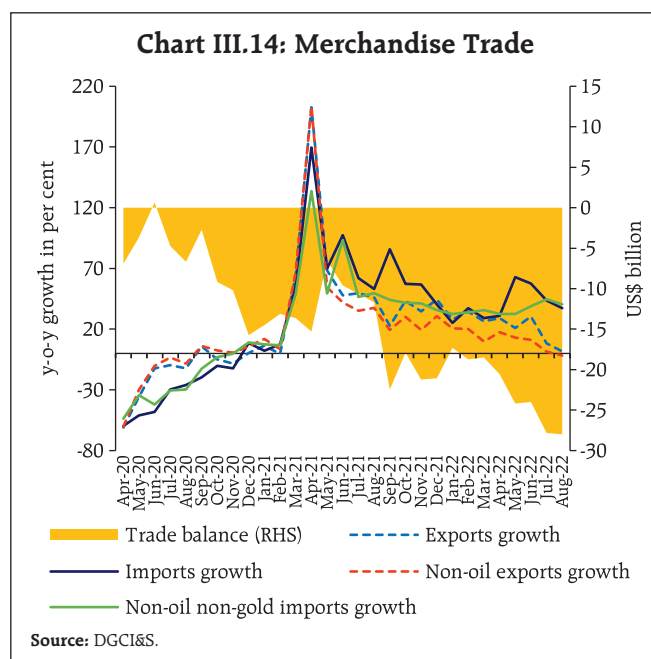
	2020-21			2021-22			2022-23 (up to September 27)		
	Centre	States	Total	Centre	States	Total	Centre	States	Total
Net borrowings	11,43,114	6,51,777	17,94,891	8,63,103	4,92,483	13,55,586	5,68,639	1,79,878	7,48,517
Gross borrowings	13,70,324	7,98,816	21,69,140	11,27,382	7,01,626	18,29,008	7,96,000	2,76,347	10,72,347

Sources: Government of India; and RBI staff estimates.

against 6.2 per cent and 16.7 years, respectively, during 2021-22. States raised gross market borrowings of ₹2.76 lakh crore during H1 (up to September 27, 2022), 68.8 per cent of the indicative calendar. The Ways and Means Advances (WMA) limit for the Central Government for H1:2022-23 was enhanced to ₹1.5 lakh crore from ₹1.2 lakh crore in H1:2021-22 for bridging temporary mismatches between receipts and expenditure. For states/union territories, the WMA limits were fixed at ₹47,010 crore effective from April 1, 2022 as recommended by the Advisory Committee on Ways and Means Advances to State Governments (Chairman: Shri Sudhir Shrivastava).

III.1.4 External Demand

Amidst persisting geopolitical tensions and slowing external demand, merchandise exports lost pace during Q2 (July-August) after remaining resilient during Q1. Merchandise imports, however, remained buoyant during both Q1 and Q2 (July-August), reflecting strong domestic demand conditions. These developments led to a widening of the merchandise trade deficit (Chart III.14). Services trade, both exports and imports registered an impressive performance in Q1. With the growth



of imports well above that of exports, net exports dragged down aggregate demand in Q1:2022-23 [(-) 8.1 per cent of GDP as compared with (-) 5.0 per cent in Q4:2021-22 and (-) 3.0 per cent a year ago].

In April-August 2022, merchandise exports were driven by petroleum products, electronics, chemicals, engineering goods and ready-made garments. Exports of iron ore, cotton yarn, plastic and

Chart III.15: Exports Growth

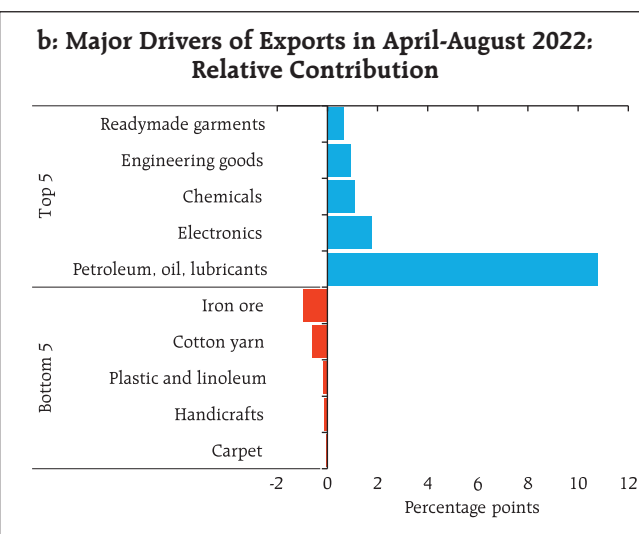
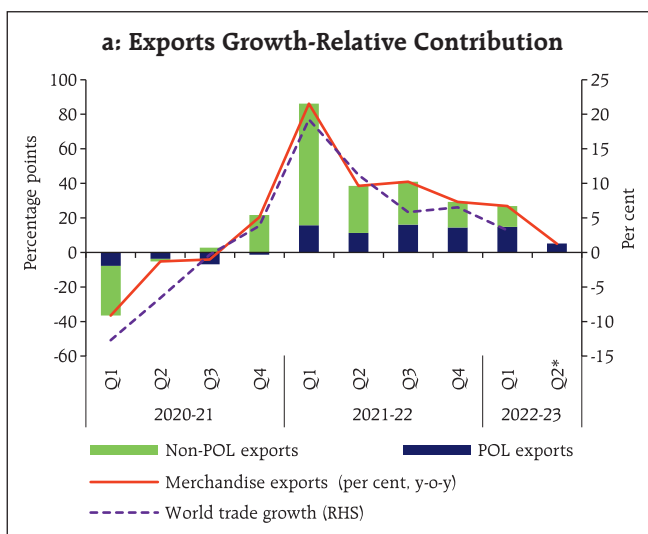
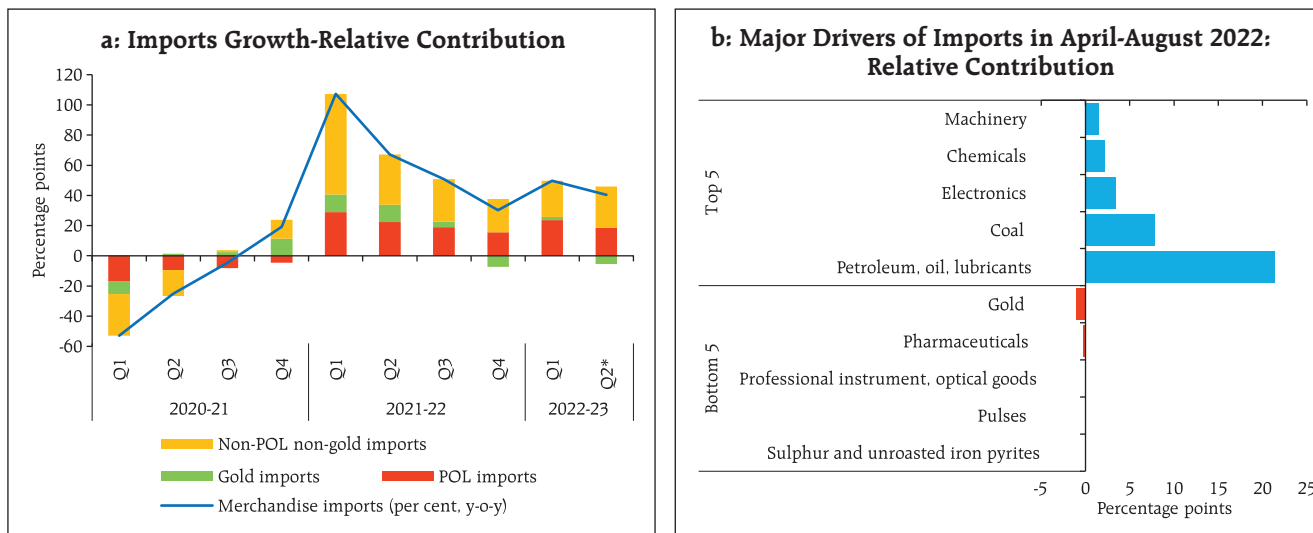


Chart III.16: Imports Growth

*Q2: July-August

Source: DGCI&S.

linoleum, handicrafts and carpets were, however, restrained (Chart III.15). Export restrictions on a few commodities such as wheat, steel and sugar due to domestic demand-supply balance also weighed on merchandise exports.

Rising domestic demand and high international commodity prices propelled merchandise imports in H1:2022-23 (April-August). Oil imports accounted for around half of this growth. Non-oil non-gold imports

also remained strong led by coal, electronics, chemicals, and machinery. Coal imports grew substantially, despite elevated international prices, as the domestic demand for energy soared (Chart III.16). The trade deficit more than doubled to US\$ 124.5 billion in April-August 2022 from US\$ 53.8 billion a year ago. Merchandise exports are sensitive to global trade volumes while merchandise imports are driven by domestic demand (Box III.1).

Box III.1: Drivers of India's Merchandise Exports and Imports

India's share in global merchandise exports has risen steadily from 0.9 per cent in 2005 to 1.7 per cent in 2019 (pre-pandemic). After the COVID-19 disruption, both exports and imports rebounded strongly in 2021-22. It is important to understand the drivers of Indian exports and imports and assess the relevant exchange rate and income elasticities on a disaggregated basis. For this, a panel cointegration analysis of 62 exported

goods and 41 imported goods, belonging to four major groups, *viz.* agriculture commodities, metals, minerals and metal products, petroleum products and chemical and pharmaceutical products is undertaken.

The volumes of exports and imports are determined by the item-level relative prices of exports/imports⁵,

(Contd.)

⁵ The relative prices of India's exports are derived by dividing the implied prices of India's exported goods at item-level (dollar value by volume) by corresponding international prices, while relative prices of imports are the ratio of landed prices of item-level imports (value of imported goods divided by volume) to wholesale price indices of the relevant commodity groups.

real effective exchange rate (REER), global demand (for exports), and domestic demand (for imports) (Raissi *et al* 2015). Relative prices measure industry-specific competitiveness while the REER (40-currency trade- or export-weighted) is as an indicator of overall external competitiveness; the empirical analysis explores the sensitivity of the results to both these indicators. World trade volume⁶ and domestic demand (GDP excluding imports at constant prices) are used as indicators of global demand and domestic activity, respectively. The empirical analysis is based on pre-pandemic data (Q1:2011-12 to Q3:2019-20), using the pooled mean group (PMG) estimator (Pesaran *et al.*, 1999).

The results indicate the presence of a long-run co-integrating relationship between exports, relative prices, REER and global demand on the one hand, and between imports, relative prices, REER and domestic demand, on the other hand. Productivity gains can support exports which are also highly elastic to global demand. Merchandise imports exhibit a strong co-movement with domestic economic activity, with an elasticity close to unity. The estimated elasticity of exports with respect to REER ranges from (-) 0.37 to (-) 0.39 in alternate specifications and from (+) 0.41 to (+) 0.63 for imports. India's exports could get some boost from productivity gains, policy initiatives like the One District, One

Table III.1.1: Determinants of Indian Merchandise Exports and Imports: Pooled Mean Group Results

Dependent Variable	Log (Exports Volume)			Log (Imports Volume)		
	1	2	3	4	5	6
Log (REER)	-0.39* (0.22)		-0.37* (0.21)	0.41** (0.16)		0.63*** (0.16)
Log (Relative Price, item-level)		-0.43*** (0.04)	-0.38*** (0.04)		-0.17*** (0.04)	-0.16*** (0.04)
Log (World Trade Volume)	1.03*** (0.15)	1.30*** (0.11)	1.48*** (0.15)			
Log (Domestic Demand)				1.00*** (0.05)	0.96*** (0.04)	0.86*** (0.05)
ECT _{t-1}	-0.46*** (0.03)	-0.41*** (0.03)	-0.40*** (0.03)	-0.58*** (0.05)	-0.51*** (0.05)	-0.51*** (0.05)

Notes: ***, ** and * indicate statistical significance at 1 per cent, 5 per cent and 10 per cent level of significance, respectively. Figures in parentheses are robust standard errors. ECT: error correction term.

Source: RBI staff estimates.

Product (ODOP) scheme and the recently signed and the proposed bilateral trade agreements.

References

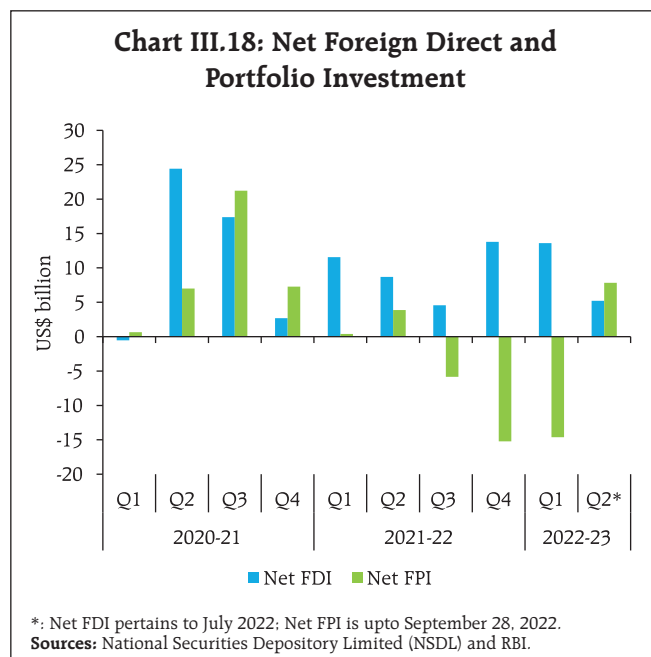
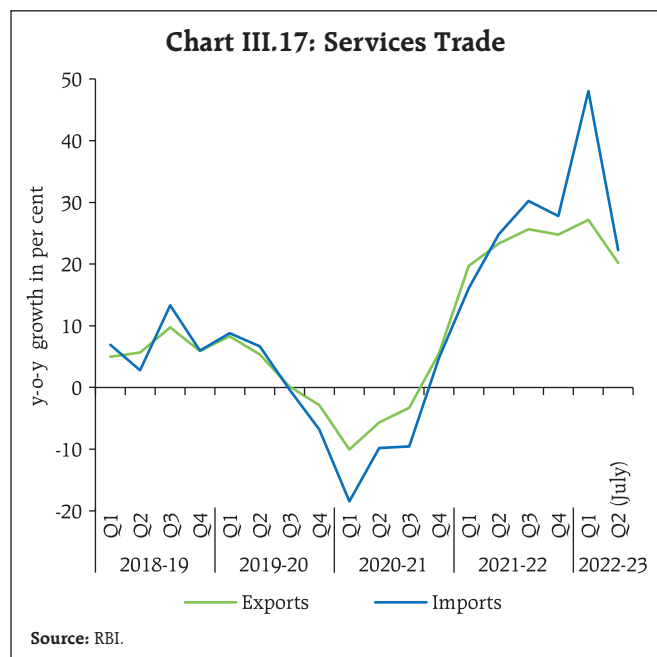
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Services sector trade posted a robust growth in H1:2022-23 (April-July), building upon the significant recovery during 2021-22 (Chart III.17). Services exports growth remained in double digits for the fifth consecutive quarter in Q1, buoyed by software services, business, travel and transportation services. Software and business services together constitute more than 60 per cent share of India's total services exports. Although the risks of a recession in the US and Europe weigh on the software services sector, India's offshoring capabilities and competencies and significant investments made by the major IT

companies towards automation, cost efficiency, cloud adoption and technology are expected to keep the sector resilient. Services imports increased during Q1 on the back of a significant upsurge in outgoes under travel, transportation and business services. In July, services exports and imports remained buoyant, *albeit* the growth moderated.

The current account deficit was 2.8 per cent of GDP in Q1: 2022-23. The merchandise trade deficit was at 8.1 per cent of GDP while the net invisibles surplus was 5.3 per cent of GDP.

⁶ Released by CPB Netherlands Bureau for Economic Policy Analysis.



Turning to the financial account, net FDI flows stayed robust at US\$ 18.8 billion during April-July 2022 (Chart III.18). Manufacturing, retail and wholesale trade, computer services, financial services, and communication services accounted for a major share of FDI in India during Q1. Singapore, Mauritius, the UAE, the US and the Netherlands were the major source countries of inward FDI to India, accounting for around 78 per cent of the total inflows.

Foreign portfolio investors (FPIs) reduced their exposure in domestic capital market in Q1, reflecting the generalised risk aversion towards EME assets in the face of the strengthening of US dollar, intensified geopolitical tensions, elevated global inflation and faster policy tightening by major central banks. FPIs, however, turned net buyers in Q2 with an investment of US\$ 7.5 billion (up to September 28).

External commercial borrowings (ECBs) to India recorded net outflows of US\$ 2.6 billion

during April-August 2022, after net inflows of US\$ 7.4 billion during 2021. Net flows under non-resident deposits moderated to US\$ 1.4 billion during April-July 2022 from US\$ 3.1 billion a year ago, due to outflows from FCNR(B) deposits and lower inflows in NRE deposits. As on September 23, 2022, India's foreign exchange reserves stood at US\$ 537.5 billion.

III.2 Aggregate Supply

Aggregate supply – measured by gross value added (GVA) at basic prices – expanded by 12.7 per cent in Q1:2022-23 (18.1 per cent a year ago), surpassing its pre-pandemic level of Q1:2019-20 by 4.7 per cent (Table III.5). While agriculture and services sectors remained robust, industrial GVA growth moderated due to the escalation of input cost pressures and the lingering disruptions in global supply chains. The momentum of GVA, measured by q-o-q saar, was negative in Q1:2022-23 (Chart III.19).

Table III.5: Sector-wise Growth in GVA

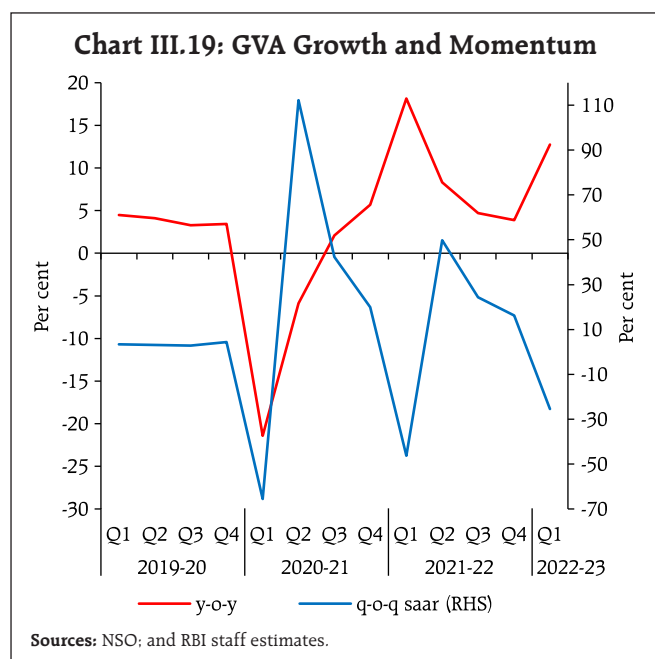
(y-o-y, per cent)

Item	2020-21 (FRE)	2021-22 (PE)	Weighted Contribution		2020-21				2021-22				2022-23
			2020-21	2021-22	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Agriculture, forestry and fishing	3.3	3.0 (6.4)	0.5	0.5	3.0	3.2	4.1	2.8	2.2 (5.2)	3.2 (6.4)	2.5 (6.7)	4.1 (7.1)	4.5 (9.9)
Industry	-1.8	9.8 (7.9)	-0.4	2.2	-28.1	3.0	6.2	11.6	40.4 (0.9)	6.6 (9.9)	1.5 (7.8)	1.0 (12.7)	6.0 (7.0)
Mining and quarrying	-8.6	11.5 (1.9)	-0.2	0.3	-17.8	-7.9	-5.3	-3.9	18.0 (-3.0)	14.5 (5.5)	9.2 (3.4)	6.7 (2.6)	6.5 (3.3)
Manufacturing	-0.6	9.9 (9.3)	-0.1	1.8	-31.5	5.2	8.4	15.2	49.0 (2.1)	5.6 (11.0)	0.3 (8.7)	-0.2 (15.0)	4.8 (7.0)
Electricity, gas, water supply and other utilities	-3.6	7.5 (3.6)	-0.1	0.2	-14.8	-3.2	1.5	3.2	13.8 (-3.0)	8.5 (5.0)	3.7 (5.2)	4.5 (7.9)	14.7 (11.2)
Services	-7.8	8.8 (0.4)	-4.9	5.4	-24.3	-10.4	0.0	4.3	15.5 (-12.6)	10.0 (-1.4)	6.6 (6.6)	5.0 (9.4)	17.5 (2.8)
Construction	-7.3	11.5 (3.4)	-0.6	0.9	-49.4	-6.6	6.6	18.3	71.3 (-13.3)	8.1 (0.9)	-2.8 (3.6)	2.0 (20.6)	16.8 (1.2)
Trade, hotels, transport, communication	-20.2	11.1 (-11.3)	-4.1	1.9	-49.9	-18.8	-10.1	-3.4	34.3 (-32.7)	9.6 (-11.0)	6.3 (-4.4)	5.3 (1.7)	25.7 (-15.5)
Financial, real estate and professional services etc.	2.2	4.2 (6.6)	0.5	1.0	-1.1	-5.2	10.3	8.8	2.3 (1.1)	6.1 (0.6)	4.2 (14.9)	4.3 (13.4)	9.2 (10.5)
Public administration, defence and other services	-5.5	12.6 (6.4)	-0.7	1.6	-11.4	-10.2	-2.9	1.7	6.2 (-5.9)	19.4 (7.3)	16.7 (13.3)	7.7 (9.5)	26.3 (18.9)
GVA at basic prices	-4.8	8.1 (2.9)	-4.8	8.1	-21.4	-5.9	2.1	5.7	18.1 (-7.2)	8.3 (1.9)	4.7 (6.9)	3.9 (9.8)	12.7 (4.7)

Note: FRE: First revised estimates; PE: Provisional estimates.

Figures in parentheses are growth rates over 2019-20.

Source: NSO.



III.2.1 Agriculture

GVA in agriculture, forestry and fishing posted a growth of 4.5 per cent in Q1:2022-23 (2.2 per cent a

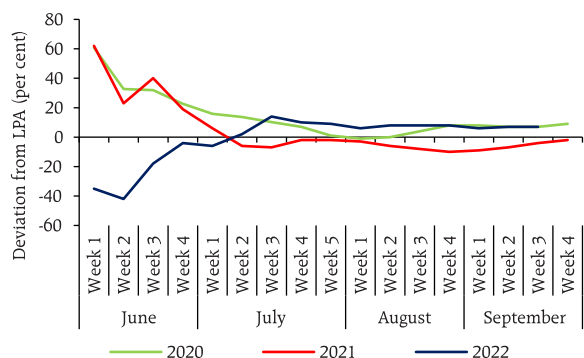
year ago) on the back of record *rabi* and horticulture production and resilience in allied activities. After a sluggish start, the south-west monsoon (SWM) gained momentum in July-August and the season's rainfall stood at 7 per cent above the long period average (LPA) as on September 29, 2022 (1 per cent below LPA a year ago), with 30 out of the 36 sub-divisions receiving normal or above normal rainfall (Chart III.20a and b). Some of the key rice-producing states, however, received rainfall well below normal – Uttar Pradesh (-28 per cent), Bihar (-31 per cent), Jharkhand (-21 per cent) and West Bengal (-17 per cent). After lagging in June-July, the area under *kharif* sowing made a smart recovery in August. As of September 23, 2022, the total *kharif* sowing area was 1.7 per cent above the normal area (5-year average); it was, however, 1.2 per cent below a year ago due to shortfalls under rice (-5.5 per cent), pulses (-3.9 per cent) and oilseeds (-0.8 per cent) (Chart III.20c). The production weighted rainfall (PRN) index at 100 as on September 23, 2022 was a

tad below its last year's position (101 per cent) and the PRN for cotton, oilseeds, pulses and coarse cereals exceeded the 5-year average (Chart III.20e and f). As of September 22, 2022, reservoir levels stood at 88 per

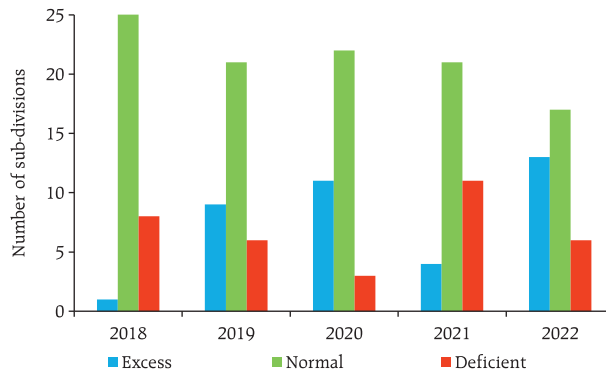
cent of the full capacity – above the last year's 78 per cent as well as above the decadal average of 75 per cent – brightening the prospects for the upcoming *rabi* season.

Chart III.20 Progress of Rainfall and Kharif sowing

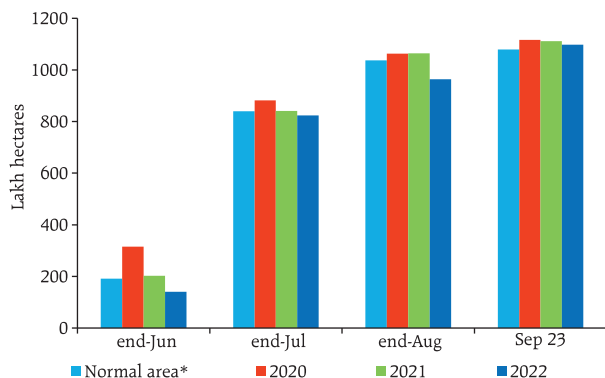
a: Cumulative Weekly Progress of South-west Monsoon Rainfall



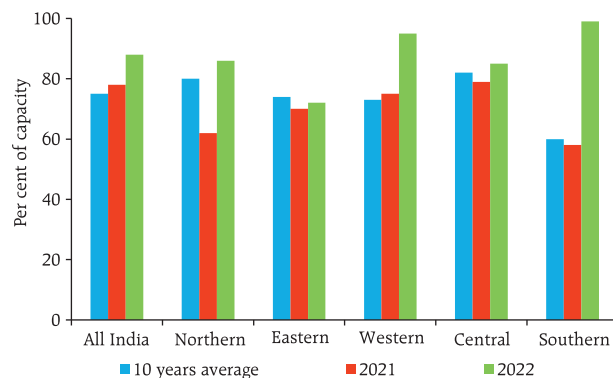
b: Comparative Rainfall Position



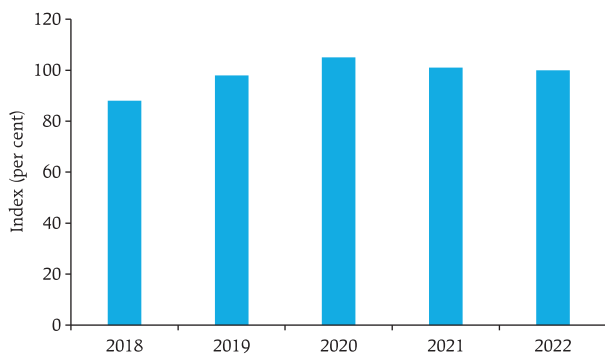
c: Kharif Sowing Progress



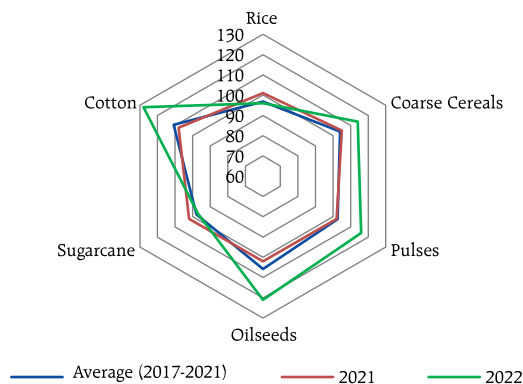
d: Reservoir Level (September 22, 2022)



e: Production-weighted Rainfall Index (PRN) (June 1 - September 23)



f: PRN Crop-wise (June 1 - September 23)



*Normal area as on date is the average of 5 years - 2017-18 to 2021.

Sources: India Meteorological Department (IMD), Central Water Commission, Ministry of Agriculture and Farmers' Welfare, Government of India, and RBI staff estimates.

According to the first advance estimates (FAE), *kharif* 2022 foodgrains production is estimated at 1,499.2 lakh tonnes, 3.9 per cent below last year's fourth advance estimates (0.4 per cent below FAE of last year) driven by a decline of 6.1 per cent in rice production (Table III.6). Amongst other crops, cotton and sugarcane output are estimated to be 9.6 per cent and 7.7 per cent above the previous year's level, while oilseeds output will be 1.3 per cent lower.

The government announced an increase of 4.4 – 8.9 per cent in minimum support prices (MSP) for *kharif* 2022-23 crops, ensuring a return of at least 50 per cent over the cost of production (as measured by A2 plus FL⁷). The procurement of rice during the *kharif* marketing season 2021-22 (up to September 26, 2022) at 592.8 lakh tonnes was 0.1 per cent higher over the previous year, contributing to comfortable stocks of rice at 2.6 times the buffer norm (352.9 lakh tonnes), despite the extension of cereals distribution under the *Pradhan Mantri Garib Kalyan Anna Yojana* (PM-GKAY). In the case of wheat, lower domestic production resulted in lower procurement. As on August 31, 2022,

Table III.6: Kharif Crops Production

(Lakh tonnes)

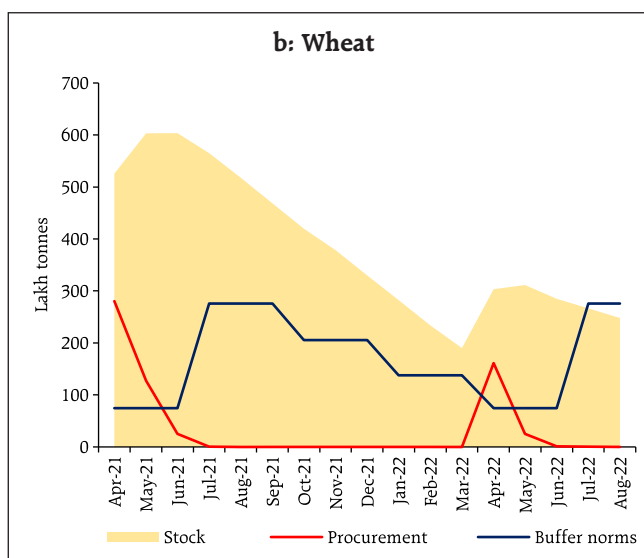
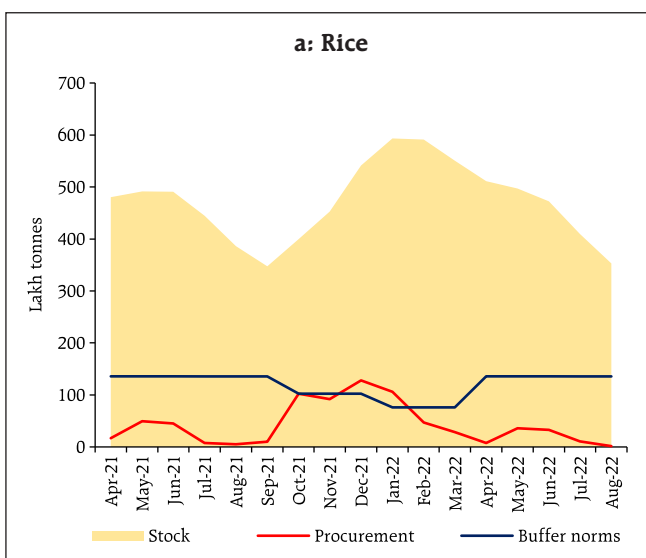
Item	2019-20	2020-21	2021-22	2022-23	2022-23	
				1st AE	Growth (per cent) over 2021-22	
					1st AE	4th AE
1. Foodgrains	1,433.8	1,495.6	1,560.4	1,499.2	-0.4	-3.9
Rice	1,019.8	1,044.1	1,117.6	1,049.9	-1.9	-6.1
Coarse cereals	336.9	364.6	359.1	365.6	7.5	1.8
Pulses	77.2	86.9	83.7	83.7	-11.4	0
Tur	38.3	42.8	43.4	38.9	-12.2	-10.4
Urad	13.0	16.0	19.4	18.4	-10.2	-5.2
Moong	17.9	20.1	14.8	17.5	-14.6	18.2
2. Oilseeds (total)	223.2	240.3	238.9	235.7	0.8	-1.3
Groundnut	83.7	85.6	83.8	83.7	1.4	-0.1
Soyabean	112.2	129.0	130.0	128.9	1.4	-0.8
3. Cotton[#]	354.9	353.8	312.0	341.9	-5.6	9.6
4. Jute & Mesta^{##}	99.1	95.6	103.2	100.9	5	-2.2
5. Sugarcane	3,557.0	3,992.5	4,318.1	4,650.5	10.9	7.7

#: Lakh bales of 170 kgs each.

#: Lakh bales of 180 kgs each.

Source: Ministry of Agriculture and Farmers' Welfare.

stocks at 248.2 lakh tonnes were marginally below the buffer norm (Chart III.21a and b).

Chart III.21: Stock, Procurement and Buffer Norms Position – Rice and Wheat

Source: Food Corporation of India, Government of India (GoI).

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.

III.2.2 Industry

Industrial GVA recorded a y-o-y growth of 6.0 per cent in Q1:2022-23 (40.4 per cent in the same period a year ago, driven by base effects). All components expanded y-o-y and surpassed their Q1:2019-20 levels, despite headwinds from higher input costs and global supply chain bottlenecks (Chart III.22). Electricity, gas, water supply and other utility services registered robust growth, supported by revival of industrial activity and normalisation of services.

The index of industrial production (IIP) rose by 10.0 per cent, y-o-y, during April-July (4.2 per cent above the pre-pandemic level), supported by all its constituents – mining, manufacturing and electricity (Chart III.23). The expansion in manufacturing

Chart III.22: Weighted Contribution to Industrial GVA Growth

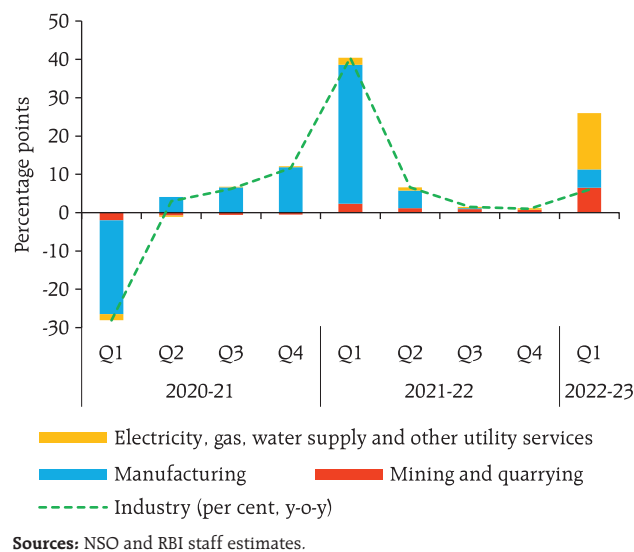
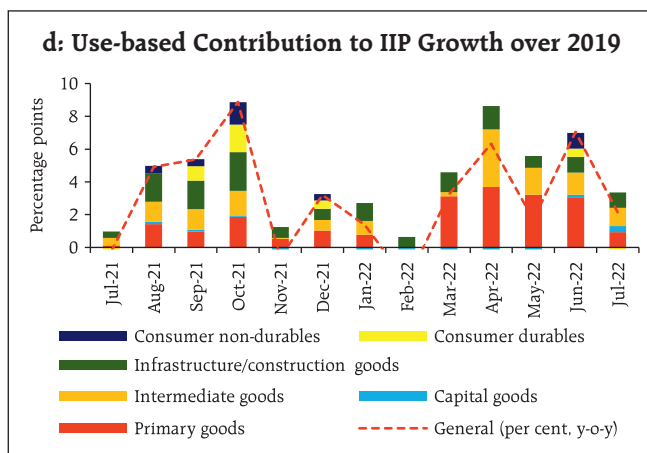
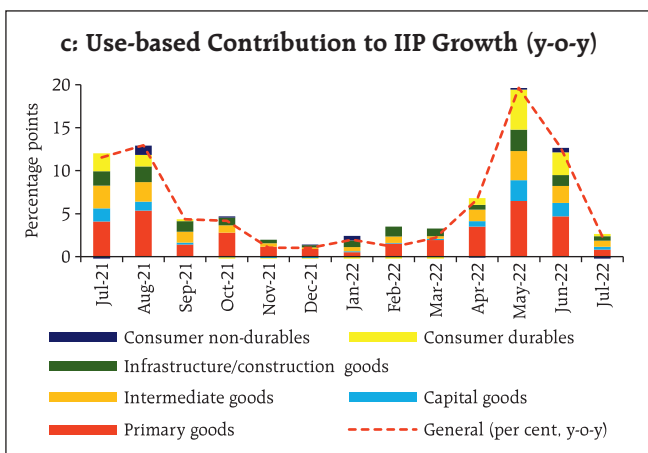
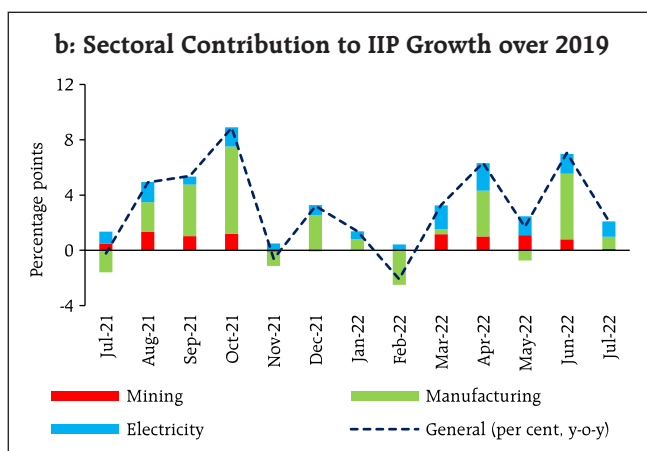
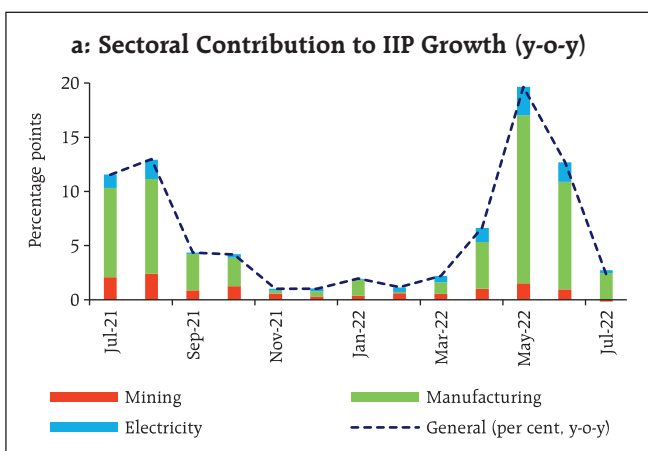
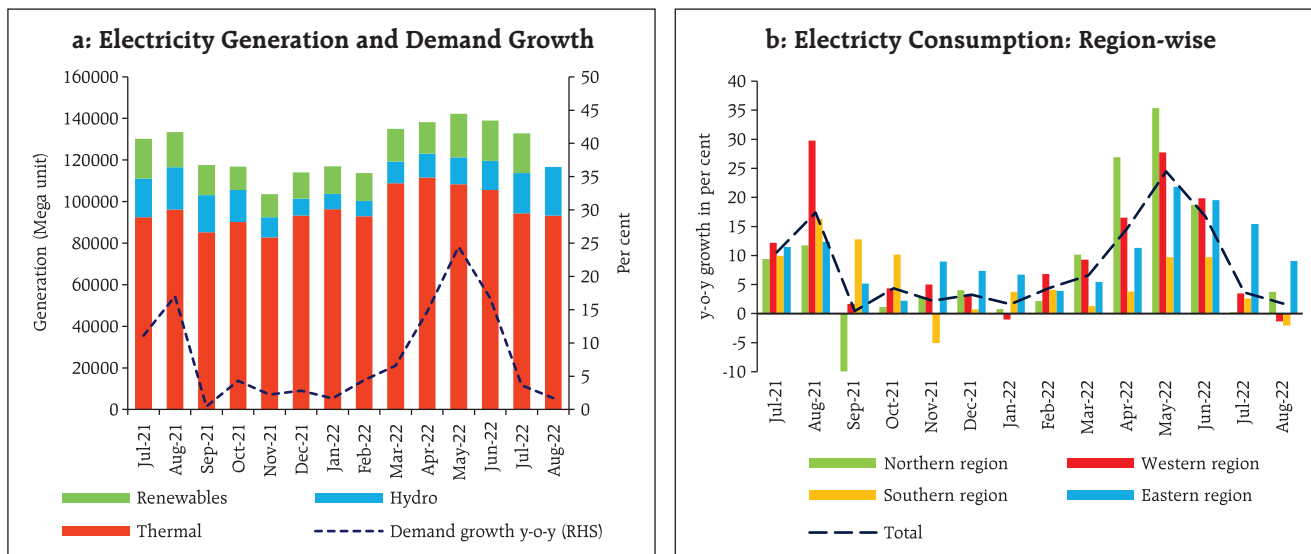


Chart III.23: Index of Industrial Production (IIP)



Sources: NSO and RBI staff estimates.

Chart III.24: Electricity Generation and Consumption

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

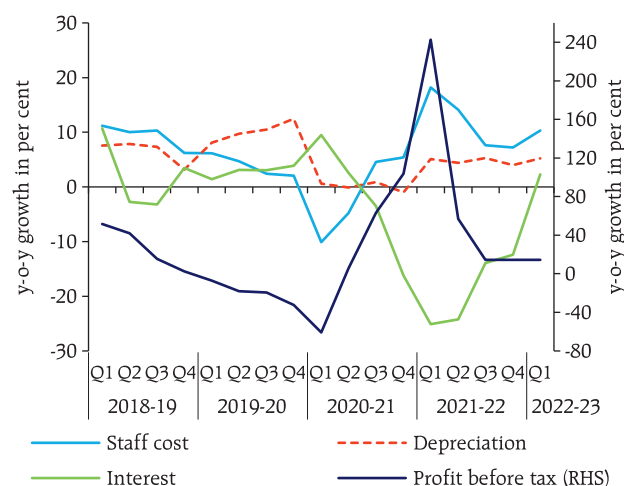
activity was driven by beverages, wearing apparel, furniture, printing and reproduction of recorded media and other transport equipment. In terms of the use-based classification, all categories expanded y-o-y during April-July. The production of capital goods posted double-digit growth, indicative of revival in investment activity. Consumer durables output also rose strongly, benefitting from the recovery in private consumption, especially urban demand.

Electricity generation rose by 17.6 per cent (y-o-y) in Q1:2022-23 (15.3 per cent above the pre-pandemic level). Thermal and renewable sources expanded by 17.7 per cent and 28.3 per cent, respectively. In Q2 (July-August), overall electricity generation growth moderated to 2.7 per cent, partly due to abundant rainfall (Chart III.24a). Region-wise, electricity demand remained broad-based during H1 (Chart III.24b).

The nominal GVA of listed manufacturing companies sustained a healthy expansion on the back of higher profits and staff costs (Chart III.25). According to the Reserve Bank's industrial outlook survey, the manufacturing sector's optimism waned marginally in Q2:2022-23.

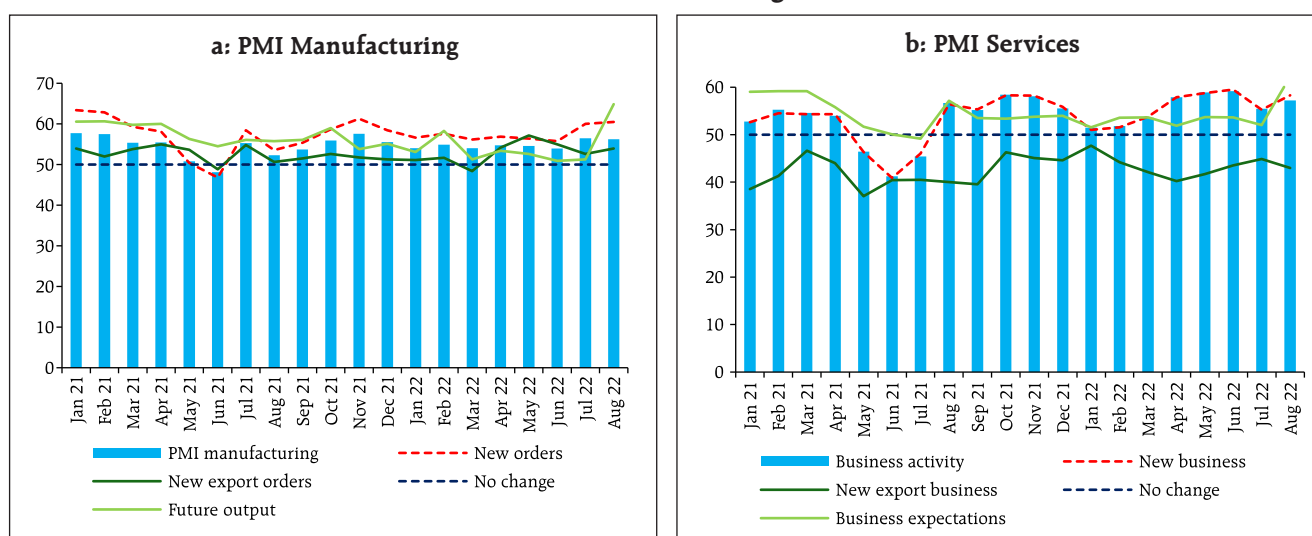
The manufacturing purchasing managers' index (PMI) improved from 54.4 in Q1 to 56.3 in Q2 (56.4 in July and 56.2 in August) due to a pick-up in sales, capacity enhancements, and product diversification (Chart III.26a).

Overall, manufacturing, primary goods, infrastructure & construction and capital goods

Chart III.25: Manufacturing Sector Profitability

Note: Data for Q1:2022-23 are based on results of 1,707 listed private manufacturing companies.
Source: RBI staff estimates based on data published by listed companies.

Chart III.26: PMI Manufacturing and Services



sectors have normalised to pre-pandemic levels while consumer goods are trailing (Table III.7). Amongst major sub-sectors, steel consumption, cement production,

electricity generation, passenger vehicles and two-wheelers indicate buoyancy and are above their 2019-20 output levels.

Table III.7: Industrial Sector: Progress towards Normalisation
 (Ratio to the respective month/quarter of 2019-2020)

Indicators	2020-21				2021-22				2022-23		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	July	Aug
I Industrial Production											
PMI: Manufacturing (>50 indicates growth over previous month)	35.1	51.6	57.2	56.9	51.5	53.8	56.3	54.3	54.4	56.4	56.2
II Index of Industrial Production											
IIP: Manufacturing	64	94	102	106	93	103	104	108	105	102	
IIP: Capital goods	60	94	102	107	91	102	103	108	103	101	
IIP: Infrastructure & construction goods	35	87	99	109	74	102	97	111	96	107	
IIP: Consumer durables goods	53	98	105	110	98	110	109	117	108	107	
IIP: Consumer non-durables goods	32	90	107	118	72	99	103	111	92	93	
III Eight Core Industries Index											
ECI: Steel	83	100	103	105	98	101	103	102	99	98	
ECI: Cement	76	95	100	103	96	104	105	109	109	106	
Electricity demand	51	100	103	113	97	108	105	118	103	108	
IV Production of Automobiles											
Passenger vehicles	62	89	96	110	97	110	104	119	114	107	
Two wheelers	84	99	106	108	98	108	110	113	116	110	117
Three wheelers											
Tractors	16	94	120	123	83	95	100	120	106	121	125
	22	95	118	129	60	89	91	102	83	87	100
	23	45	66	84	61	60	67	83	64	71	77
	60	123	162	153	133	143	118	99	152	145	141

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



III.2.3 Services

Services sector GVA rose by 17.5 per cent y-o-y in Q1:2022-23 (2.8 per cent above the pre-pandemic level), supported by sustained recovery in contact-intensive activities, and improving consumer confidence and business sentiment (Chart III.27a). Trade, hotels, transport, communication, and other services were resuscitated by increased resumption of operations and pent-up demand, but still remained below the pre-pandemic level by 15.5 per cent.

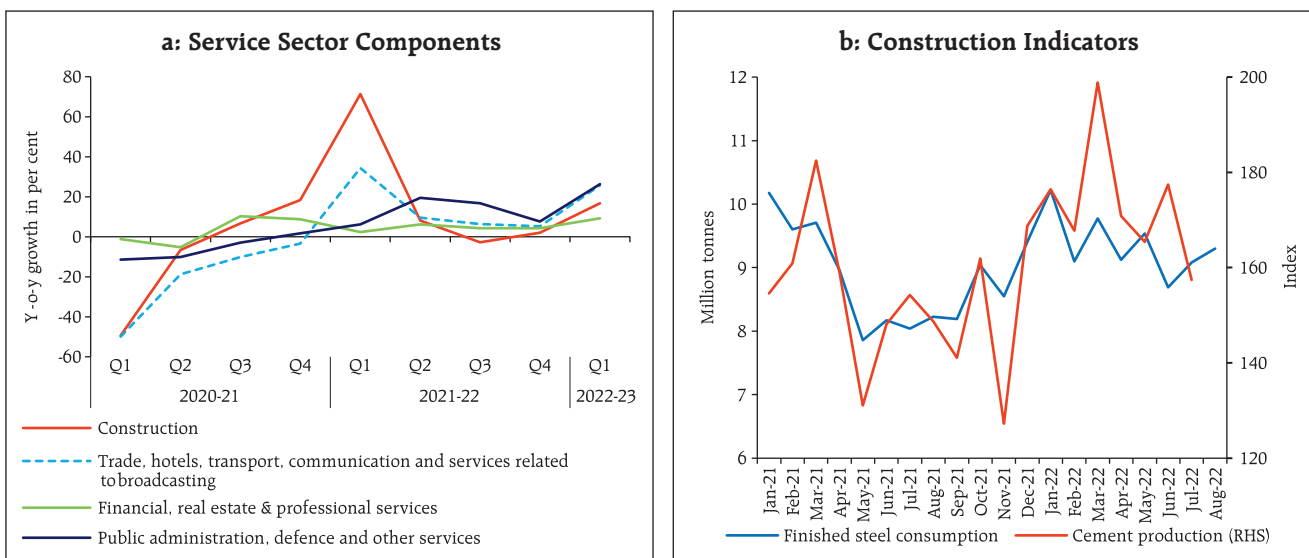
High frequency indicators suggest a continued broadening of traction in services activity (Table III.8). GST collections and issuances of e-way bills – indicators of wholesale and retail trade and underlying overall economic activity – remained above pre-pandemic levels for the fourteenth straight month in August. Construction sector activity remained healthy in H1, as reflected by cement production and steel consumption, benefitting from government's continued focus on boosting infrastructure and improving real estate activity (Chart III.27b).

Travel and hospitality services recovered in Q1, with increased discretionary spending and pent-up demand. The hotel industry occupancy

levels exceeded pre-pandemic levels in May-June 2022 but dipped marginally below in July-August. Transportation activity remained robust in H1 – commercial vehicle sales more than doubled y-o-y in Q1, while railway freight traffic posted a growth of 11.8 per cent in Q1 and 8.1 per cent in Q2 (up to August). Port cargo traffic rose by 9.2 per cent in Q1 and 11.6 per cent in Q2 (up to August) on the back of buoyant international trade (Table III.8). Passenger air traffic expanded by 206.2 per cent in Q1 and 74.1 per cent in Q2 (up to August) on improving tourism as well as business-related travels (Table III.9).

Growth in financial, real estate and professional services improved to 9.2 per cent in Q1:2022-23 from 2.3 per cent a year ago, aided by a revival in real estate and the buoyancy in financial services. Bank credit growth accelerated to 16.2 per cent (y-o-y) as on September 9, extending support to financial services. In the real estate sector, new launches reached a 25-quarter high in Q1 and sales were at the highest in 10 quarters but still trailed pre-pandemic levels (Chart III.28a). Housing prices grew by 3.5 per cent (y-o-y) in Q1:2022-23, according to the RBI's all-India housing price index, led by Chennai and Mumbai

Chart III.27: Services Sector



Sources: Office of Economic Adviser, Joint Plant Committee, Department of Industrial Policy & Promotion, Ministry of Commerce & Industry.

Table III.8: Services Sector: Progress towards Normalisation
(Ratio to the respective month/quarter of 2019-2020)

Indicators	2020-21				2021-22				2022-23		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Jul	Aug
PMI: Services (>50 indicates growth over previous month)	17.2	41.9	53.4	54.2	47.2	52.4	57.3	52.3	58.7	55.5	57.2
I Construction											
Steel consumption	49	93	114	123	99	93	107	122	109	106	101
Cement production	62	89	96	110	97	110	104	119	114	107	
II Trade, hotels, transport, communication and services related to broadcasting											
Commercial vehicle sales	15	80	99	143	51	99	100	170	108		
Domestic air passenger traffic	7	25	50	72	31	53	81	77	95	83	87
Domestic air cargo	26	68	90	105	78	86	92	101	103	98	91
International air cargo	43	77	87	101	94	96	100	103	92	91	90
Freight traffic	79	105	111	113	110	118	119	121	123	122	131
Port cargo	80	91	103	107	102	97	104	106	111	107	109
Toll collection: volume	184	349	295	174	548	699	513	259	1035	973	979
Petroleum consumption	74	88	101	100	85	93	98	105	100	98	104
GST E-way bill	50	100	115	128	98	127	128	140	143	145	153
GST revenue	59	92	108	114	106	118	130	133	144	146	146
III Financial, real estate and professional services											
Credit outstanding y-o-y growth (per cent)	6.2	5.2	6.6	5.6	5.8	6.7	9.3	9.6	13.2	14.5	15.5
Bank deposits y-o-y growth (per cent)	11.0	10.5	11.5	11.4	10.3	9.4	10.3	8.9	8.3	9.1	9.5
Life insurance first year premium	81	116	97	135	87	122	107	169	122	182	139
Non-life insurance premium	95	105	104	115	107	118	113	127	133	163	153

Note: Bank credit growth since December 3, 2021 is adjusted for past reporting errors by select scheduled commercial banks (SCBs).

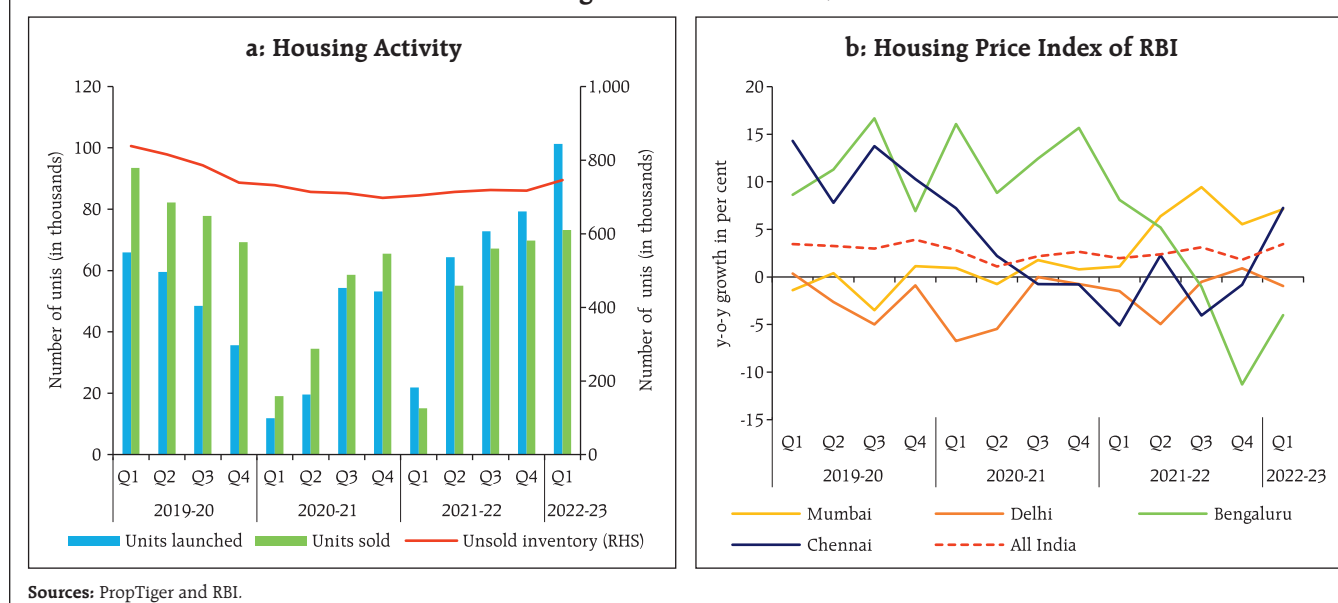
Sources: CMIE; CEIC; NSO; MOSPI; IRDAI; RBI staff estimates.



(Chart III.28). Public administration, defence and other services (PADO) increased by 26.3 per cent y-o-y

in Q1:2022-23 (6.2 per cent a year ago), aided by other services (education, health, recreation and cultural,

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



etc) even as government consumption recorded muted growth.

The PMI services remained in expansion zone in H1. After easing from 58.7 in Q1 to 55.5 in July, it rebounded to 57.2 in August (Chart III.27b). The Composite PMI index was 58.0 in Q1 and 57.4 in Q2 (July-August).

III.3 Conclusion

Domestic economic activity was resilient in H1:2022-23. Consumer confidence and business

optimism propelled discretionary spending, demand for contact-intensive activities, and investment activity. Looking ahead, good progress under *kharif* sowing, adequate reservoir levels, Government's continued thrust on capex, improved capacity utilisation in manufacturing, pick-up in non-food credit and waning COVID-19 infections should support aggregate demand and activity in H2. Geopolitical tensions, tightening of global financial markets and global economic slowdown, however, pose downside risks to the domestic outlook.

IV. Financial Markets and Liquidity Conditions

During H1:2022-23, domestic financial markets adjusted smoothly to the shift in monetary policy stance and exhibited resilience to global financial market headwinds and policy spillovers from AEs. Market rates have moved higher and bank credit uptake has improved. Going forward, the RBI will remain vigilant, agile and nimble in its liquidity management operations and would use all instruments at its disposal to mitigate the spillovers of global financial market volatility on domestic financial markets.

Introduction

During H1:2022-23, global financial markets experienced surges of volatility in the cross currents of geopolitical hostilities and aggressive monetary policy actions and stances across jurisdictions to combat elevated inflation pressures. As financial conditions tightened, bond yields hardened and stock markets plunged in H1 as mounting recession fears unnerved investor sentiments. In the currency markets, the US dollar strengthened against major global peers to a 20-year high by early-September, buoyed by the Fed's front-loaded rate hikes, quantitative tightening, and rising safe haven demand. These developments triggered portfolio outflows from emerging market economies (EMEs) and imposed sharp depreciation pressures on their currencies, exacerbating risks to macroeconomic and financial stability.

IV.1 Domestic Financial Markets

Domestic financial markets were impacted by global spillovers recurringly, especially in the equities and forex segments. Money markets remained relatively insulated although interest rates hardened in response to the withdrawal of monetary accommodation domestically. Bond yields eased from mid-June highs but hardened intermittently.

IV.1.1 Money Market

Money market rates firmed up during H1:2022-23, reflecting policy repo rate increases by the RBI and the reduction in surplus liquidity. The institution of the standing deposit facility (SDF) rate as the floor of the liquidity adjustment facility (LAF) corridor on April 8, 2022 at 40 basis points above the fixed rate reverse repo (FRRR) provided initial momentum. On average, the weighted average call rate (WACR) traded 2 basis points (bps) below the SDF rate in H1:2022-23 (April 8 - September 27), as compared with 2 bps below the FRRR in H2:2021-22 (Chart IV.1). Transient liquidity tightness due to higher tax outflows and the resultant build-up of government cash balances temporarily firmed up the WACR above the policy repo rate in the fourth week of July and the second half of September. Liquidity injection through variable rate repo (VRR) auctions mitigated the temporary liquidity stress.

In the overnight call money segment, the weighted average rate (WAR) of traded deals was 18 bps above the SDF rate while that of reported

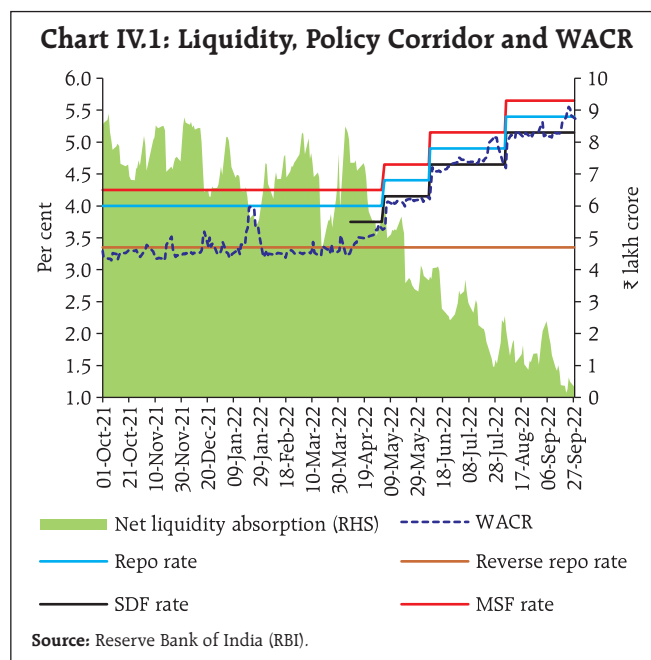
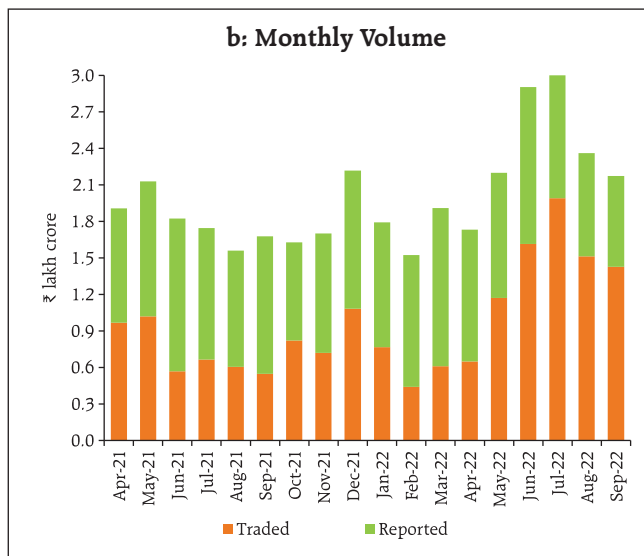
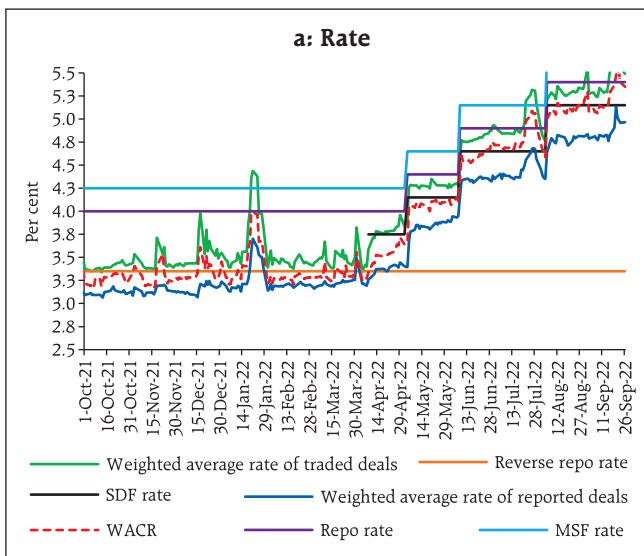


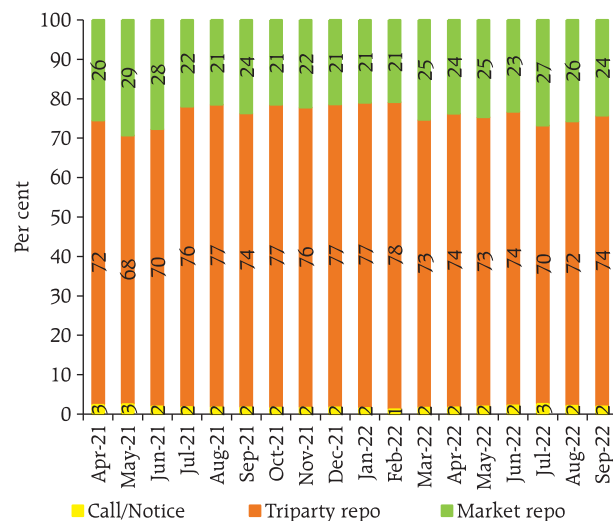
Chart IV.2: Traded and Reported Deals in the Call Money Market – Volume and Rate

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

deals¹ was 30 bps below during H1:2022-23 (April 8 - September 26), reflecting market segmentation as small cooperative banks – principal lenders in reported deals – brought in funds at lower rates towards the close of market hours (Chart IV.2a). The average monthly volume of traded deals at ₹1.39 lakh crore was higher than ₹1.01 lakh crore in the reported segment (Chart IV.2b). The share of reported deals in the total call money market volume declined to about 34 per cent in September 2022 from 68 per cent in March 2022, due to increased participation by public sector and foreign banks.

Money market activity remained dominated by the collateralised segments with the share of the uncollateralised call money market remaining at 2.0 per cent in H1:2022-23 (up to September 27). The share of triparty repo (TREPS) moderated to 73 per cent from 76 per cent a year ago, with a corresponding increase in the share of market repo to 25 per cent

from 22 per cent (Chart IV.3). Among investors, the share of mutual funds (MFs) – the major lenders in the collateralised segment – in market repo declined to 46 per cent from 56 per cent, partly because of reduced inflows under debt mutual funds (up to August). MFs' share in TREPS at 72 per cent in H1 was, however, unchanged. On the borrowing side,

Chart IV.3: Share in Overnight Money Market Volumes

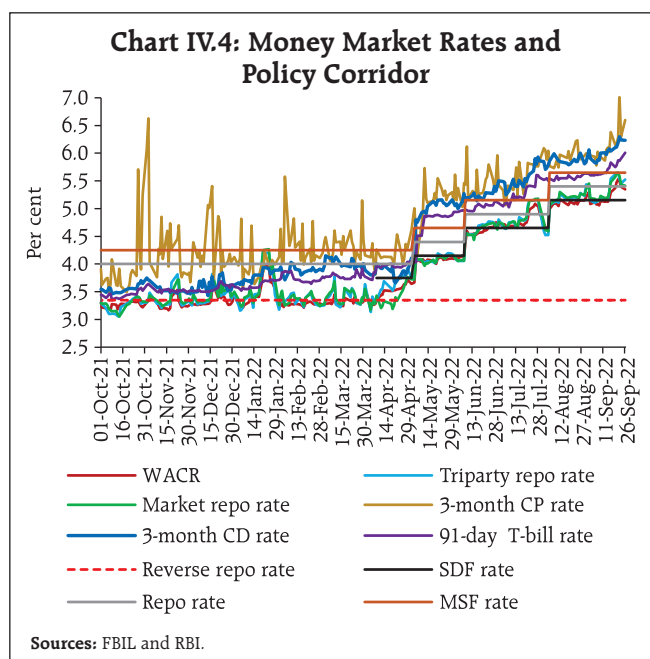
Sources: CCIL; RBI.

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.

the share of public sector banks (PSBs) increased to 66 per cent from 64 per cent in TREPS and to 19 per cent from 16 per cent in market repo over the same period.

Interest rates on longer-term money market instruments – 3-month T-bills (TBs), certificates of deposit (CDs) and commercial paper (CPs) – moved higher during H1:2022-23. The spreads of TBs, CDs and CPs were 51 bps, 72 bps and 87 bps, respectively, above the SDF rate in H1:2022-23 (April 8 - September 26) as against 26 bps, 38 bps and 88 bps, respectively, above the FRRR during H2:2021-22 (Chart IV.4).

The issuances of CDs increased to ₹2.96 lakh crore in H1:2022-23 (up to September 23) from ₹1.73 lakh crore in H2:2021-22, reflecting banks' demand for funds to meet the buoyant credit offtake. Mobilisation of resources through the issuances of CPs, however, fell to ₹7.20 lakh crore during H1:2022-23 (up to September 26) from ₹10.09 lakh crore in H2:2021-22 (Chart IV.5a), as the appetite for bank credit improved. The weighted average discount rate (WADR) of CP



issuances firmed up to 5.50 per cent in H1:2022-23 from 4.47 per cent in H2:2021-22. Corporates remained the major issuers of CPs, with their share increasing to 60.2 per cent in H1:2022-23 from 53.3 per cent in H2:2021-22 (Chart IV.5b).

Chart IV.5: Primary Issuances of Commercial Paper

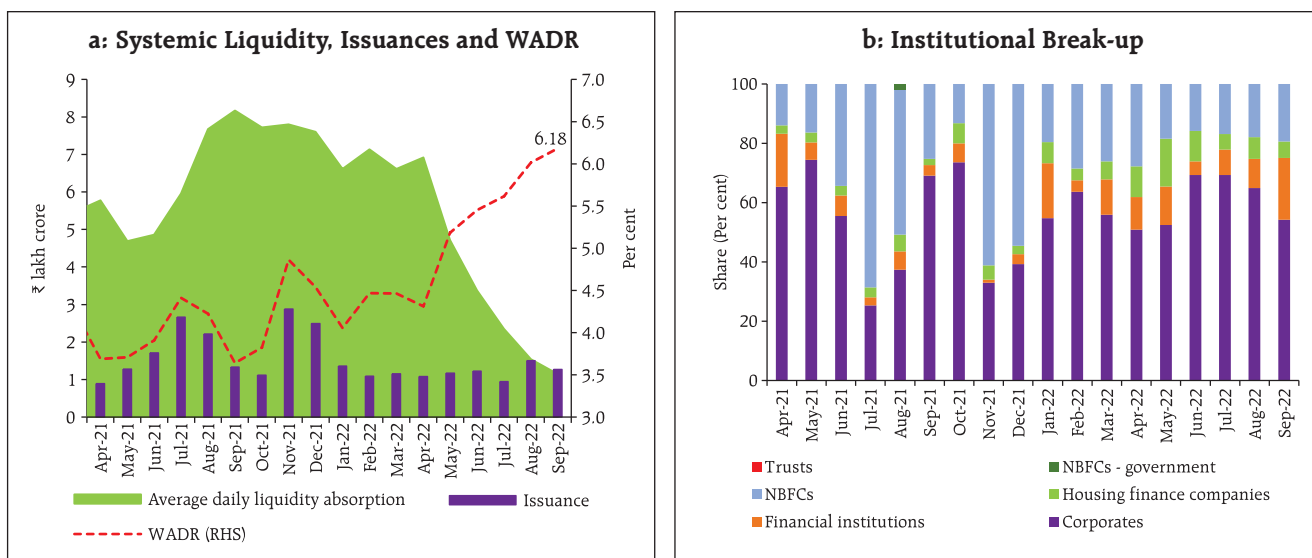


Table IV.1: Maturity Profile of CP Issuances

(₹ lakh crore)

Tenor	H1: 2021-22	H2: 2021-22	H1: 2022-23 (up to September 26)
7-30 days	4.13	4.14	0.69
31-90 days	3.12	3.30	3.93
91-180 days	2.05	1.82	1.84
181-365 days	0.80	0.83	0.74
Total	10.11	10.09	7.20
Outstanding (as at end-period)	3.71	3.52	4.33

Sources: CCIL; F-Trac and RBI.

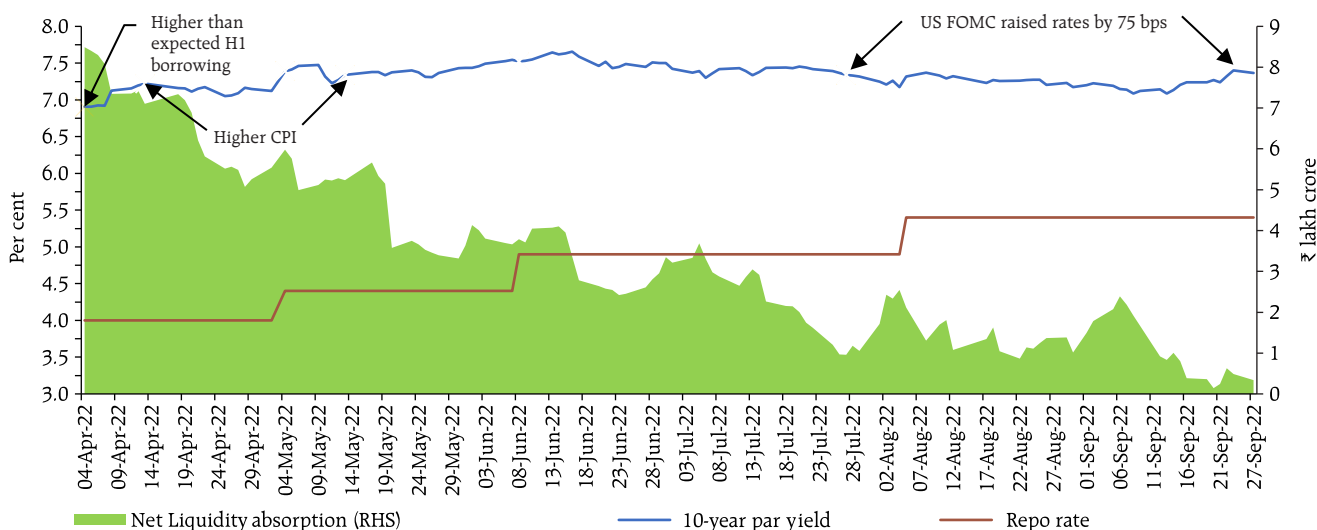
Most of the CP issuances were in the 31-90 days maturity segment (Table IV.1). The WADR of issuances in this maturity segment firmed up to 5.45 per cent in H1:2022-23 (up to September 26) from 3.97 per cent in H2:2021-22.

IV.1.2 Government Securities (G-sec) Market

During H1:2022-23, G-sec yields exhibited two-way movements (Chart IV.6). The generic 10-yr yield

rose by 64 bps during Q1, driven by (i) the rise in US yields and crude prices; (ii) the announcement of a larger than anticipated Central Government borrowing auction calendar for H1:2022-23; (iii) higher than expected March and April CPI inflation prints; and (iv) the repo rate hike of 40 bps in an unscheduled meeting in May along with the 50 bps hike in the cash reserve ratio (CRR) (Box IV.1).

In Q2 (up to September 27), the benchmark yield softened by 20 bps owing to the fall in crude prices, lower CPI inflation for July *vis-à-vis* June, the return of foreign portfolio investors (FPIs) as net buyers in August-September and expectations of India's likely inclusion in global bond indices. Reflecting these factors, the 10-year yield moderated from its peak of 7.66 per cent (on June 16, 2022) to 7.09 per cent on September 13; it, however, rose to 7.30 per cent on September 27, 2022 reflecting policy rate hikes by major central banks and higher global bond yields.

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

Sources: RBI and FBIL.

Box IV.1: Monetary Policy Surprises and Financial Markets

Efficient financial markets are believed to price in the anticipated component of policy actions. In order to assess the true impact of policy announcements on the market interest rates, it is essential to segregate the surprise element (which the market might not have been able to predict) from the anticipated component of monetary policy (Kuttner, 2001). High frequency financial market variables such as overnight indexed swaps (OIS), futures and stock prices can be used to identify policy surprises (Gertler and Karadi, 2015).

Akin to the global evidence, the OIS is found to reliably capture market expectations of the future path of the policy rate in India. Monetary policy surprises are identified by using the change in the 2-month OIS rate (given the bi-monthly policy cycle) on the policy day, while the residual is assumed to be the anticipated policy change. By narrowing the window around the policy announcement day, the change in the OIS rate can be reasonably attributed to monetary policy surprises. The change in the 2-month OIS rate on policy days may also contain a surprise on the path of expected future policy rates provided by the central bank's forward guidance. This policy surprise is identified by splitting the change in policy rate/monetary policy decision into two parts – anticipated and unanticipated policy change (eq. 1) (Ahokpossi *et al.*, 2020) – as follows:

$$\Delta i_t = (i_t - i_{t-1}) = (i_t - E_{t-1}i_t) + (E_{t-1}i_t - i_{t-1}) \quad \dots (1)$$

$$= \Delta i_t^u + \Delta i_t^a$$

where, i is the policy rate, t is the time index and $E_{t-1}i_t$ is the market expectation at time $t-1$ of the policy rate at time t . Δi_t is the change in the policy rate which is bifurcated into an unanticipated component (Δi_t^u) and an anticipated portion (Δi_t^a). The hypothesis that only the unanticipated decisions/surprises may have a significant impact on market rates is put to test for the key markets (91-days Treasury Bills, 10-years G-sec and AAA rated 5-years corporate bonds) in an event study (ES) framework², using the following specification:

$$\Delta m_t = \alpha_0 + \alpha_1 \Delta i_t^u + \alpha_2 \Delta i_t^a + \alpha_3 D_1 + \alpha_4 D_2 + \alpha_5 D_3 + \alpha_6 D_4 + \alpha_7 \Delta \text{Brent}_t + \alpha_8 \Delta \text{US market rates}_{t-1} + \varepsilon_t \quad \dots (2)$$

where, Δm_t is the change in market interest rates (dependent variable); Δi_t^u is the unanticipated policy

change/monetary policy surprise; Δi_t^a is the anticipated policy change; D_1 to D_4 are dummies to capture major policy developments³; ΔBrent_t refers to the change in Brent crude prices; and $\Delta \text{US market rates}_{t-1}$ refers to the corresponding changes in US rates one day prior to the policy announcement.

The empirical analysis indicates that anticipated policy changes are not significant for 10-year government securities and 5-year corporate bonds – only the surprise element has an impact on the yields of these securities (Table IV.1.1). The cumulative effect at the end of 2 days is higher (and significant) than the same day impact, suggesting that the markets take time to absorb policy

Table IV.1.1: Policy Impact on Financial Markets

Variables	91-days T-bill		10-year G-sec		AAA 5-year Corp. bonds	
	1 day effect	2 days effect	1 day effect	2 days effect	1 day effect	2 days effect
	(1)	(2)	(3)	(4)	(5)	(6)
Surprise	0.721*** (0.153)	1.094*** (0.121)	0.284*** (0.072)	0.792*** (0.224)	0.875*** (0.196)	1.060*** (0.221)
Anticipated	0.216*** (0.053)	0.211*** (0.039)	0.025 (0.033)	0.005 (0.067)	0.011 (0.033)	0.001 (0.071)
D₁	0.119*** (0.012)	0.240*** (0.013)	0.101*** (0.008)	0.030 (0.022)	0.076*** (0.012)	0.095*** (0.022)
D₂	-0.599*** (0.047)	-0.434*** (0.061)	0.049 (0.029)	-0.057 (0.067)	-0.141*** (0.020)	-0.069** (0.032)
D₃	0.139*** (0.013)	0.145*** (0.037)	0.052*** (0.016)	0.169*** (0.030)	0.248*** (0.018)	0.260*** (0.017)
D₄	-0.172*** (0.054)	-0.262*** (0.038)	0.024 (0.035)	0.023 (0.084)	0.056 (0.053)	0.018 (0.087)
Change in Brent prices	-0.010 (0.009)	-0.024*** (0.008)	0.000 (0.008)	0.000 (0.012)	0.001 (0.009)	0.010 (0.011)
Change in US 91-days T-bill, lag 1	0.063 (0.336)	-0.405 (0.330)	-	-	-	-
Change in US 5-years G-sec, lag 1	-	-	-	-	0.161 (0.304)	-0.070 (0.272)
Change in US 10-years G-sec, lag 1	-	-	0.258 (0.160)	-0.127 (0.373)	-	-
Constant	-0.036*** (0.011)	-0.027** (0.010)	-0.011* (0.006)	-0.006 (0.015)	-0.017 (0.010)	-0.018 (0.013)
Observations	37	37	37	37	37	37
Adjusted R²	0.861	0.896	0.310	0.518	0.698	0.626
LM test (p-value)	0.69	0.81	0.03	0.10	0.16	0.03

Note: Figures in parentheses refer to the Newey-West standard errors (corrected for heteroscedasticity and autocorrelation).

***, **, * denote levels of significance at 1%, 5% and 10%, respectively.

Source: RBI staff estimates.

(Contd.)

² The sample period covers the flexible inflation targeting (FIT) regime (October 2016 – August 2022).

³ D_1 refers to the dummy for the April 6, 2017 policy meeting when the RBI narrowed the width of the LAF corridor from 100 bps to 50 bps; D_2 refers to the dummy for the March 27, 2020 meeting when policy measures were announced through an off-cycle meeting after the outbreak of the pandemic; D_3 refers to the dummy for the April 8, 2022 meeting when the RBI instituted the SDF; and D_4 refers to the dummy for an off-cycle meeting on May 4, 2022 when the RBI announced increase in the policy repo rate by 40 bps and CRR by 50 bps.

surprises. In the case of treasury bills, while both surprise as well as anticipated policy changes matter, the surprise component is the major driver. Overall, interest rates in money and bond markets in India are found to respond significantly mainly to policy surprises in conformity with the efficient market hypothesis.

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Kuttner, K. N. (2001), "Monetary Policy Surprises and Interest Rates: Evidence from the Fed Funds Futures

Market", *Journal of Monetary Economics*, Vol. 47, Issue 10, pp. 523-544.

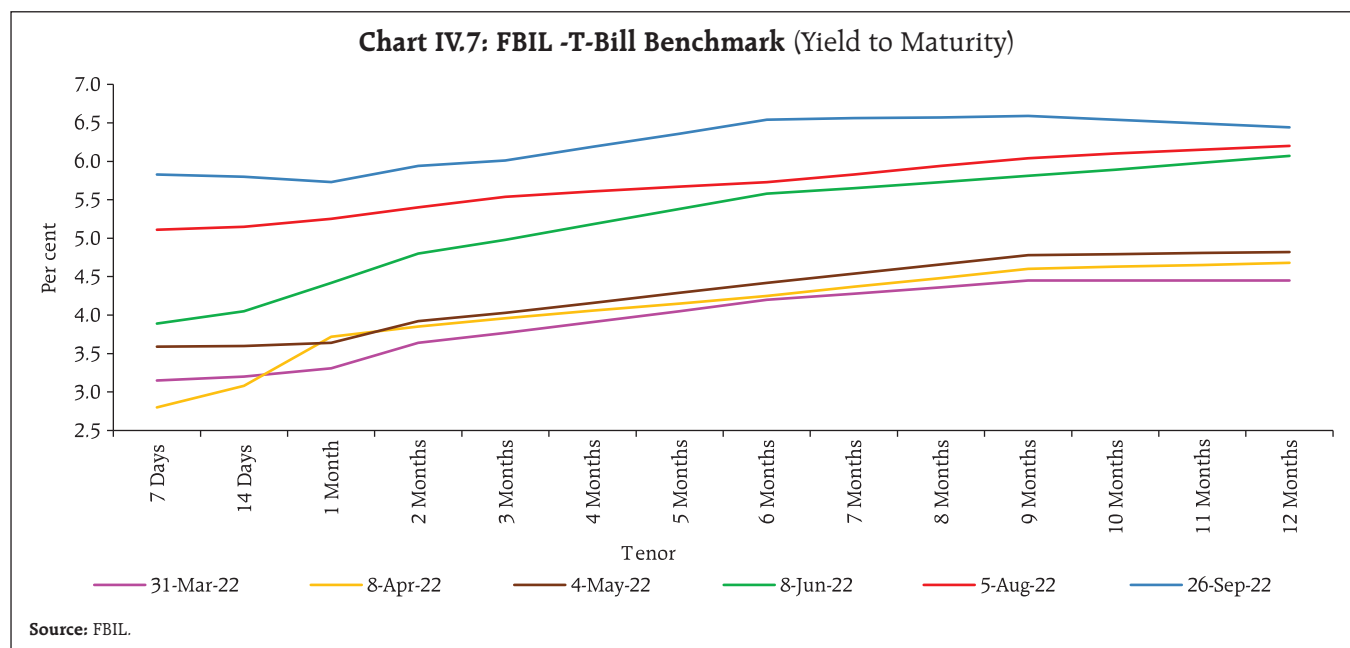
Gertler, M., and Karadi, P. (2015), "Monetary Policy Surprises, Credit Costs, and Economic Activity", *American Economic Journal: Macroeconomics*, Vol. 7(1), pp. 44-76.

Ahokpossi, C., Isnawangsih, A., Naoaj, M. S., and Yan, T. (2020), "The Impact of Monetary Policy Communication in an Emerging Economy: The Case of Indonesia", IMF Working Paper, WP/20/109.

Yields on T-bills firmed up across tenors in sync with the increases in the policy repo rate and the introduction of the SDF (Chart IV.7).

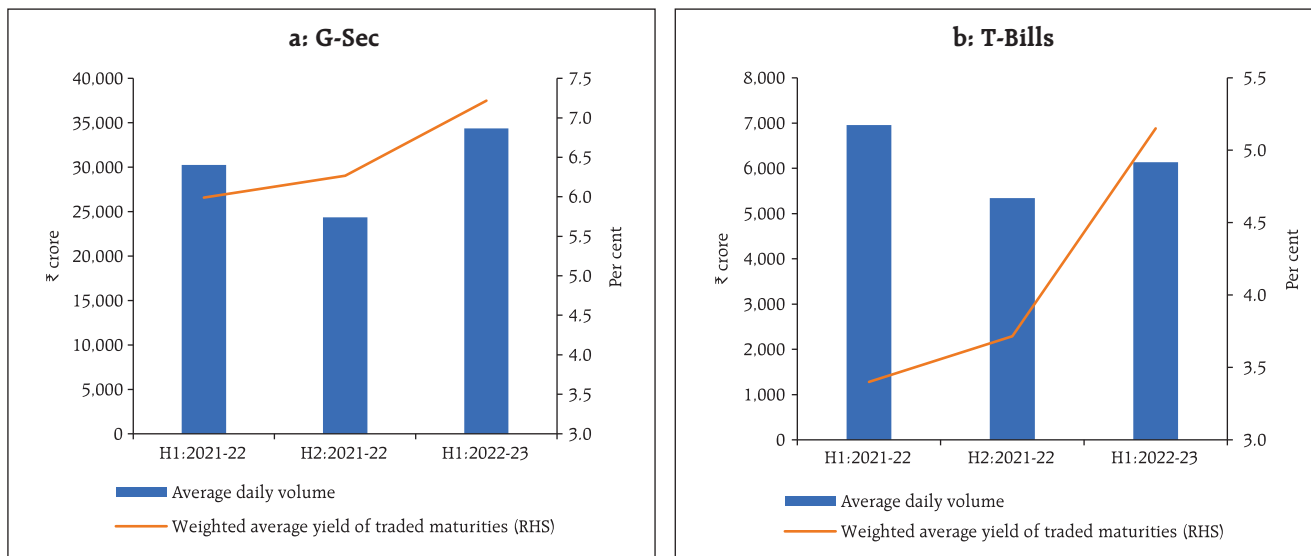
Average trading volume in both G-secs and T-bills increased year-on-year in H1:2022-23 (up to September 26) (Chart IV.8). The weighted average yield of traded maturities for G-sec and T-bills increased by 95 bps and 144 bps, respectively.

The dynamics of yield curve movements are captured by its level, slope, and curvature⁴. While the average level of yields hardened by 64 bps, the slope flattened by 206 bps during H1:2022-23 (up to September 26) due to relatively higher increase in the short-term rates consequent to policy tightening (Chart IV.9). Alongside, the curvature declined perceptibly by 190 bps indicating a reduction in the



⁴ 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.

Chart IV.8: Trading Volumes and Yield

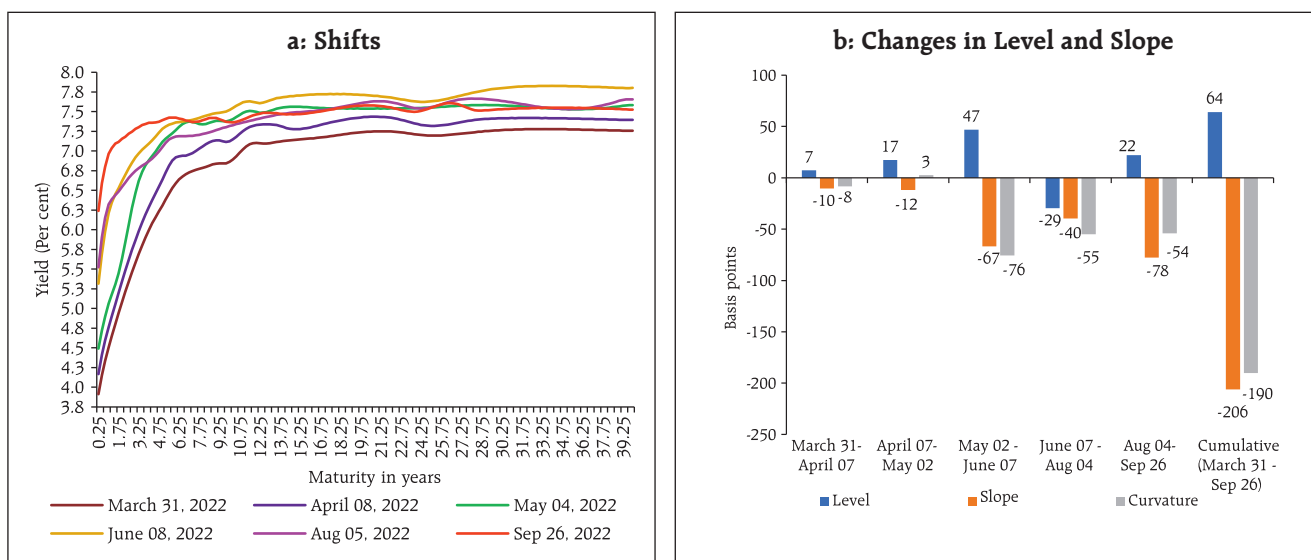


Sources: CCIL and RBI staff estimates.

hump of the curve, as the yield hardening in the mid-segment of the curve was less than in the short and long segments. In the Indian context, unlike the AEs, the level and curvature of the yield curve have more information content on future macroeconomic outcomes than the slope.⁵

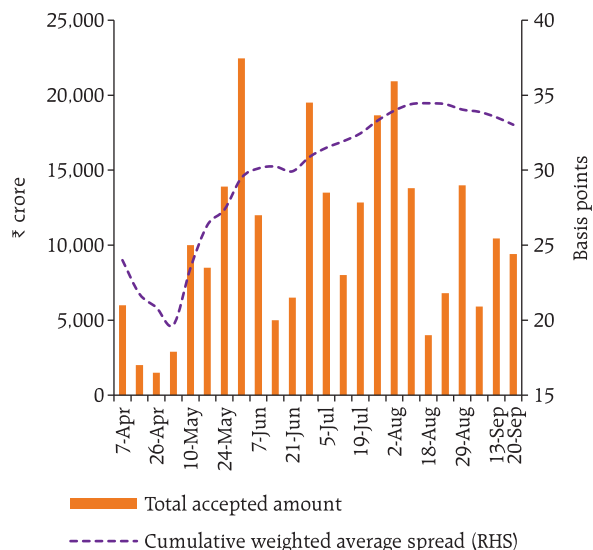
To facilitate debt consolidation, the Reserve Bank conducted six switch auctions on behalf of the Central Government amounting to ₹56,103 crore during H1:2022-23 (up to September 27, 2022). The weighted average maturity (WAM) of the outstanding stock of G-sec increased to 11.94 years as on September

Chart IV.9: G-Sec Yield Curve



Sources: FBIL and RBI staff estimates.

⁵ 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.

Chart IV.10: SGS - Amount Raised and Spread

Source: RBI.

27, 2022 from 11.71 years at end-March 2022. The weighted average coupon (WAC) at 7.15 per cent during H1 (up to September 27) remained higher than 7.11 per cent as at end-March 2022.

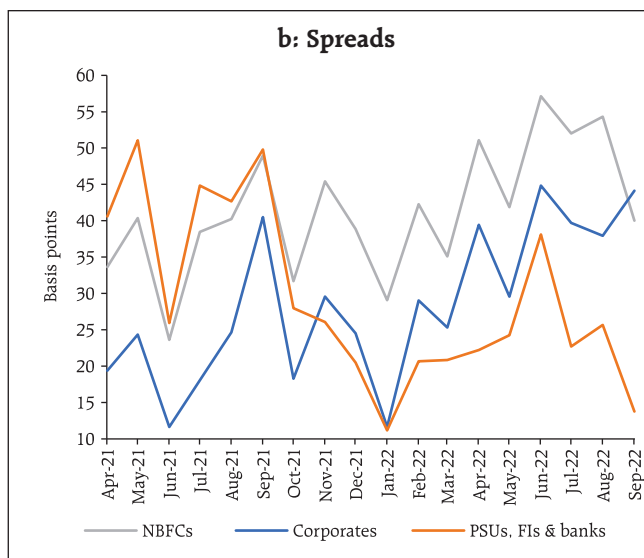
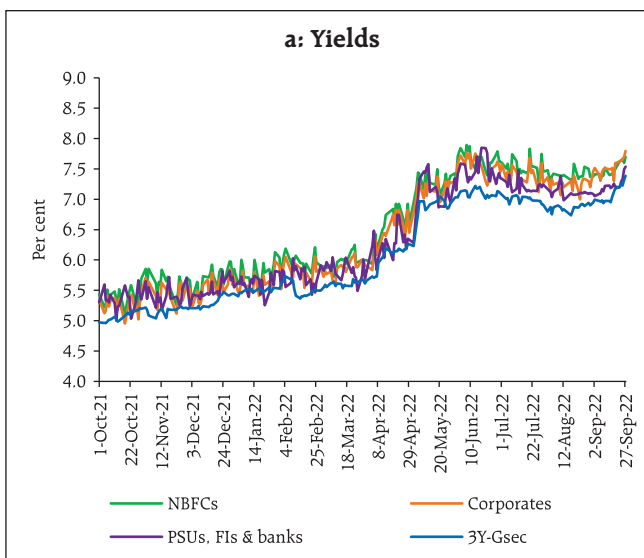
The weighted average spread of cut-off yields on state government securities (SGS) over G-sec yields of comparable maturities was 32 bps in H1:2022-23 (up

to September 27) (Chart IV.10). The average inter-state spread on securities of 10-year tenor (fresh issuances) was 3 bps in H1:2022-23 (4 bps in H2:2021-22).

IV.1.3 Corporate Bond Market

Corporate bond yields moved higher in H1, broadly tracking G-sec yields. The average yield on AAA-rated 3-year bonds issued by non-banking financial companies (NBFCs) and corporates increased by 156 bps (to 7.52 per cent) and by 170 bps (to 7.56 per cent), respectively, in H1:2022-23 (up to September 27). The yield on issuances by public sector undertakings (PSUs), financial institutions (FIs) and banks rose by 143 bps to 7.25 per cent (Chart IV.11a). The average risk premium (measured by spread over 3-year G-sec yields) increased from 35 bps to 41 bps for NBFCs, from 25 bps to 45 bps for corporates while it moderated from 21 bps to 14 bps for PSUs, FIs and banks (Chart IV.11b).

The increase in risk premia was seen in other tenors (*albeit* more at longer segments) and rating spectrum as well (Table IV.2). The 3-year credit default swap (CDS) spreads for the papers trading overseas of State Bank of India and ICICI Bank increased by

Chart IV.11: AAA-rated 3-Year Corporate Bond Yield and Spread: Sector-wise

Source: Fixed Income Money Market and Derivatives Association of India (FIMMDA).

Table IV.2: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (bps) (over corresponding risk-free rate)		
	Mar 2022	Sep 2022	Variation (in bps)	Mar 2022	Sep 2022	Variation (in bps)
1	2	3	(4 = 3-2)	5	6	(7 = 6-5)
<i>Corporate Bonds</i>						
(i) AAA (1-yr)	5.03	6.84	181	28	13	-15
(ii) AAA (3-yr)	5.86	7.56	170	25	45	20
(iii) AAA (5-yr)	6.43	7.50	107	-1	22	23
(iv) AA (3-yr)	6.57	8.31	174	96	120	24
(v) BBB-minus (3-yr)	10.24	11.97	173	463	486	23

Note: Yields and spreads are computed as monthly averages. Data up to September 27, 2022.

Source: FIMMDA.

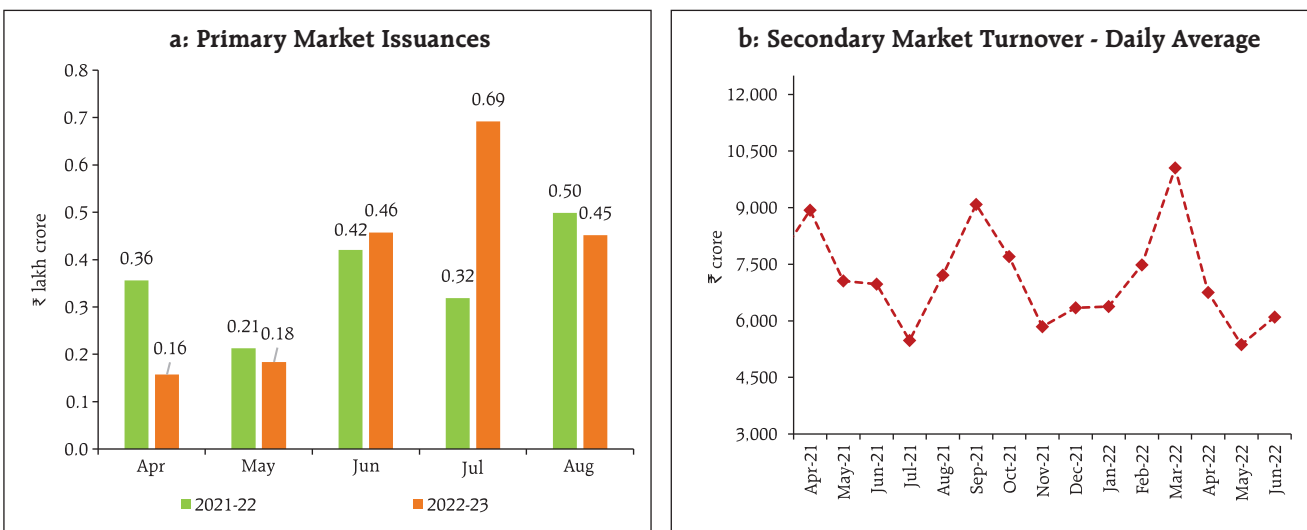
32 bps and 33 bps, respectively during H1: 2022-23 (up to September 27, 2022).

The issuances of corporate bonds in the primary market increased to ₹1.94 lakh crore during H1 (up to August 2022) from ₹1.81 lakh crore during the corresponding period of 2021-22 (Chart IV.12a), compensating for the lack of overseas issuances as against ₹55,152 crore raised abroad in

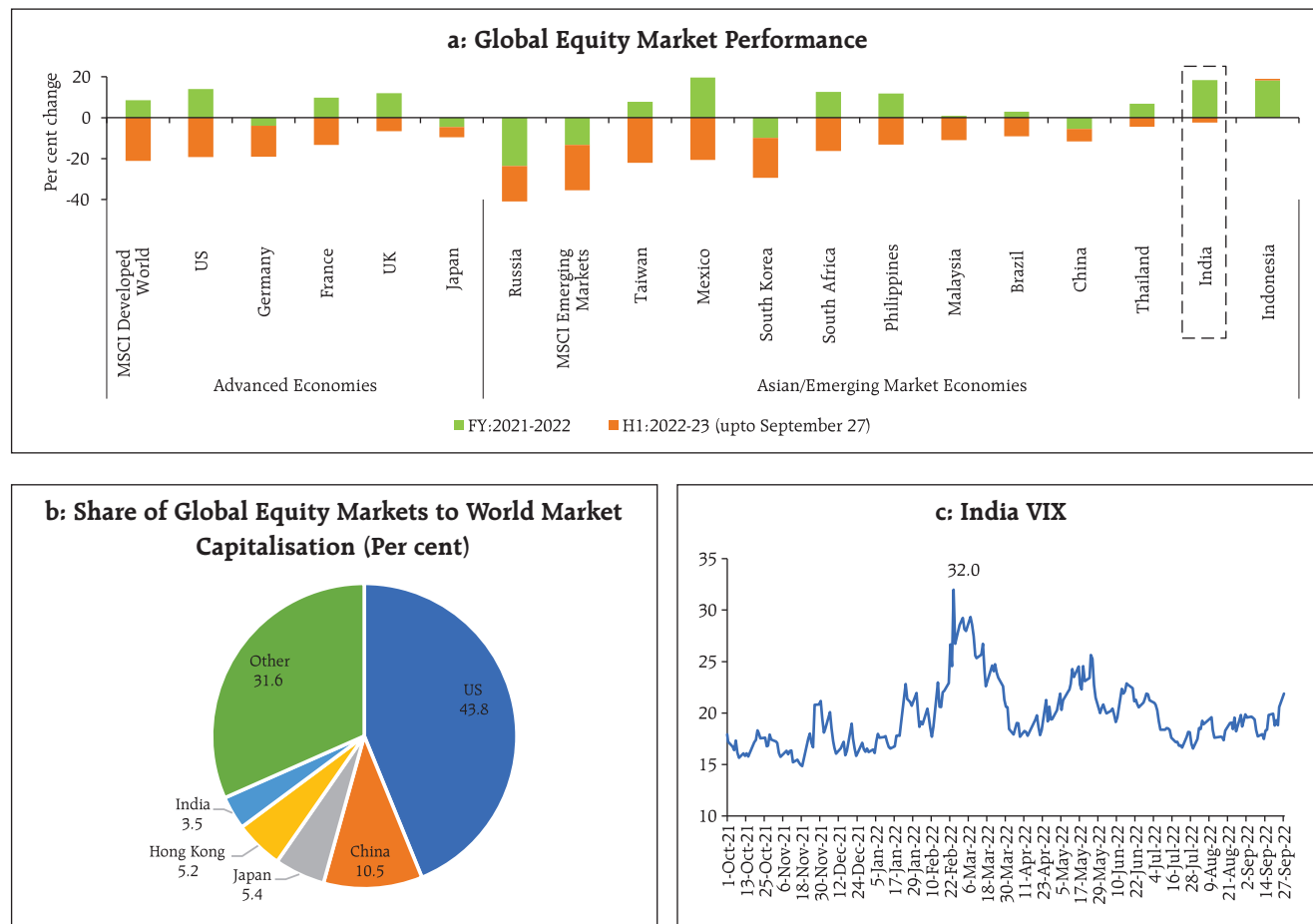
H1:2021-22. Nearly the entire resource mobilisation in the corporate bond market (98.4 per cent) was through the private placement route. Outstanding investments by FPIs in corporate bonds declined to ₹1.16 lakh crore on September 27, 2022 from ₹1.21 lakh crore at end-March, pulling down the utilisation of the approved limits from 19.9 per cent to 18.3 per cent. The daily average secondary market trading volume during Q1 at ₹6,054 crore was 20 per cent below its level in the corresponding period of the previous year (Chart IV.12b).

IV.1.4 Equity Market

Domestic equity market registered minor losses in H1: 2022-23, exhibiting greater resilience than most of its global peers (Chart IV.13a). The benchmark indices bounced off their multi-month lows registered in June 2022 as the correction in commodity prices, good progress of the monsoon, healthy corporate earnings results and return of FPI flows restored investors' confidence. However, the US Fed's 75 bps policy rate hike in September 2022 along with its hawkish stance led to a global sell-off

Chart IV.12: Corporate Bond Market Activity

Source: SEBI.

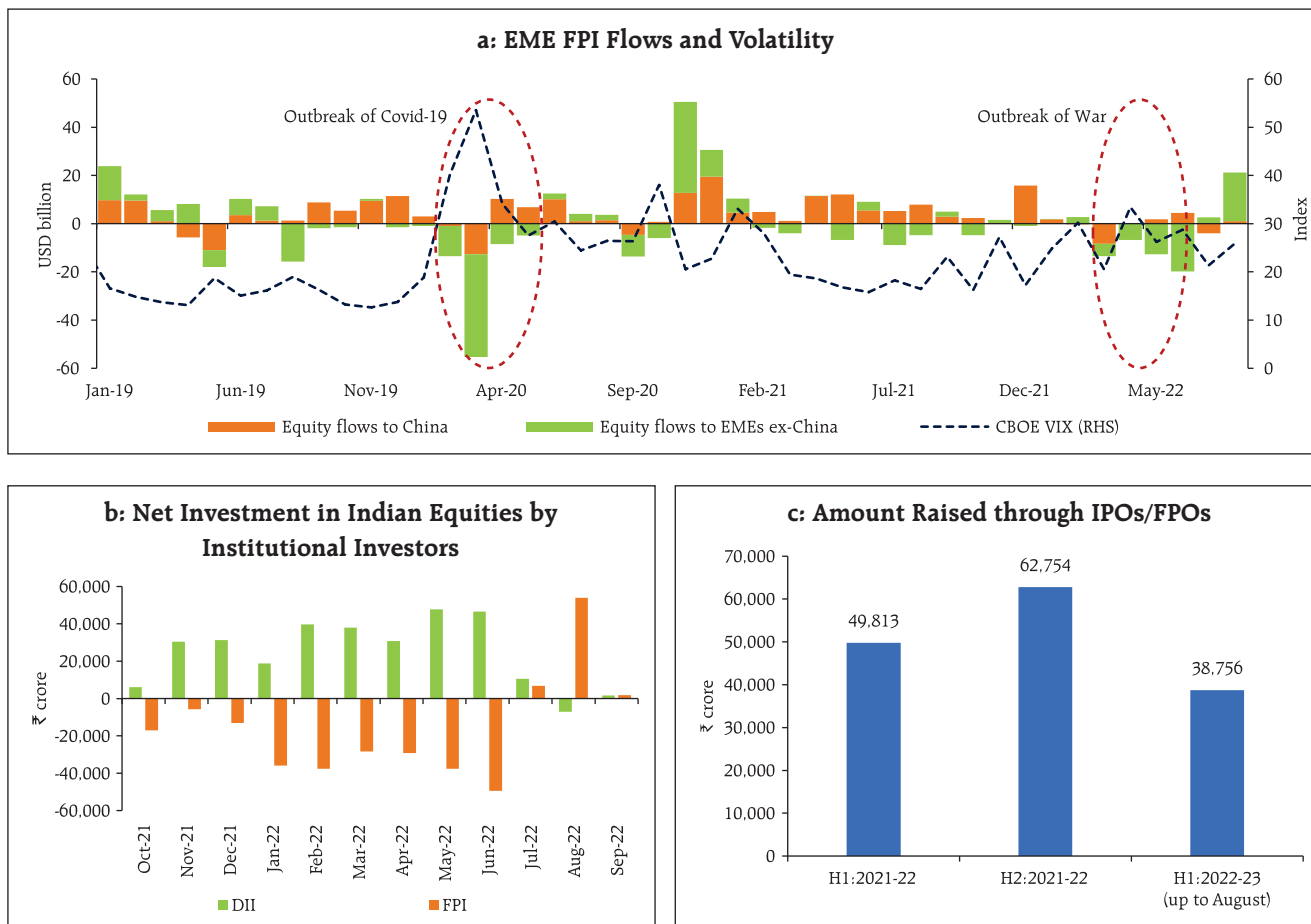
Chart IV.13: Stock Market Performance

Source: Bloomberg.

in equity markets. Overall, the BSE Sensex declined by 2.5 per cent in H1:2022-23 (up to September 27, 2022) to close at 57,108. Indian equities account for 3.5 per cent of total world market capitalisation, the fifth largest in the world (Chart IV.13b). The India VIX – which captures the short-term expected volatility of Nifty 50 – fell from its 20-month high of 32.0 on February 24, 2022 to 21.6 on September 27, 2022 (Chart IV.13c).

EMEs as an asset class experienced selling pressures from FPIs in 2022 amidst heightened geopolitical tensions and rapid monetary policy normalisation by global central banks (Chart IV.14a). In India, equity markets witnessed sell-offs for nine consecutive months (October 2021-June 2022), the

longest selling streak since 2000. Foreign investors, however, returned to the domestic equity market in July, attracted by the improvement in corporate earnings and strong macro fundamentals. Domestic institutional investors (DIIs) made heavy purchases in the equity market for 17 consecutive months (March 2021-July 2022), absorbing FPI sell-off pressures and enabling the market to outperform global and other emerging market peers. Overall, FPIs were net sellers to the tune of ₹58,438 crore, while DIIs were net buyers to the tune of ₹1.3 lakh crore in H1:2022-23 (Chart IV.14b). Moreover, activity in the domestic primary market remained subdued in H1:2022-23 (barring the mega LIC IPO) due to volatile conditions (Chart IV.14c).

Chart IV.14: EME flows, Institutional Investments and IPO Issuances in India

Sources: Institute of International Finance, Bloomberg, Capitaline, NSDL and SEBI.

IV.1.5. Foreign Exchange Market

The Indian rupee (INR) traded with a depreciating bias against the US dollar (USD) in H1:2022-23 (Chart IV.15a). Reflecting the global factors, the INR volatility – measured by the 1-month at the money (ATM) option implied volatility⁶ – rose to an average of 5.25 per cent during H1 (up to September 27) from 4.8 per cent during H2:2021-22 (Chart IV.15b). Market interventions by the RBI contained volatility and ensured orderly movement of the INR. The Reserve Bank announced several measures on July

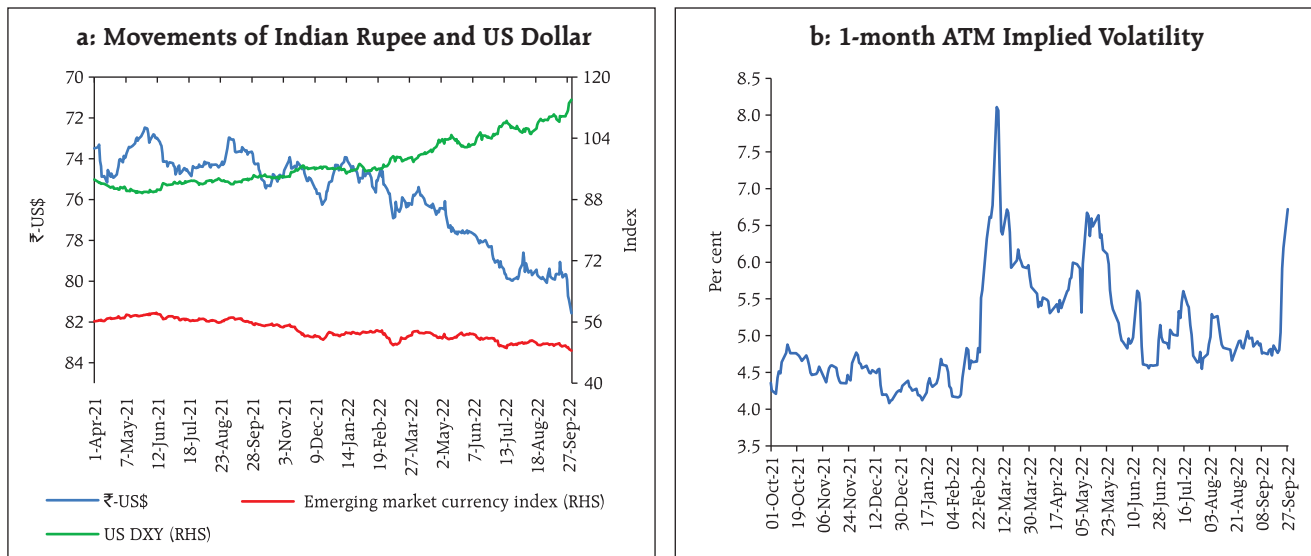
6, 2022 to enhance capital inflows with the objective of ensuring overall macroeconomic and financial stability.⁷

During 2022-23 (up to September 27), the US dollar appreciated by 16.1 per cent against a basket of major currencies while the INR depreciated by a lower order of 6.8 per cent against the US dollar (Chart IV.16),

⁶ Implied volatility is derived from an option's price and depicts the markets' expectations about the future volatility of the currency.

⁷ These measures included temporary exemption from CRR and statutory liquidity ratio (SLR) on incremental FCNR(B) and NRE term deposits, permitting banks temporarily to raise fresh FCNR(B) and NRE deposits without reference to the extant regulations on interest rates effective July 7, 2022, increase in limit under automatic route for external commercial borrowing and relaxations pertaining to FPI investment norms in debt market and foreign currency lending by authorised dealer category I (AD Cat-I) banks.

Chart IV.15: INR - US Dollar Movements

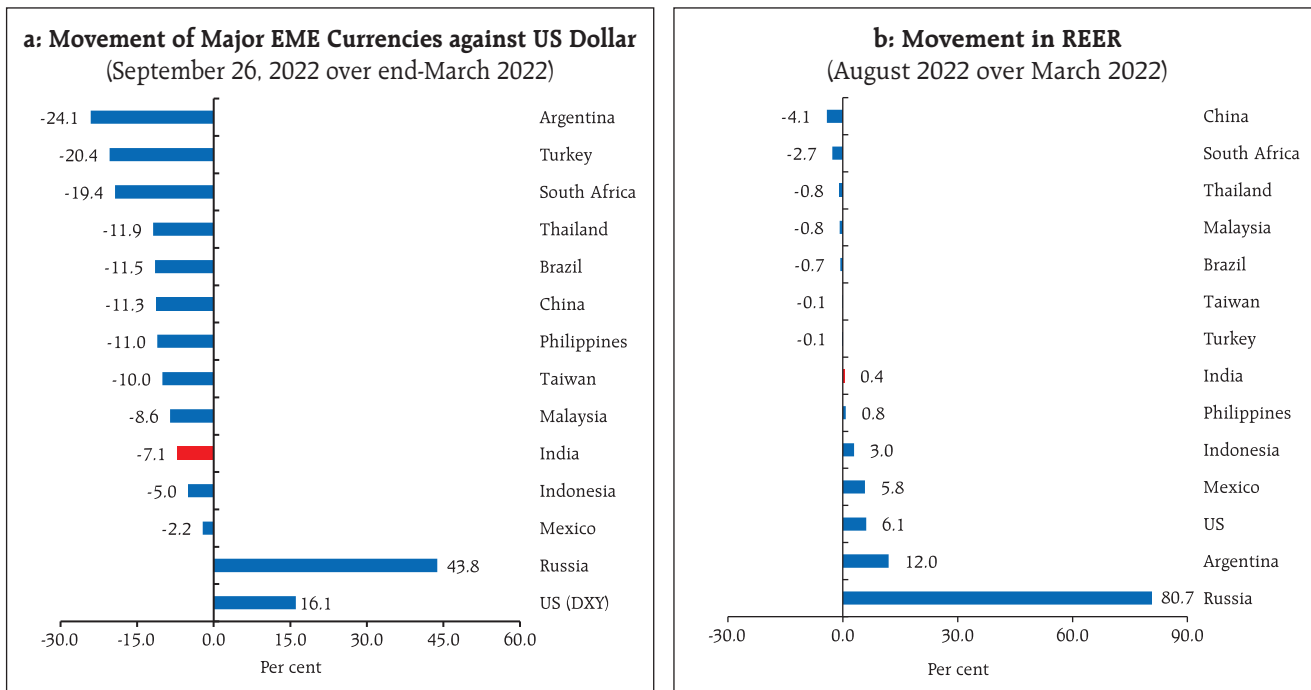


Sources: FBIL; Bloomberg; and Thomson Reuters.

far better than many AEs and EME peers. The INR's relatively better performance is attributed to stronger macroeconomic fundamentals and buffers – India's

inflation is lower than the weighted average of its major trading partners⁸. Despite a drawdown, India's foreign exchange reserves at US\$ 537.5 billion (as on

Chart IV.16: Cross-Currency Movements



Sources: RBI; FBIL; IMF; Thomson Reuters; and Bank for International Settlements (BIS).

⁸ In the 40-currency REER, trading partners account for 91 per cent of India's merchandise trade, 88.4 per cent of world GDP and 86.4 per cent of world trade. In August 2022, India's inflation was 0.8 percentage point lower than these 40 trading partners.

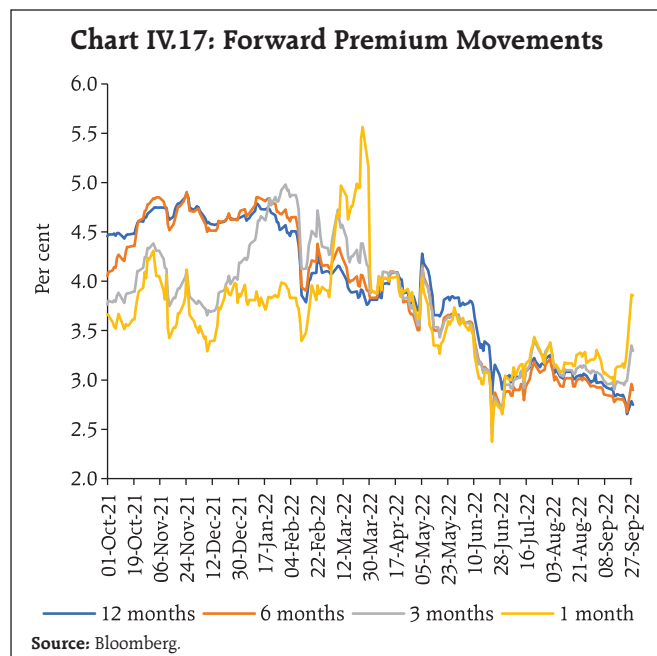
September 23) are the fifth largest globally⁹ which, in conjunction with net forward purchases, provide insulation from external shocks and resilience.

In terms of the 40-currency nominal effective exchange rate (NEER), the INR appreciated by 0.2 per cent between March 2022 and September 23, 2022 (Table IV.3). It also appreciated by 1.1 per cent in terms of the 40-currency real effective exchange rate (REER) during this period.

Forward premia declined during H1 reflecting narrowing interest rate differentials on the back of a faster than expected tightening by the US Fed. The one-month forward premium averaged 3.36 per cent during H1 (up to September 27) down from 3.93 per cent during H2:2021-22 (Chart IV.17).

IV.1.6 Credit Market

During H1:2022-23, bank credit¹⁰ growth accelerated in tandem with improving economic activity. Growth in non-food bank credit increased to



⁹ Comparison based on data available up to September 16, 2022.

¹⁰ Bank credit growth and related variations/ratios for all fortnights since December 3, 2021 are adjusted for past reporting errors by select scheduled commercial banks (SCBs).

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

Item	Index: September 23, 2022 (P)	Appreciation (+) / Depreciation (-) (Per cent)
		September 23, 2022 over March (average) 2022
40-currency REER	104.6	1.1
40-currency NEER	92.9	0.2
6-currency REER	104.7	3.7
6-currency NEER	88.0	1.8
₹/US\$*	81.37	-6.3

*: As on September 27, 2022.

P: Provisional.

Sources: RBI; and FBIL.

16.7 per cent (y-o-y) as on September 9, 2022 from 9.7 per cent as at end-March 2022 (Chart IV.18).

Although credit growth (y-o-y) picked up for both public sector banks (PSBs) and private sector banks (PVBs) in H1:2022-23, it remained higher for PVBs (20.4 per cent *vis-à-vis* 13.9 per cent for PSBs) (Chart IV.19a). The share of PSBs in total incremental credit extended by all scheduled commercial banks (SCBs) on a y-o-y basis, however, was higher than that of PVBs (Chart IV.19b).

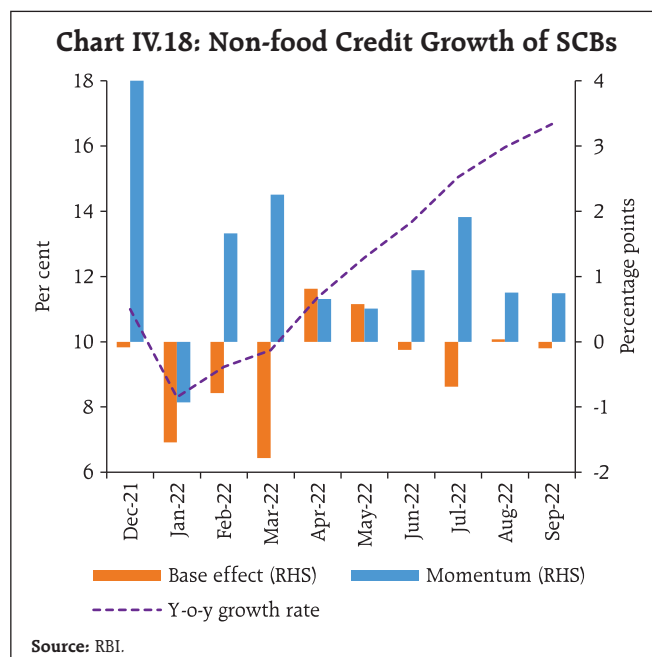
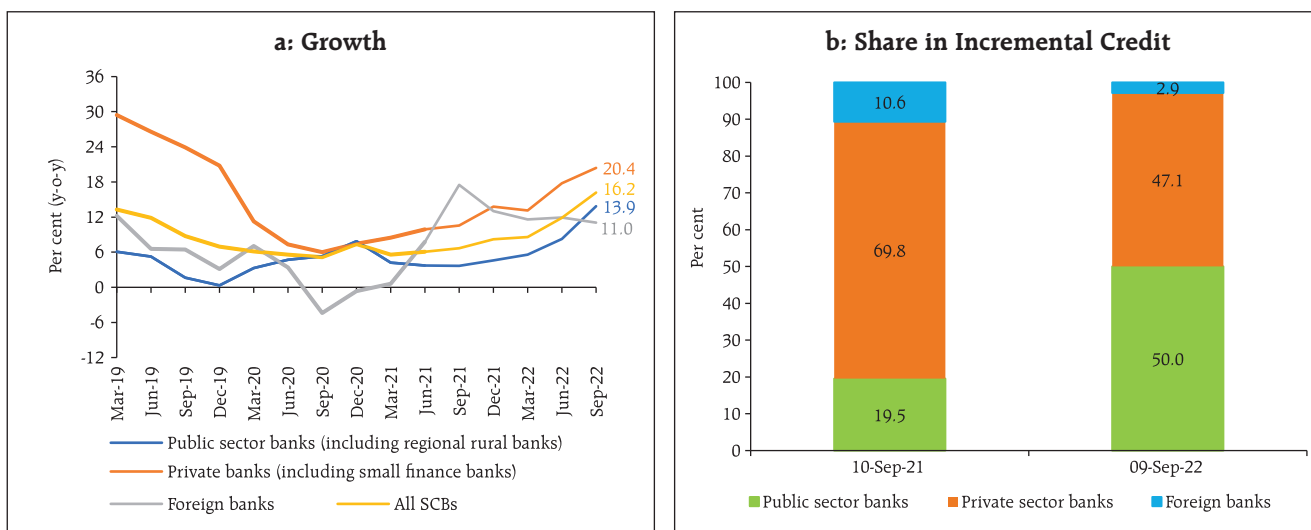


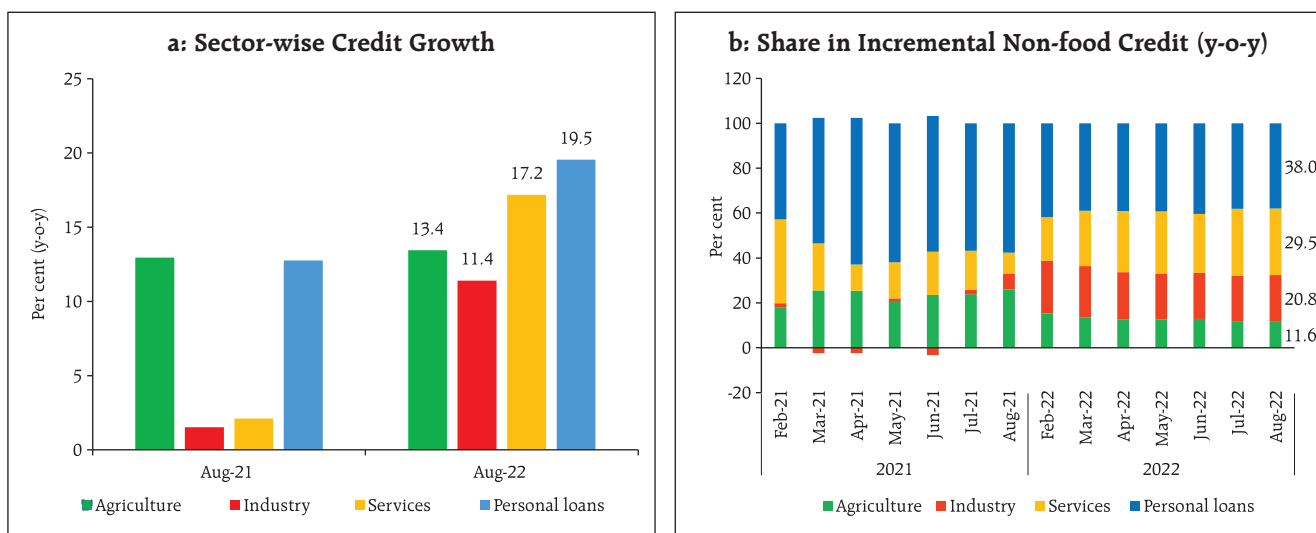
Chart IV.19: Credit Flow across Bank-Groups

Source: RBI.

The improvement in bank credit was seen across all major sectors¹¹ (Chart IV.20). Credit to the agriculture sector grew by 13.4 per cent (y-o-y) in August 2022 (13.0 per cent a year ago), supported by

the above-normal monsoon and the enhanced target for agricultural credit¹².

Credit growth to industry recovered to 11.4 cent in August from 1.5 per cent a year ago, led by large

Chart IV.20: Sectoral Deployment of Bank Credit

Source: RBI.

¹¹ 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.

¹² The government raised the agriculture credit target of ₹16.5 lakh crore for 2021-22 to ₹18 lakh crore for 2022-23.

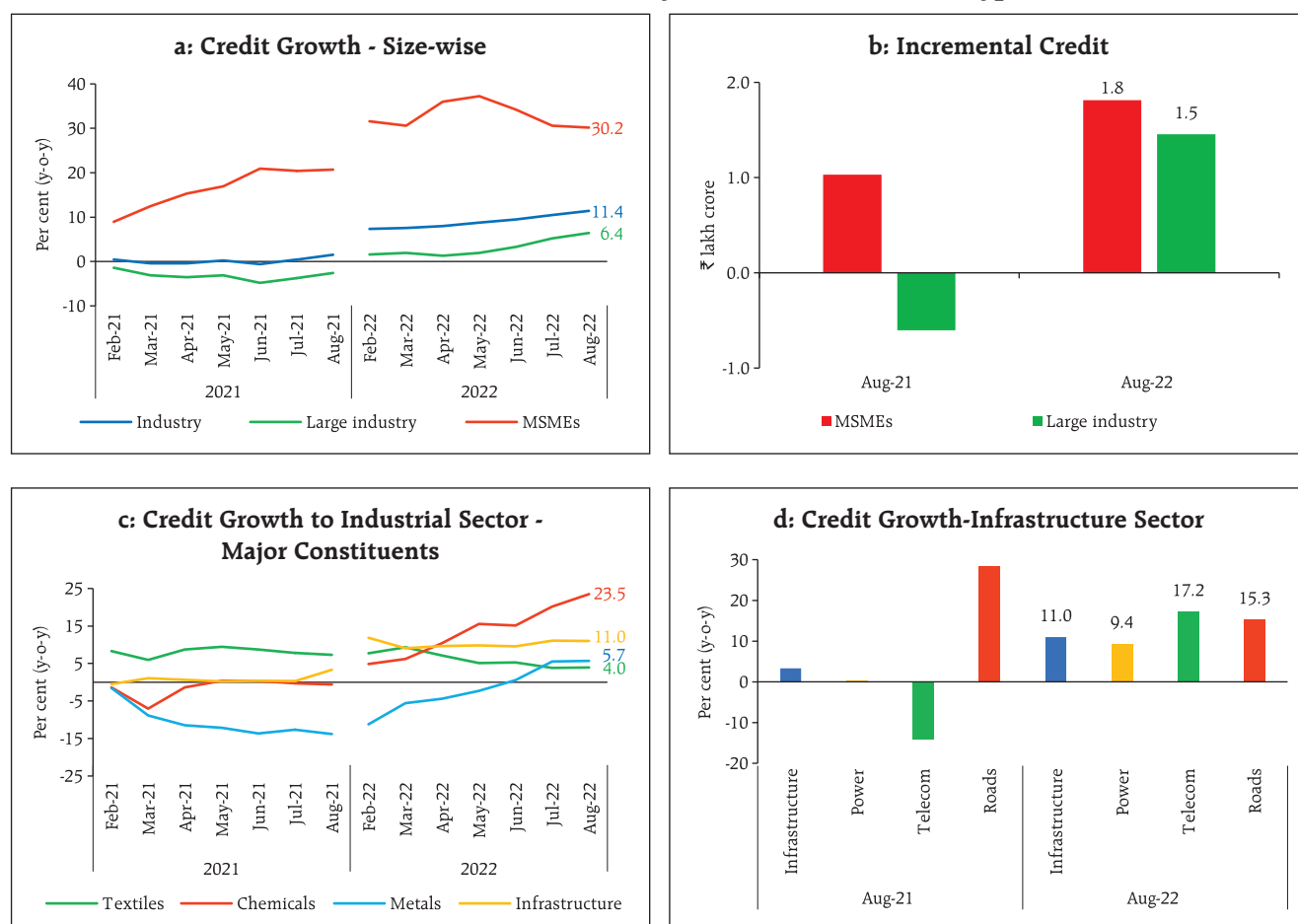
industry and sustained growth in the micro, small and medium enterprises (MSME) segment. Credit to large industries expanded by 6.4 per cent in August, after remaining in contraction zone for a substantial period, due to higher working capital requirements and industrial activity. The extension of the Emergency Credit Line Guarantee Scheme (ECGLS) helped push up credit growth in respect of micro and small industries to 28.2 per cent in August 2022 from 12.1 per cent a year ago, with incremental credit (y-o-y) flows to MSMEs exceeding that to large industry (Chart IV.21a and b). Among the major industries, credit growth to the infrastructure sector (accounting for 38.0 per cent of outstanding industrial credit) accelerated to 11.0 per cent in August 2022 from 3.3 per cent a year

ago. Credit growth to infrastructure was driven by the power sector, reflecting strong growth in electricity generation (Chart IV.21c and d).

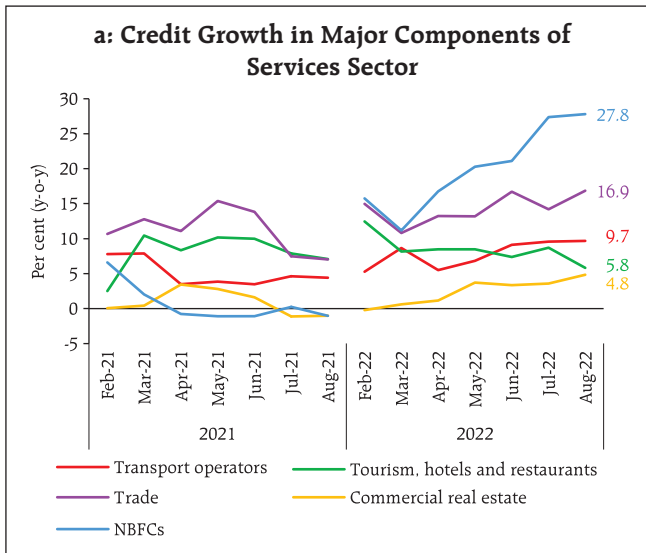
After witnessing a slide during the COVID-19 pandemic, services sector credit offtake gained traction in H1:2022-23, led by disbursements to NBFCs (which registered 27.8 per cent growth in August 2022 as against contraction of 1.0 per cent a year ago). Credit growth in contact intensive sectors such as tourism, hotels and restaurants remained broadly stable (Chart IV.22).

Retail loans remained the major driver of overall credit growth. Within retail loans, growth in housing loans was sturdy (16.4 per cent in August 2022 as

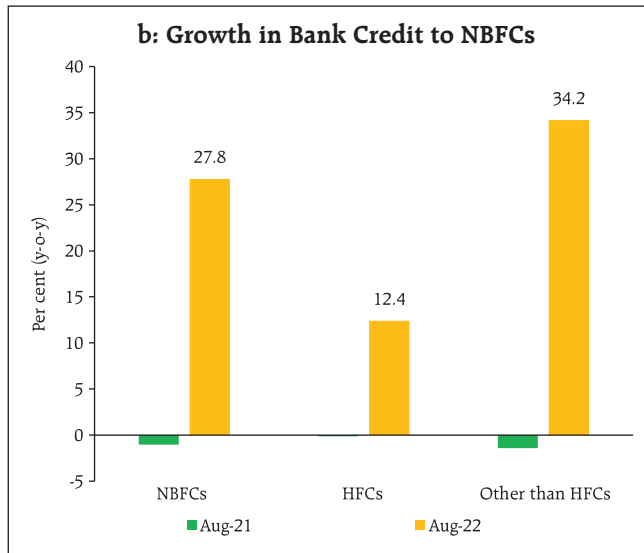
Chart IV.21: Bank Credit in Industry Sector – Size-wise and Type-wise



Source: RBI.

Chart IV.22: Credit Growth in Services Sector

Source: RBI.

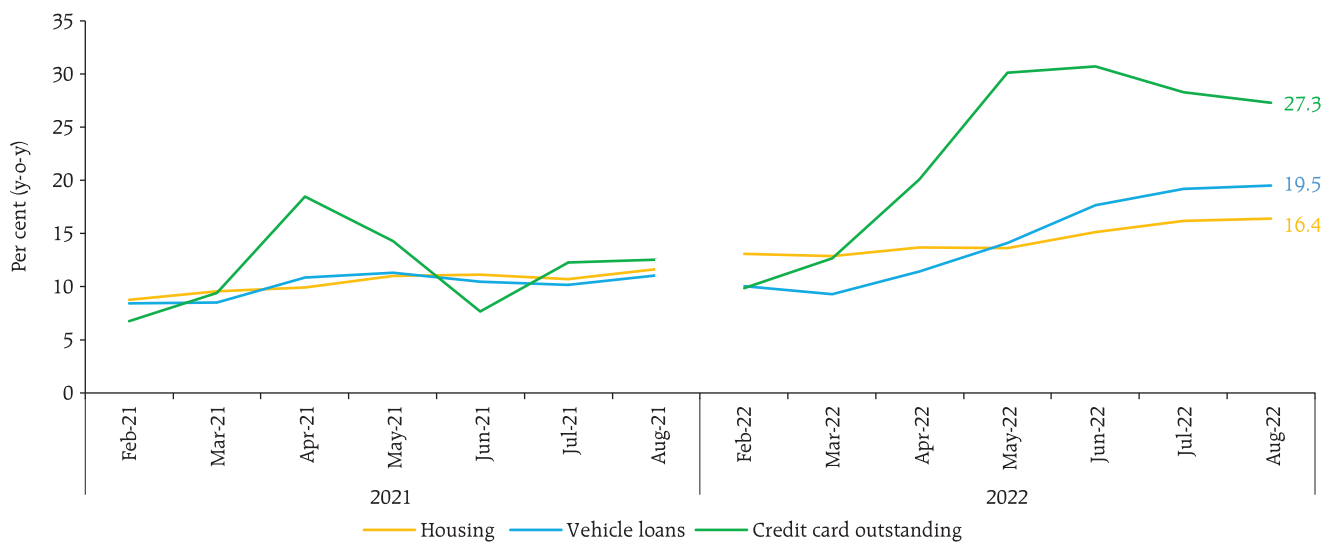


compared with 11.6 per cent a year ago) while vehicle loans strengthened (19.5 per cent in August 2022 vis-à-vis 11.1 per cent a year ago). Credit card loans bounced back in H1:2022-23 with the ebbing of new COVID-19 infections and the rebound in consumer demand (Chart IV.23).

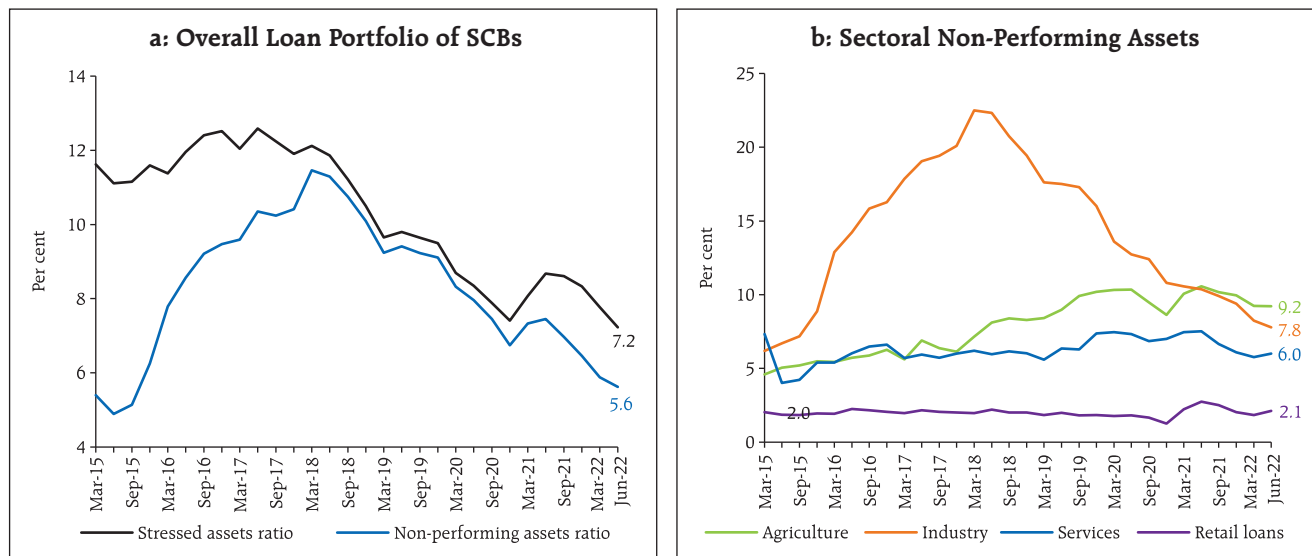
The asset quality of SCBs improved, with the overall non-performing assets (NPA) ratio declining to

5.6 per cent in June 2022 from 7.5 per cent a year ago (Chart IV.24a). Asset quality improved across all the major sectors (Chart IV.24b).

Banks' non-SLR investments – covering instruments like CPs, bonds, debentures and shares of public and private corporates – were lower during H1:2022-23, mainly due to a decline in investment in bonds/debentures (Chart IV.25a). Adjusted non-food

Chart IV.23: Personal Loans Growth

Source: RBI.

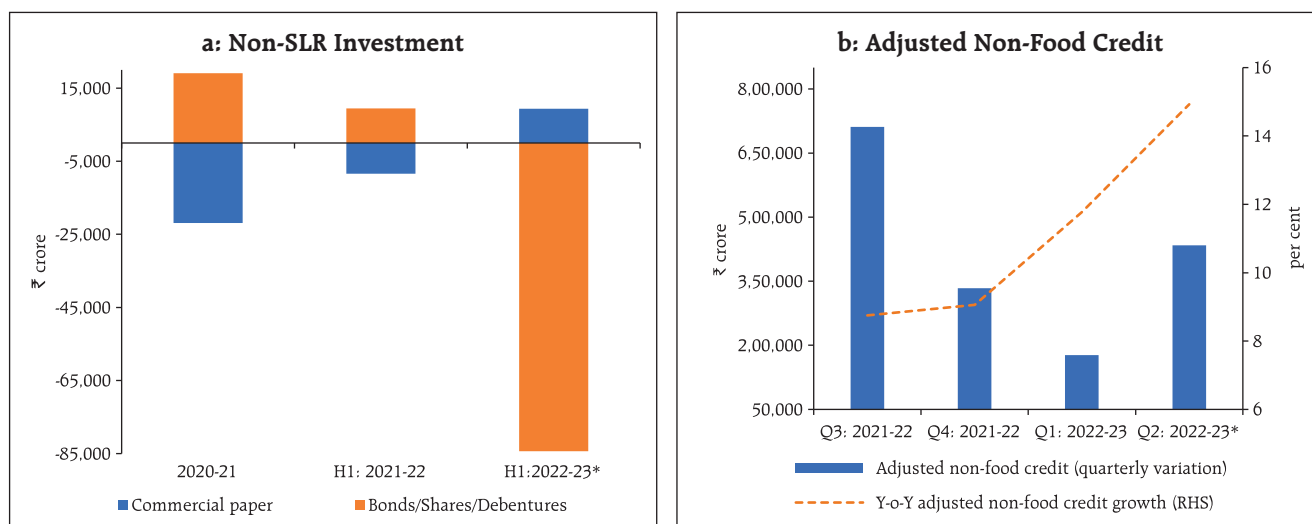
Chart IV.24: Stressed Assets and Non-Performing Assets of SCBs

Source: RBI.

credit¹³ growth at 14.9 per cent as on September 9 (y-o-y basis) was higher than 9.1 per cent as at end-March 2022 (Chart IV.25b).

Reflecting the improvement in credit offtake, excess holdings of statutory liquidity ratio (SLR) securities of SCBs moderated to 8.8 per cent of their

net demand and time liabilities (NDTL) as on August 26, 2022 from 10.4 per cent at end-March 2022 (Chart IV.26). Excess SLR holdings provide collateral buffers to banks for availing funds under the LAF and are also a component of the liquidity coverage ratio (LCR).

Chart IV.25: Non-SLR Investment and Adjusted Non-Food Credit

*: Up to September 9, 2022.

Source: RBI.

¹³ Adjusted non-food credit is the sum of non-food credit of banks and their non-SLR investments and captures better the overall flow of funds from the banks to the commercial sector.

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

(Variation in basis points)

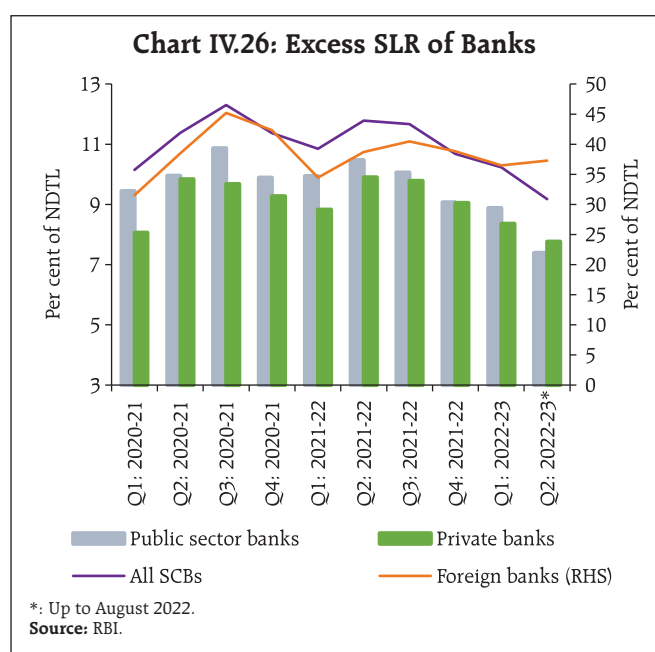
Period	Repo Rate	Term Deposit Rates			Lending Rates			
		WADTDR (Fresh Deposits)		WADTDR (Outstanding Deposits)	EBLR	1 - Year MCLR (Median)	WALR (Fresh Rupee Loans)	WALR (Outstanding Rupee Loans)
		Retail Deposits	Retail and Bulk Deposits	Retail and Bulk Deposits				
February 2019 to March 2022	-250	-209	-259	-188	-	-155	-232	-150
April to August/September 2022*	+140	39	91	26	140	70	70	39
<i>Of which</i>								
April 2022	0	0	-9	0	0	0	-12	-2
May to August/September 2022*	+140	39	100	26	140	66	82	41

Note: 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.

Data on EBLR pertain to 31 domestic banks.

*: Latest data on WALRs and WADTDRs pertain to August 2022.

Source: RBI.



IV.2 Monetary Policy Transmission

Banks' deposit and lending rates moved higher in H1:2022-23 in tandem with increases in the policy repo rate beginning May 2022. The weighted average lending rate (WALR) on fresh rupee loans sanctioned during May-August 2022 increased by 82 bps while that on outstanding rupee loans increased by 41 bps, reversing in part the sizeable moderation in these

rates recorded during the easing phase (February 2019-March 2022) of monetary policy (Table IV.4).

The mandated external benchmark regime introduced in October 2019 for loan pricing in select sectors has strengthened the interest rate channel of monetary transmission. The proportion of outstanding floating rate loans linked to external benchmarks has increased from 9.1 per cent in March 2020 to 46.9 per cent in June 2022. Concurrently, the share of marginal cost of funds-based lending rate (MCLR) linked loans has come down to 46.5 per cent in June 2022 (Table IV.5).

The bulk of external benchmark-based lending rate (EBLR) loans (80 per cent of total in June 2022) are linked to the policy repo rate. Accordingly, banks

Table IV.5: Outstanding Floating Rate Rupee Loans of SCBs across Interest Rate Benchmarks

(Per cent to total)

	March 2020	March 2021	March 2022	June 2022
Base rate regime	10.3	6.4	4.9	4.3
MCLR regime	78.3	62.3	48.6	46.5
External benchmark regime	9.1	29.5	44.0	46.9
Others	2.3	1.8	2.5	2.3

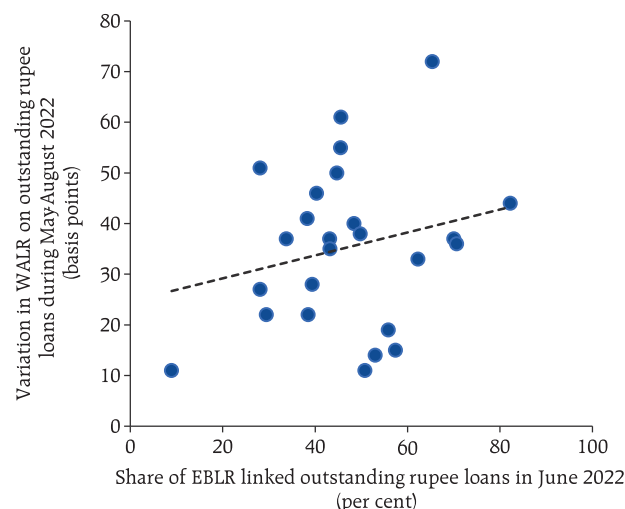
Note: Data pertain to 74 scheduled commercial banks.

Source: RBI.

raised their EBLRs for fresh loans by 140 bps during May-September 2022. The 1-year median MCLR of SCBs – which is an internal benchmark – rose by 70 bps in H1, in line with pressures on their cost of deposits and other funding sources. The increase in the share of EBLR-linked loans, the shorter reset periods of such loans and upward adjustment in MCLR have increased the pace of transmission to WALR on outstanding loans (Chart IV.27).

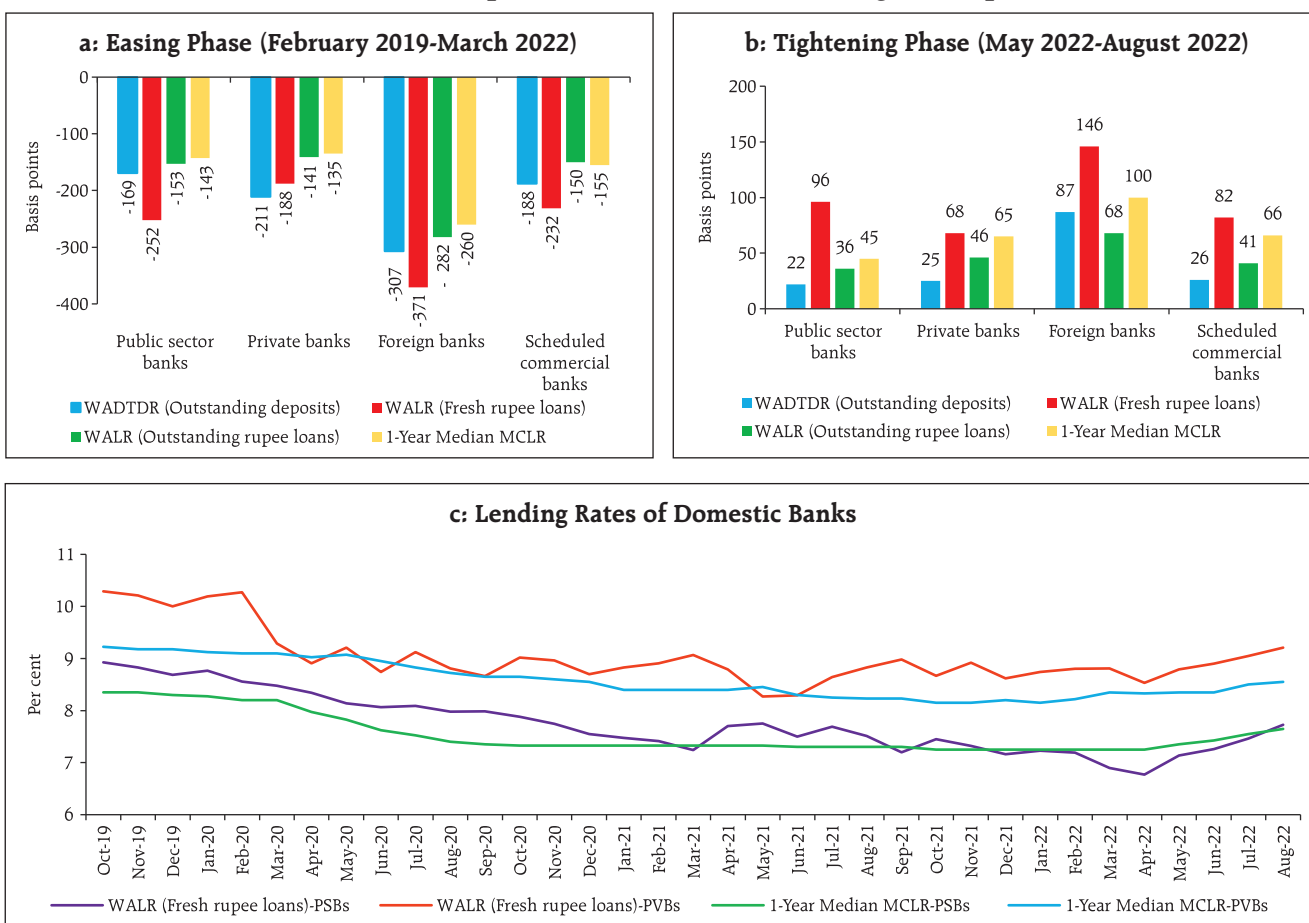
Across domestic banks, the increase in the WALRs on fresh rupee loans for PSBs exceeded that of PVBs during May-August 2022, partly reflecting the higher share of floating rate loans in the case of the former. During the easing phase also, the pass-through to lending rates of PSBs had exceeded that of PVBs (Chart IV.28 a and b). The lending rates of PSBs

Chart IV.27: Bank-wise Lending Rates and Share of EBLR linked Loans

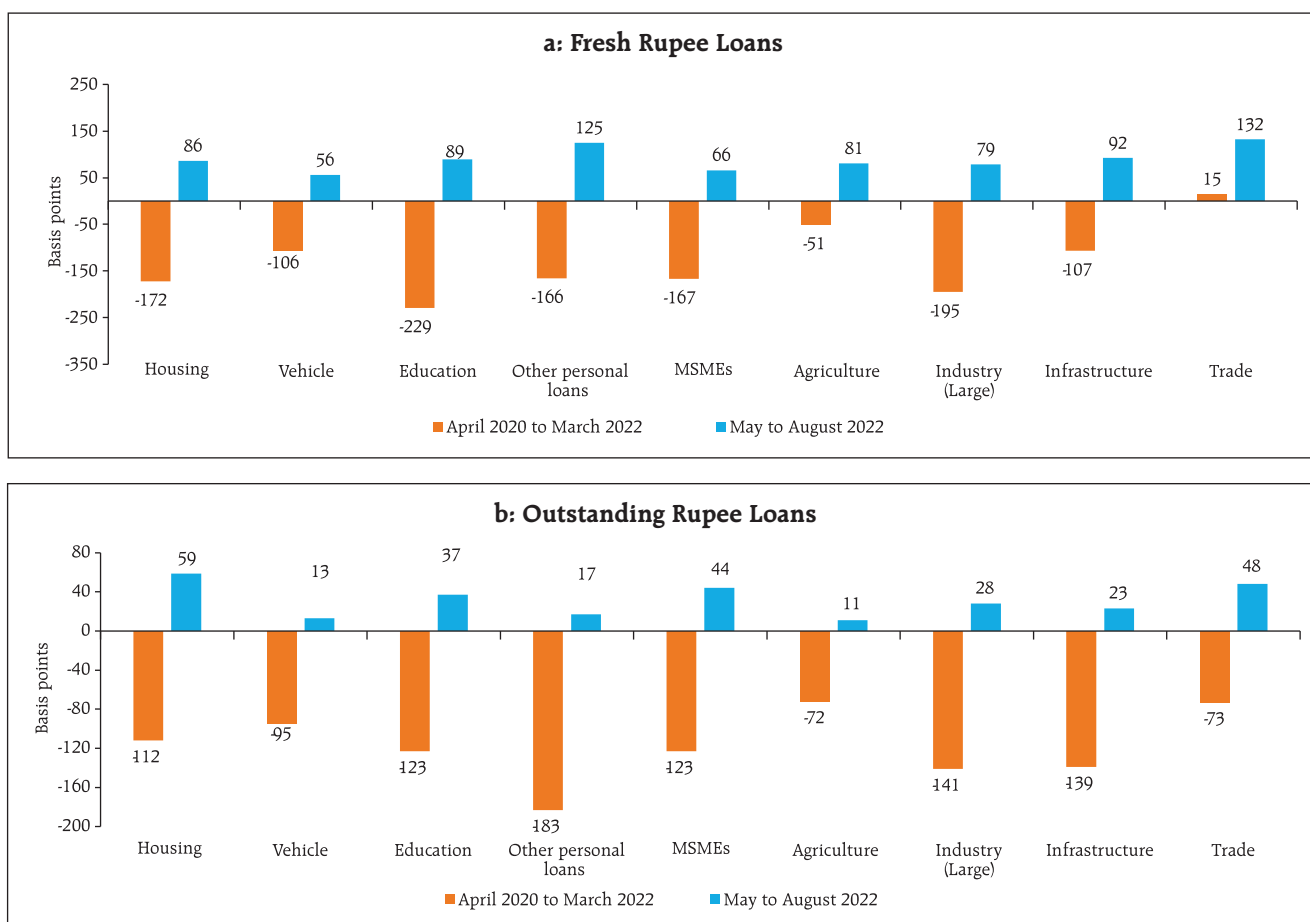


Source: RBI.

Chart IV.28: Bank Group wise Transmission to Lending and Deposit Rates



Source: RBI.

Chart IV.29: Sector wise Transmission to WALRs of Domestic Banks

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

Source: RBI.

remain lower than that of PVBs (Chart IV.28c). The transmission to lending and deposit rates was the maximum in the case of foreign banks, reflecting a higher share of low cost and lower duration wholesale deposits in their total liabilities.

The WALRs on both fresh as well as outstanding rupee loans increased across all the sectors during May-August 2022 (Chart IV.29).

The spreads charged by domestic banks over the policy repo rate (in the case of floating rate fresh rupee loans where the repo rate is the external benchmark) moderated in case of MSME, housing and education

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

(Per cent)

Sectors	March 2022			August 2022		
	Public sector banks	Private banks	Domestic banks	Public sector banks	Private banks	Domestic banks
MSME loans	4.32	4.12	4.23	4.14	3.53	3.76
Personal loans						
Housing	2.85	3.47	3.15	2.66	2.43	2.52
Vehicle	3.23	2.79	3.06	3.09	3.21	3.10
Education	4.28	5.45	4.51	4.25	4.64	4.37
Other personal loans	3.17	6.06	3.36	3.75	6.39	3.97

Source: RBI.

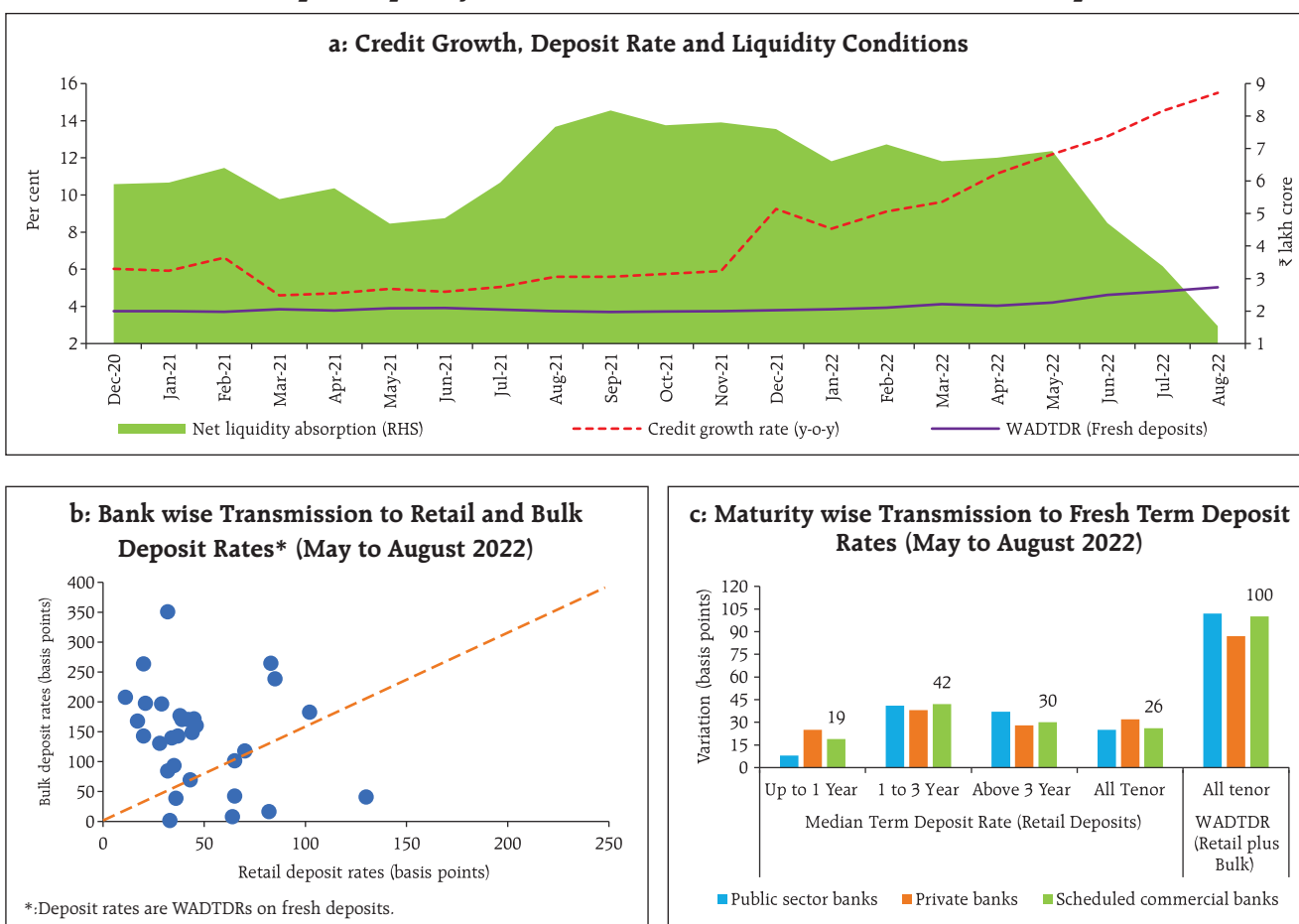
loans in H1:2022-23 (Table IV.6).

Banks also raised their term deposit rates in H1:2022-23 amidst moderation in systemic liquidity (Chart IV.30a)¹⁴. Banks increased their bulk term deposit¹⁵ rates more relative to retail deposit rates (Chart IV.30b) - the weighted average domestic term deposit rate (WADTDR) on fresh retail deposits increased by 39 bps during May-August 2022, while the WADTDR on total fresh deposits (both retail and bulk deposits) increased by 100 bps. The median term deposit rate on fresh retail deposits – the prevailing card

rates – increased by 26 bps during May-September 2022 (Chart IV.30c). The transmission to WADTDR on outstanding deposits is also picking up *albeit* gradually, reflecting the preponderance of term deposits contracted at fixed rates (Table IV.4). The weighted average savings deposit rate of SCBs was 3.0 per cent in August 2022, unchanged from April 2022¹⁶.

Interest rates on various small savings instruments (SSIs) – which are fixed on a quarterly basis with a spread of 0-100 bps over and above G-sec yields of comparable maturities – have been revised upwards in

Chart IV.30: Surplus Liquidity, Credit Condition and Transmission to Term Deposit Rates



Note: Data on median term deposit rate on fresh deposits pertain to the period May-September 2022.

Source: RBI.

¹⁴ The incremental credit-deposit ratio increased from 37 per cent on April 9, 2021 to 111.6 per cent on September 9, 2022.

¹⁵ Bulk deposits are single rupee term deposits of ₹2 crore and above for SCBs (excluding regional rural banks) and small finance banks.

¹⁶ Term deposits constituted 57.1 per cent of aggregate deposits of SCBs in June 2022, while current account and savings account deposits were 8.9 per cent and 34 per cent, respectively.

Table IV.7: Interest Rates on Small Savings Instruments

Small Savings Scheme	Maturity (years)	Spread (Percentage point) \$	Average G-sec Yield (%) of Corresponding Maturity (Jun 2022 -Aug 2022)	Formula based Rate of Interest (%) (applicable for Q3:2022-23)	Government Announced Rate of Interest (%) for Q3:2022-23	Difference (basis points)
(1)	(2)	(3)	(4)	(5) = (3) + (4)	(6)	(7) = (6) - (5)
Savings Deposit	-	-	-	-	4.00	-
Public Provident Fund	15	0.25	7.47	7.72	7.10	-62
Term Deposits						
1 Year	1	0	6.09	6.09	5.50	-59
2 Year	2	0	6.33	6.33	5.70	-63
3 Year	3	0	6.57	6.57	5.80	-77
5 Year	5	0.25	7.04	7.29	6.70	-59
Recurring Deposit Account	5	0	6.57	6.57	5.80	-77
Monthly Income Scheme	5	0.25	7.00	7.25	6.70	-55
<i>Kisan Vikas Patra</i>	123 Months#	0	7.47	7.47	7.00	-47
NSC VIII issue	5	0.25	7.23	7.48	6.80	-68
Senior Citizens Saving Scheme	5	1.00	7.04	8.04	7.60	-44
<i>Sukanya Samriddhi Account Scheme</i>	21	0.75	7.47	8.22	7.60	-62

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

#: Current maturity is 123 months.

Note: Compounding frequency varies across instruments.

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

the range of 10-30 bps for Q3:2022-23, after remaining unchanged for nine consecutive quarters. With G-sec yields moving higher, the prevailing interest rates on various schemes are 44-77 bps below the formula implied rates for Q3: 2022-23 (Table IV.7).

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. In April 2022, significant changes in the operating procedure were instituted through the introduction of the SDF at 3.75 per cent – 25 bps below the policy repo rate (then prevailing at 4.00 per cent) and 40 bps above the FRRR – as the floor of the LAF corridor, replacing the FRRR. The SDF rate is applicable on uncollateralised overnight deposits. By removing the binding collateral constraint on

the central bank, the SDF strengthens the operating framework of monetary policy. Moreover, it is also a financial stability tool in addition to its role in liquidity management. The MSF rate was retained at 25 bps above the policy repo rate; thus, the width of the LAF corridor was restored to its pre-pandemic level of 50 bps and became symmetrical around the policy repo rate again. The FRRR was retained at 3.35 per cent. Akin to the MSF, access to the SDF is at the discretion of banks, unlike repo/reverse repo, open market operation (OMO) and cash reserve ratio (CRR) which are at the discretion of the RBI.

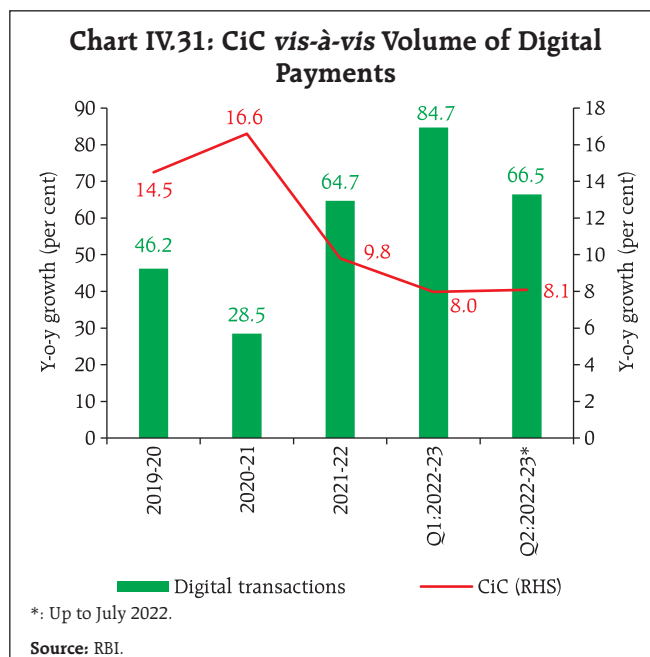
In H1:2022-23, the focus of liquidity management moved to gradual, calibrated withdrawal of surplus liquidity in a non-disruptive manner. This was in sync with the shift in the focus of monetary policy from remaining accommodative during 2021-22 to withdrawal of accommodation to contain inflationary pressures and anchor inflation expectations. The MPC raised the policy repo rate by 140 bps during May-

August 2022. With the institution of the SDF at 40 bps above the FRRR in April, the cumulative increase in the effective interest rate was 180 bps. Furthermore, the CRR was increased by 50 bps to 4.50 per cent (effective fortnight beginning May 21, 2022), withdrawing primary liquidity from the banking system.

Drivers and Management of Liquidity

Surplus liquidity moderated in H1:2022-23, driven by the public's currency demand, net forex outflows and the build-up in government's cash balances. The drainage of liquidity due to expansion in currency in circulation (CiC) in H1 was lower than a year ago, partly reflecting the growing use of digital payments (Chart IV.31). The build-up of government cash balances also contributed to the leakage of liquidity from the banking system. The drawdown by banks of their excess reserves partially ameliorated liquidity pressures (Table IV.8).

In terms of management of liquidity by the RBI, OMO sales and the increase in CRR by 50 bps sucked out liquidity from the banking system in H1. The consequent moderation in surplus liquidity



was reflected in lower absorptions under the LAF – the average daily liquidity absorption under the LAF fell from ₹7.8 lakh crore in April to ₹2.1 lakh crore in September (up to September 27). Due to transient liquidity pressures on account of GST payments, the borrowing under the MSF window

Table IV.8: Liquidity – Key Drivers and Management

(₹ crore)

	2021-22			2022-23	
	Q1	Q2	H1	Q1	Q2*
Drivers					
(i) CiC [withdrawal (-) / return (+)]	-1,26,266	54,921	-71,344	-83,887	50,530
(ii) Net Forex Purchases (+) / Sales (-)	1,60,843	1,42,395	3,03,238	16,159	-1,68,975#
(iii) GoI Cash Balances [build-up (-) / drawdown (+)]	-2,23,740	-5,600	-2,29,340	-3,73,117	67,863#
(iv) Excess Reserves [build-up (-) / drawdown (+)]	1,17,219	-9,884	1,07,335	1,50,165	-48,559#
Management					
(i) Net OMO Purchases (+) / Sales (-)	1,38,965	97,960	2,36,925	-6,620	-14,460
(ii) Required Reserves [including both change in NDTL and CRR]	-87,827	-6,586	-94,463	-1,03,054	-10,463
Memo Item					
Outstanding Net LAF as at the end of period	4,71,970	7,58,132	7,58,132	2,44,891	26,152 ^

*: Data are up to September 23, 2022; #: Data are up to July 29, 2022; ^: Data as on September 27, 2022.

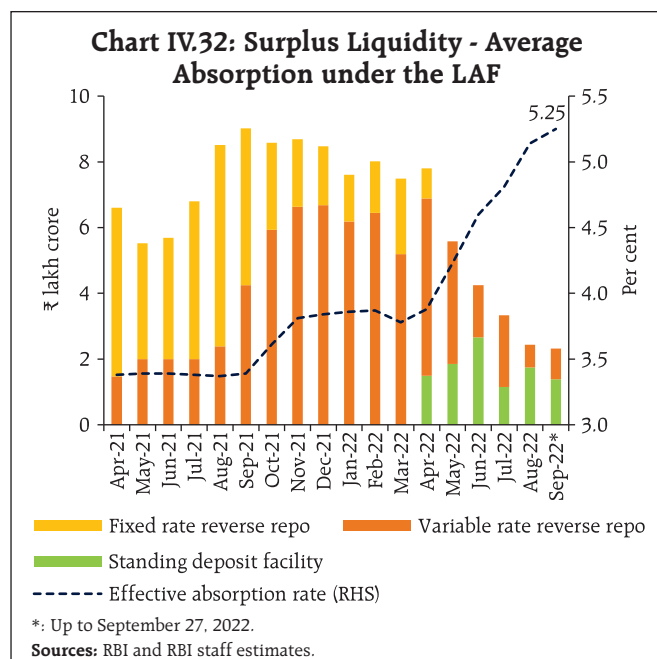
Note: (+) / (-) sign suggests accretion/depletion in banking system liquidity.

Data on drivers and management pertain to the last Friday of the respective periods.

Source: RBI.

rose to ₹59,312 crore (outstanding amount) on July 25, 2022, – the highest since April 1, 2019 (₹94,263 crore). Advance tax outflows and GST payments temporarily moderated surplus liquidity in the third week of September. The RBI conducted variable rate repo (VRR) auctions of ₹50,000 crore each of 3 days and overnight maturity on July 26 and September 22, 2022, respectively. The RBI remains vigilant on the liquidity front and would conduct two-way fine-tuning operations as necessary – both variable rate repo (VRR) and variable rate reverse repo (VRRR) operations of different tenors – depending on the evolving liquidity and financial conditions.

Since its inception on April 8, 2022, the monthly average absorption under the SDF has been in the



range of ₹1.2-2.7 lakh crore during H1:2022-23 (up to September 27) while the remaining amount was absorbed through variable rate reverse repo auctions (both main and fine-tuning operations) (Chart IV.32). In view of the moderation in surplus liquidity, banks appetite to park funds with the Reserve Bank for longer maturities waned. Consequently, the amount absorbed through the variable rate reverse repo auctions declined to 40 per cent of the total absorption in September 2022 (up to September 27) from around 74 per cent in March 2022. The effective absorption rate¹⁷ at 5.25 per cent in September 2022 (up to September 27) was higher than the SDF rate of 5.15 per cent.

IV.4 Conclusion

Domestic financial markets have adjusted smoothly to the shift in monetary policy's focus on withdrawal of accommodation, policy rate hikes and the moderation in surplus liquidity, while exhibiting resilience to global financial market headwinds and policy spillovers from AEs. Market rates have moved higher across the maturity spectrum *albeit* at varying degrees across market segments and instruments. Bank credit offtake has improved in line with economic activity, even as lending and deposit rates have started moving higher. The foreign exchange market has been characterised by an orderly adjustment of the INR, with a depreciating bias due to the generalised strength of the US dollar. Going forward, the RBI will remain vigilant, agile and nimble in its liquidity management operations and would use all instruments at its disposal to mitigate the spillovers of global financial market volatility on domestic financial markets.

¹⁷ The weighted average rate of absorptions under the FRRR/SDF and VRRR of longer maturities with the absorbed amount under each facility being the weights.

V. External Environment

The global outlook has worsened under the combined impact of the protracted conflict in Ukraine, and aggressive and synchronised monetary tightening. These developments are imparting sizeable volatility to global financial markets and large adverse spillovers to emerging market economies. Supply chain disturbances, the energy and food crises and tightening financial conditions are exacerbating risks of a global recession.

The global outlook has worsened since the April 2022 MPR under the combined impact of the protracted war, and aggressive and synchronised monetary tightening to rein in multi-decadal highs in inflation. Sovereign bond yields have hardened while equity markets have corrected in response to monetary policy actions. Geopolitical tensions, the faster pace of monetary tightening by the US Fed, and the safe haven demand have led the US dollar to rally to 20-year highs, imposing depreciation pressures on the currencies of major emerging market economies (EMEs) in an environment of large portfolio outflows. Lingering supply chain disturbances, the energy and food crises and tightening financial conditions are exacerbating risks of a global recession.

V.1 Global Economic Conditions

Global growth lost momentum in Q2:2022. High frequency indicators point to a further slowdown in Q3. The US economy contracted in H1:2022 [(-) 1.6 per cent and (-) 0.6 per cent in Q1 and Q2, respectively, in terms of quarter-on-quarter (q-o-q) seasonally adjusted annualised rates (saar)], dragged down by inventories and residential fixed investment (Table V.1). In contrast, the US labour market remains robust, with sustained payroll gains and a low unemployment rate. Nominal wage growth has been strong, *albeit* with signs of levelling off. The US composite Purchasing Managers' Index

(PMI)¹ at 44.6 in August remained in contraction territory for the second consecutive month, with declines in both manufacturing and services output.

The Euro area's GDP grew by 3.1 per cent (q-o-q saar) in Q2:2022, its fastest pace in three quarters, boosted by the easing of COVID-19 restrictions and a resurgence in tourism. High frequency indicators for Q3, however, suggest slowdown in momentum due to growing uncertainty surrounding future gas supplies and the rising costs of living. The composite PMI for the Euro zone registered its second consecutive contraction in August 2022 at 48.9, with downturns in both manufacturing and services. The outlook is overcast by the war and perniciously high inflation, with expectations of tighter financial conditions going forward.

In the UK, GDP contracted by 0.3 per cent in Q2:2022 (q-o-q saar) due to a fall in government and consumer spending, deceleration in production output and contraction in services constrained by labour shortages. The labour market remains tight with some early signs of weakening in labour demand. The composite PMI plummeted to 49.6 in August 2022, the first contraction in 18 months, driven by severe downturn in manufacturing output and slowdown in services business activity. The Bank of England (BoE) forecasts a decline in GDP in Q3:2022 till the end of 2023 under the adverse impact of the sharp rise in global energy and goods prices on UK households' real disposable incomes.

Japan's GDP grew by 3.5 per cent (q-o-q saar) in Q2:2022 following a near stagnation in Q1 as private consumption accelerated with the lifting of COVID-19 curbs, and government spending rose for the second straight quarter. The employment and income situation improved moderately on the

¹ The references to PMIs are to S&P Global indices, unless specified otherwise.

whole, buoyed by accommodative monetary policy. The composite PMI (*au Jibun Bank*) dropped sharply to 49.4 in August 2022, the first contraction since February, with both manufacturing and services companies recording a decline in output. The Bank of Japan (BoJ) expects growth to be under pressure stemming from elevated commodity prices though the economy is projected to continue growing at a pace above its potential growth rate.

Amongst EMEs, China's GDP growth decelerated sharply to 0.4 per cent (y-o-y) in Q2:2022 from 4.8 per cent in Q1, marking the second-worst quarterly growth in 30 years (Table V.1). On q-o-q (annualised) basis, the economy contracted by 10 per cent in Q2:2022 as COVID-related lockdowns curbed economic activity amidst a steep downturn in the real estate sector and an energy crunch. H1:2022 growth at 2.6 per cent (y-o-y) was below the 5.5 per cent annual growth target for 2022. The composite PMI (Caixin) was at 53.0 in August, driven by an expansion in services activity, offset by a marked slowdown in manufacturing growth. Looking ahead, the zero-COVID policy, strained power supply and the liquidity crisis in the real estate sector are likely to weigh on economic activity.

Amongst other major EMEs, Brazil's GDP growth rate accelerated to 3.2 per cent (y-o-y) in Q2:2022 from 1.7 per cent in Q1, supported by private and government spending, and investment. The unemployment rate fell to a multi-year low in June. The composite PMI eased to 53.2 in August, with notable slowdown evident in both the manufacturing and service sectors. Going forward, tight monetary conditions, high inflation and war-related uncertainty remain key risks to the growth outlook. South Africa's GDP growth decelerated sharply to 0.2 per cent (y-o-y) in Q2 driven by the devastating floods in the KwaZulu-Natal region and power rationing hampering industrial activity. The composite PMI edged lower to 51.7 in August of 2022 from a 14-month high of 52.7

Table V.1: Real GDP Growth

(Per cent)

Country	Q3-2021	Q4-2021	Q1-2022	Q2-2022	2021	2022 (P)	2023 (P)
Quarter-on-quarter, seasonally adjusted annualised rate (q-o-q, saar)							
Canada	5.3	6.6	3.1	3.3			
Euro area	9.0	2.0	2.7	3.1			
Japan	-1.8	3.9	0.2	3.5			
South Korea	0.9	5.5	2.6	3.0			
UK	3.8	5.2	3.1	-0.3			
US	2.7	7.0	-1.6	-0.6			

Year-on-year**Advanced Economies**

Canada	3.8	3.2	2.9	4.6	4.5	3.4	1.8
Euro area	3.7	4.6	5.4	4.1	5.4	2.6	1.2
Japan	1.2	0.5	0.6	1.6	1.7	1.7	1.7
South Korea	4.1	4.4	3.0	2.9	4.1	2.3	2.1
UK	6.9	6.6	8.7	2.9	7.4	3.2	0.5
US	5.0	5.7	3.7	1.8	5.7	2.3	1.0

Emerging Market Economies

Brazil	4.0	1.7	1.7	3.2	4.6	1.7	1.1
China	4.9	4.0	4.8	0.4	8.1	3.3	4.6
India	8.4	5.4	4.1	13.5	8.7	7.4	6.1
Indonesia	3.5	5.0	5.0	5.4	3.7	5.3	5.2
Philippines	7.0	7.8	8.2	7.4	5.7	6.7	5.0
Russia	4.0	5.0	3.5	-4.1	4.7	-6.0	-3.5
South Africa	3.0	1.7	2.7	0.2	4.9	2.3	1.4
Thailand	-0.2	1.8	2.3	2.5	1.5	2.8	4.0

Memo:

World	2021	2022 (P)	2023 (P)
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Year-on-year

Output	6.1	3.2	2.9
Trade Volume	10.1	4.1	3.2

P: Projection.

Note: India's data correspond to fiscal year (April-March); e.g., 2021 pertains to April 2021-March 2022.**Sources:** Official statistical agencies; Bloomberg; IMF WEO Update, July 2022; and RBI staff estimates.

in July. Looking ahead, COVID-19 infections risk due to low vaccination levels, weak employment outlook and continued disruptions to power supply could weigh on economic activity. The Russian economy contracted by 4.1 per cent (y-o-y) in Q2:2022 due to the fallout from the conflict with Ukraine and the impact of international sanctions. Consumer activity

Table V.2: Select Macroeconomic Indicators for BRICS² Economies

Real GDP Growth Rate (Y-o-Y Per cent)	Country	2021	2022(P)	2023(P)	General Govt. Gross Debt (Per cent of GDP)	Country	2021	2022(P)	2023(P)
	Brazil	4.6	1.7	1.1		Brazil#	93.0	91.9	92.8
	Russia	4.7	-6.0	-3.5		Russia	17.0	16.8	18.9
	India	8.7	7.4	6.1		India	86.8	86.9	86.6
	China	8.1	3.3	4.6		China	73.3	77.8	81.8
	South Africa	4.9	2.3	1.4		South Africa	69.1	70.2	73.4
CPI Inflation Rate (Per cent)	Country	2021	2022(P)	2023(P)	Current account balance (Per cent of GDP)	Country	2021	2022(P)	2023(P)
	Brazil	8.3	8.2	5.1		Brazil	-1.7	-1.5	-1.6
	Russia	6.7	21.3	14.3		Russia	6.9	12.4	8.1
	India	5.5	6.1	4.8		India	-1.2	-2.9	-2.5
	China	0.9	2.1	1.8		China	1.8	1.1	1.0
	South Africa	4.5	5.7	4.6		South Africa	3.7	1.3	-1.0
General Govt. Net Lending/Borrowing (Per cent of GDP)	Country	2021	2022 (P)	2023(P)	Forex Reserves* (in US\$ billion)	Country	2020	2021	2022
	Brazil	-4.4	-7.6	-7.4		Brazil	355.6	362.2	339.7
	Russia	0.7	-4.0	-5.3		Russia	596.1	630.6	565.7
	India	-10.4	-9.9	-9.1		India	588.4	635.3	545.7
	China	-6.0	-7.7	-7.1		China	3536.0	3606.2	3454.4
	South Africa	-6.4	-5.8	-6.1		South Africa	54.2	57.8	59.6

P: Projection.

*: Forex reserves for 2022 pertains to August 2022 except China (July 2022), South Africa (July 2022) and India (September 16, 2022).

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

Note: India's data correspond to fiscal year (April-March).**Sources:** Official statistical agencies; WEO April 2022 database and July 2022 Update, IMF; Fiscal Monitor Update, April 2022, IMF; and International Reserve and Foreign Currency Liquidity (IRFCL), IMF.

remains subdued, but it is beginning to recover, while investment is facing the brunt of sanctions and capital outflows. Soaring energy prices have helped the external sector hold up relatively well. The economy is expected to contract in both 2022 and 2023 due to the war and sanctions (Table V.2).

Growth in the ASEAN³ economies decelerated in Q2:2022 as the war dampened demand. The manufacturing PMI for these economies in August signalled improvement in business conditions as output and new orders expanded and employment and purchasing activity increased. The slowdown in China is a major source of risk to the region due

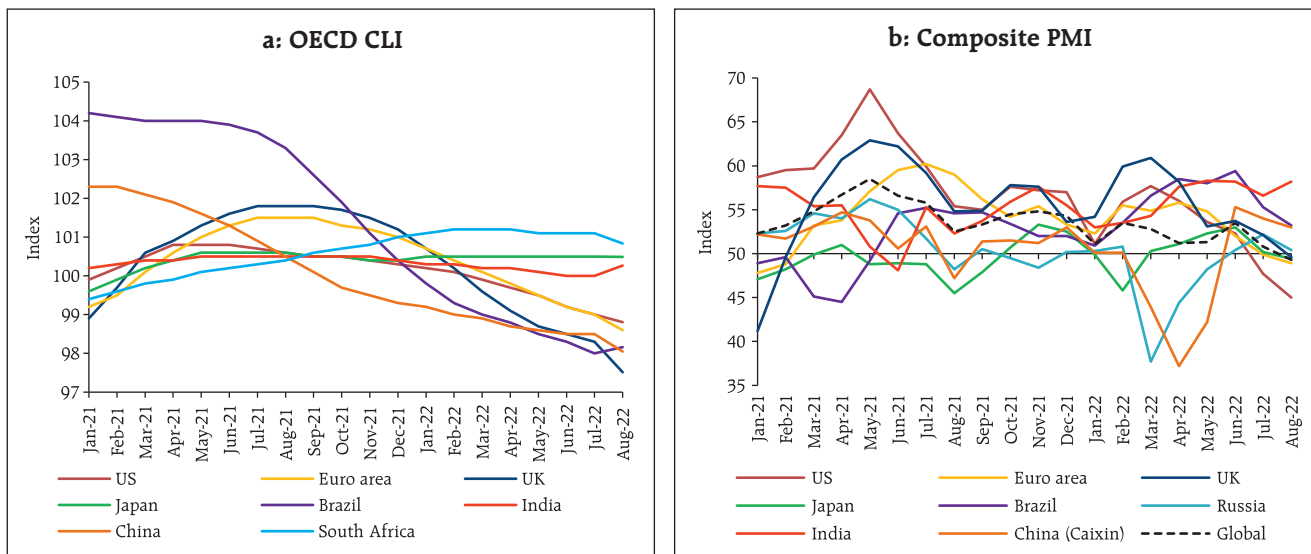
to spillovers from supply disruptions and weaker exports.

Amongst high frequency indicators, the OECD composite leading indicators (CLIs) for August 2022 remained below trend for most economies, indicating a deteriorating outlook due to multi-decadal high inflation, low consumer confidence and declining stock price indices (Chart V.1a). The global composite PMI fell from 50.8 in July to 49.3 in August, indicating a contraction in global output for the first time since June 2020, with fall in both services and manufacturing output (Chart V.1b).

The moderation in world trade, which started in the third quarter of 2021, accentuated in H1:2022 owing to the war and slowdown in global growth in a worsening macroeconomic environment (Chart V.2a). Reflecting this, the merchandise trade

² BRICS includes Brazil, Russia, India, China, and South Africa.³ Association of Southeast Asian Nations (ASEAN) includes Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam.

Chart V.1: Survey Indicators



Sources: OECD; and Bloomberg.

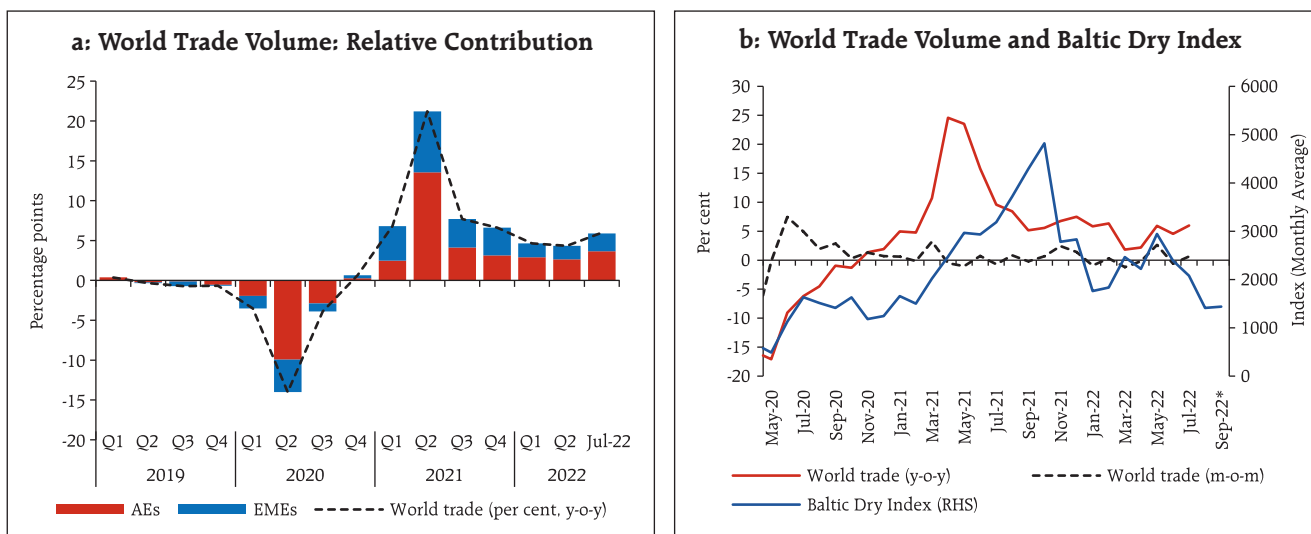
volume growth slowed from 4.6 per cent in Q1:2022 to 4.3 per cent in Q2:2022; however, it witnessed an uptick in July 2022. The WTO expects trade volume growth to moderate to 3.0 per cent in 2022 from 9.8 per cent in 2021. The Baltic Dry Index, which measures shipping costs for a wide variety of bulk commodities such as coal and iron ore, increased in September 2022 on sequential basis. It

was, however, lower by 70.1 per cent from its peak in October 2021, but remained above its pre-COVID level (Chart V.2b).

V.2 Commodity Prices and Inflation

Global commodity prices have witnessed large swings since February following the war. Commodity prices initially surged by 14.7 per

Chart V.2: World Trade Volume



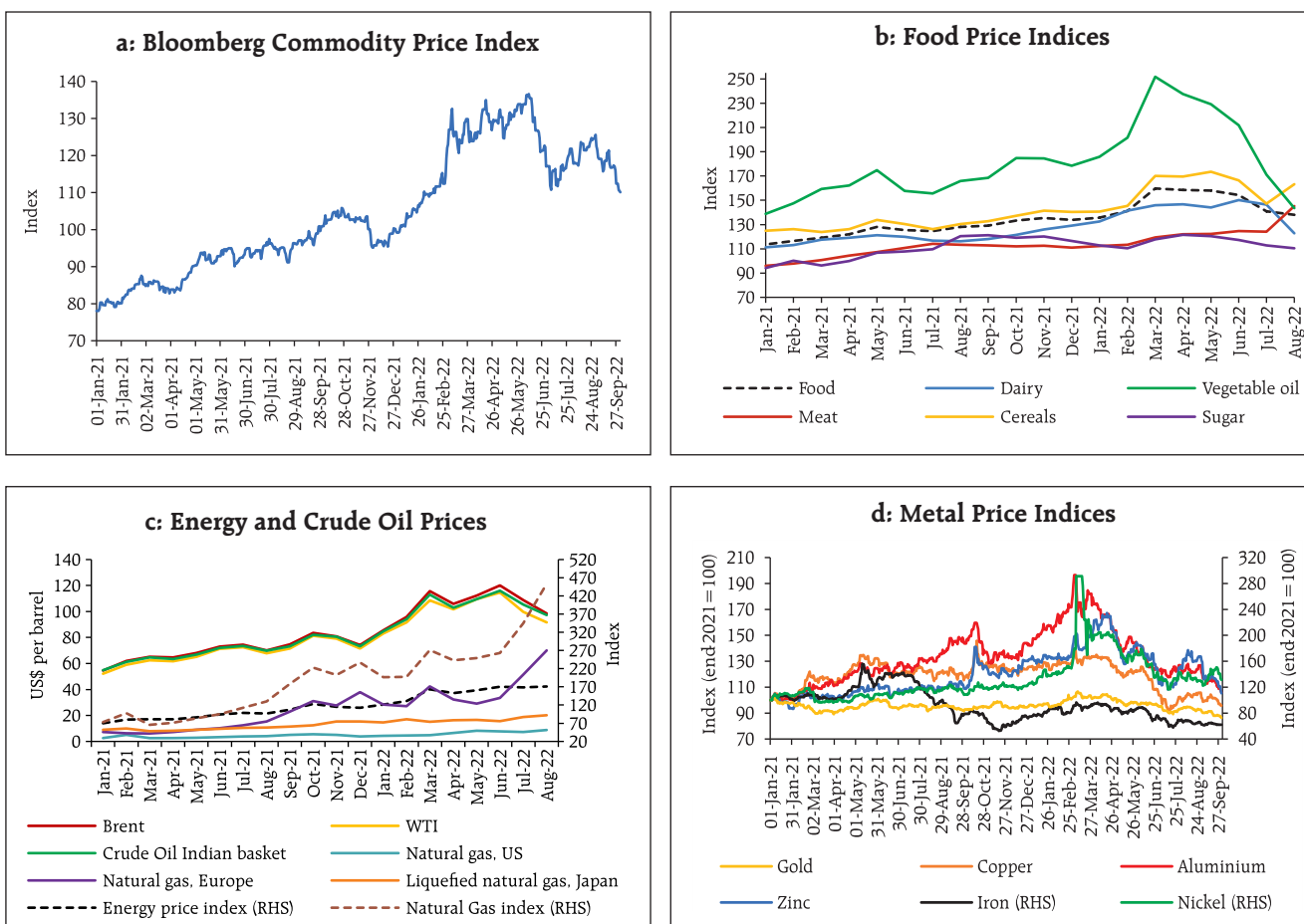
*: Data for Sep-22 are for Sep 1- 27, 2022.

Sources: CPB Netherlands; and CEIC.

cent (according to the Bloomberg commodity price index) during March-May 2022 as the war started. Since then (June-September 28, 2022), the prices have corrected by 14.2 per cent as slowing global growth dampened demand. Notwithstanding this correction, the Bloomberg commodity price index has gained 13.7 per cent year to date (till September 28) (Chart V.3a). Global food prices, according to the Food and Agriculture Organization (FAO), eased by 13.6 per cent between March's all-time record high and August 2022, as seasonal production gained and reduction in restrictive trade policies assuaged supply conditions. The index, however, increased by 3.2 per cent in 2022 (up to August) (Chart V.3b).

Crude oil prices were highly volatile in H1:2022. They hovered above US\$100 per barrel between April and July due to the war and sanctions related uncertainty in an environment of acutely tight supply conditions (Chart V.3c). Amidst extremely low inventories, the Organization of the Petroleum Exporting Countries (OPEC) *plus* countries continued with calibrated changes in production quotas. OPEC *plus* decided to increase production by 100,000 barrels per day in August 2022 but in September, it decided to curtail production by a similar magnitude starting October. On the back of slowing global demand, strengthening US dollar and expectations on the availability of Iranian supplies, crude oil

Chart V.3: Commodity Prices



Sources: FAO; World Bank; and Bloomberg.

prices declined sharply during July-September 2022. Nevertheless, Brent crude prices have gained 15.0 per cent year to date (till September 28). Natural gas prices have jumped significantly since the war; in August 2022, the prices (according to World Bank's natural gas index) increased by 91.7 per cent in 2022 and remained 249.2 per cent higher on year-on-year basis.

Base metal prices, measured by Bloomberg's base metal spot index, which rose by 17.1 per cent on the back of the war, softened by 34.8 per cent between April and September 2022 (up to September 28), reflecting a weak global outlook. Gold prices plummeted markedly since April, hitting a low at US\$1,618 per troy ounce in September as bond yields hardened and the US dollar traded stronger. For some metals like zinc and aluminium, production cuts amidst high energy prices have lent support to prices in August. In September, however, prices treaded the downward trajectory following other metal prices (Chart V.3d).

Consumer Price Inflation

Consumer price inflation ratcheted up across economies due to sustained cost push pressures from elevated food and energy prices, rising wage cost and lingering pandemic-induced supply chain bottlenecks as strong rebound in domestic demand in a number of economies added to price pressures. Headline inflation breached inflation targets across AEs and EMEs over the course of 2022 so far (Table V.3). High energy and food prices have been the major drivers of the upsurge in inflation, with goods inflation generally much higher than services, though the latter has also started to gather pace recently. Core inflation is also ruling at elevated levels in many economies due to the interplay of cost-push shocks and demand-pull pressures.

In the US, headline CPI inflation reached a 40-year high of 9.1 per cent in June 2022, driven by inflation in energy and food prices. It eased to 8.3 per cent in August due to a fall in gasoline prices. Inflation in terms of the personal consumption expenditure (PCE)

Table V.3: Consumer Price Inflation

(Per cent)

Country	Inflation Target	Q3: 2021	Q4: 2021	Q1: 2022	Q2: 2022	July 2022	August 2022
Advanced Economies							
Canada	2.0	4.1	4.7	5.8	7.5	7.6	7.0
Euro area	2.0	2.9	4.7	6.1	8.0	8.9	9.1
Japan	2.0	-0.2	0.5	0.9	2.5	2.6	3.0
South Korea	2.0	2.5	3.6	3.8	5.4	6.3	5.7
UK	2.0	2.8	4.9	6.2	9.2	10.1	9.9
US	2.0	5.4 (4.3)	6.7 (5.5)	8.0 (6.3)	8.7 (6.5)	8.5 (6.3)	8.3
Emerging Market Economies							
Brazil	3.50 ± 1.5	9.6	10.5	10.7	11.9	10.1	8.7
Russia	4.0	6.9	8.3	11.5	16.9	15.1	14.3
India	4.0 ± 2.0	5.1	5.0	6.3	7.3	6.7	7.0
China		0.8	1.8	1.1	2.2	2.7	2.5
South Africa	3.0-6.0	4.8	5.5	5.8	6.6	7.8	7.6
Mexico	3.0 ± 1.0	5.8	7.0	7.3	7.8	8.2	8.7
Indonesia	3.0 ± 1.0	1.6	1.8	2.3	3.8	4.9	4.7
Philippines	3.0 ± 1.0	4.1	3.6	3.3	5.5	6.4	6.3
Thailand	1.0-3.0	0.7	2.4	4.7	6.5	7.6	7.9
Turkey	5.0	19.3	25.8	54.8	74.0	79.6	80.2

Notes: (1) Inflation for US is in terms of year-on-year change in consumer price index with personal consumption expenditure price index year-on-year change in parentheses.

(2) The Bank of Canada aims to keep inflation at the 2 per cent mid-point of an inflation control target range of 1-3 per cent.

(3) Brazil's inflation target for 2021 was 3.75 ± 1.5 per cent.

Sources: Central bank websites; and Bloomberg.

price index – the Federal Reserve (Fed)'s preferred measure of inflation – moderated from 6.8 per cent in June to 6.3 per cent in July, driven by decrease in prices of both goods and services. Core PCE inflation eased to 4.6 per cent in July from 5.2 per cent in March (Chart V.4a).

In the Euro area, CPI inflation soared to a historic high of 9.1 per cent in August 2022, prevailing well above the European Central Bank (ECB)'s target of 2 per cent since July 2021. The precipitous increase in energy prices, especially of natural gas, along with food prices, remained the major driver of inflation. Non-energy industrial goods, transportation and fertiliser costs have also fuelled price pressures. CPI inflation in the UK rose to 10.1 per cent in July – the highest since

availability of data in January 1997 – and well above the BoE's target of 2 per cent, led by housing and household services, transport and food. It moderated marginally to 9.9 per cent in August as transport sub-index declined. In Japan, CPI inflation in all items less fresh food – the Bank of Japan's target measure – rose to 2.8 per cent in August, the highest in 7 years. It has breached the 2 per cent target since April 2022. CPI inflation also rose to 3.0 per cent in August 2022 from 2.6 per cent in July, amidst surging fuel and food costs as well as a sharply weakening yen.

Like the AEs, inflation in major EMEs remains elevated and well above their respective targets. In Brazil, CPI inflation was 8.7 per cent in August 2022 (Chart V.4b). In Russia, inflation peaked at 17.8 per cent in April from 9.2 per cent in February following sanctions and a sharp depreciation of the rouble. It has since then moderated gradually to 14.3 per cent in August, partly due to currency appreciation. In South Africa, CPI inflation stood at 7.6 per cent in August – exceeding the central bank's target range since May 2022 – as prices of food and non-alcoholic beverages increased. In China, CPI inflation has remained

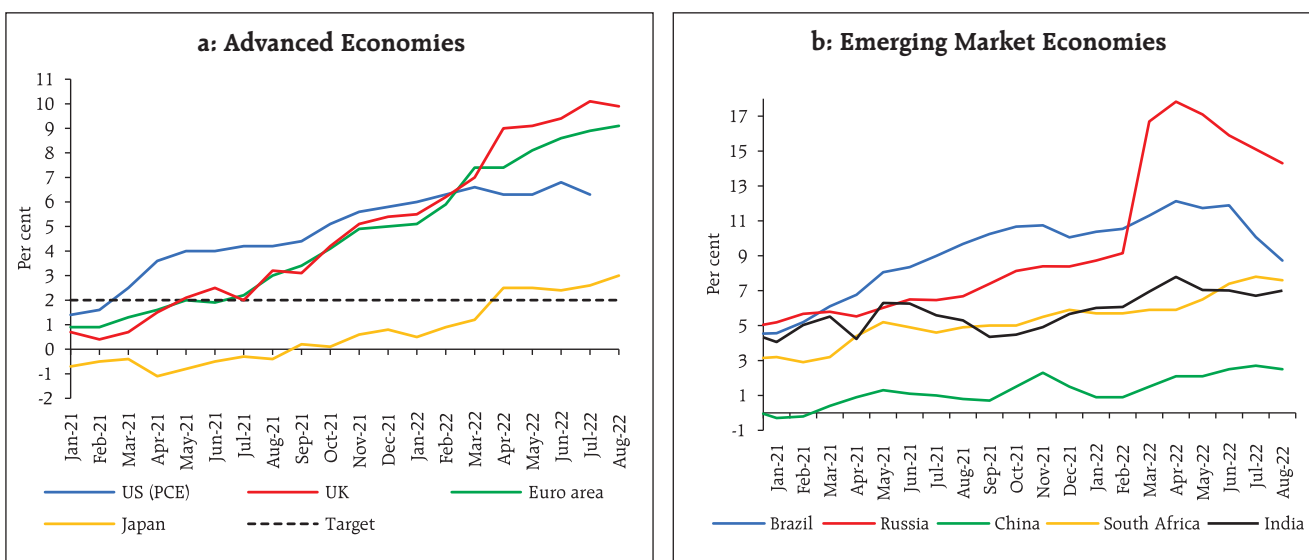
subdued, although it accelerated during March–July 2022, mainly due to a surge in food prices and a strong recovery in demand. In August, however, it moderated to 2.5 per cent as both food and non-food indices eased.

V.3 Monetary Policy Stance

With inflation rates at their highest in decades and significantly above targets, central banks in AEs and EMEs resorted to aggressive monetary tightening with larger-than-usual rate hikes in 2022 to contain inflation and anchor inflation expectations even as economic activity is losing momentum. A number of central banks in EMEs were already in a tightening mode in 2021. The synchronised monetary tightening has raised concerns as to whether it will lead to a recession or whether the central banks will be able to achieve a soft landing (Box V.1).

After initiating the tightening cycle in March 2022, the US Fed has delivered rate hikes in all its subsequent policy meetings. In May, the US Fed effected a 50 bps increase in the federal funds rate. It followed up with 75 bps hikes in its June, July and September meetings –

Chart V.4: CPI Inflation – Select Economies



Sources: Official statistical agencies; and Bloomberg.

Box V.1: High Inflation and Aggressive Monetary Tightening: Soft or Hard Landing?

With inflation rates ruling at their highest since the 1970s and 1980s in major economies and substantially above targets, central banks have stepped up the pace and the quantum of rate hikes to keep inflation expectations anchored and to bring inflation back to targets. This has raised growing concerns that the synchronised monetary tightening could land the global economy into a recession (a hard landing). Central banks hope that they would be able to engineer a soft landing (with only a loss of pace in growth rather than an outright contraction in economic activity) (BIS, 2022; Blinder, 2022).

A panel analysis of 8 countries with 23 tightening cycles over the period Q1:1997-Q2:2022 suggests that for both AEs and EMEs, hard landings are preceded by significantly higher average inflation as compared to soft landings⁴ (Table VI.1). Low GDP growth in the period prior to the start of tightening increases the probability of a hard landing in AEs. In EMEs, high GDP growth in conjunction with high inflation tilts the scales towards hard landing. For EMEs, elevated fiscal deficits and public debt prior to the start of monetary tightening increase the risk of them ending in recession post the tightening.

A formal panel logit regression for the sample of AEs and EMEs indicates that the probability of a hard landing increases if the tightening is preceded by high inflation, high GDP growth and higher increase in credit/GDP ratio; higher real policy rates prior to the start of the tightening episode, on the other hand, appear to reduce the probability of a hard landing by mitigating the build-up of financial excesses (eq. 1).

$$\text{Probability (Hard landing)}_t = -3.99 + 0.31 \text{CPI}_{t-1} + 0.30 \text{GDP}_{t-1} - 0.15 \text{RPR}_{t-1} + 1.34 \text{Credit}_{t-1} \dots (1)$$

(0.000) (0.004) (0.056) (0.021) (0.100)

CPI, GDP, RPR and Credit refer to 4-quarter averages of consumer price inflation, real GDP growth, real policy rate and change in credit/GDP ratio, respectively. Figures in parentheses are p-values.

Source: RBI staff estimates.

At the current juncture, inflation is running high while GDP growth is slowing even as unemployment rates remain low. This macroeconomic mix raises the odds of hard landing.

Table VI.1: Macroeconomic Factors — Hard and Soft Landings

	Variables	Advanced Economies		Emerging Market Economies	
		Soft landings	Hard landings	Soft landings	Hard landings
Conditions at the start of the tightening cycle ⁵	Inflation (%)	1.5***	2.2***	4.0**	4.9**
	GDP growth (%)	3.3*	2.5*	3.1*	4.4*
	Real policy rate (%)	3.5***	0.0***	2.3***	4.2***
	Change in household credit-to-GDP (% pts) ⁶	0.7	0.5	-0.7*	0.1*
	Fiscal deficit-to-GDP (% pts)	-1.6	-3.1	-1.5	-2.2
	Debt-to-GDP (% pts)	37.4	56.0	37.9	48.9
Conditions during tightening	Real policy rate increase (% pts)	-0.1	2.0	1.2	0.6
	Average quarterly real rate increase (% pts)	0.0	0.1	0.1	0.0
	Tightening duration (quarters)	6.0	10.3	5.2	6.4

Note: ***, ** denote level of significance at 1%, 5% and 10%, respectively, for testing equality of means between hard and soft landings using Student's t test.

Sources: BIS; Bloomberg; IMF and RBI staff estimates.

References:

Bank for International Settlements (2022), *BIS Annual Economic Report 2022* (Box 1 C: "How Likely is a Soft Landing?").

Blinder, A., (2022) "On Landings Hard and Soft: The Fed, 1965-2020", Lecture at Markus' Academy, February, available at <https://bcf.princeton.edu/events/alan-blinder-on-landings-hard-and-soft-the-fed-1965-2020/>.

⁴ Hard landing for the purpose of this analysis is negative GDP growth rate (y-o-y) for 2 or more successive quarters for AEs; for EMEs, it is a fall in GDP growth rate by 60 per cent (or more) for 2 or more successive quarters from the average GDP growth rate over the sample period. A soft landing, on the other hand, is a scenario of no recession within three years of a tightening cycle in which the policy rate is raised for at least three successive quarters and peaks.

⁵ One year prior to the start of the tightening cycle.

⁶ Average quarterly change in credit growth during one year preceding the tightening cycle.

a cumulative hike of 300 bps in the current tightening phase. It also unveiled plans for quantitative tightening to reduce its balance sheet by US\$ 47.5 billion per month during June-August and US\$ 95 billion per month from September. According to the Summary of Economic Projections released in September 2022, the median federal funds rate is seen at 4.4 per cent by end-2022 and 4.6 per cent by end-2023.

Amidst raging inflationary pressures, the ECB in its June 2022 meeting decided to end net asset purchases under the Asset Purchase Programme (APP) as of July 1, 2022 while continuing to reinvest maturing securities under its Pandemic Emergency Purchase Programme (PEPP) until at least the end of 2024. The ECB undertook frontloaded rate hikes of 50 bps in July and 75 bps in September in response to soaring inflation. Continuing with the tightening cycle that started in December 2021, the Bank of England (BoE) raised its policy rate in the May and June 2022 meetings by 25 bps each followed by 50 bps in August and September each which took the Bank Rate to 2.25 per cent. Simultaneously, in September, the committee unanimously voted to reduce around £80 billion in its stock of gilts over twelve months⁷. Alongside the start of the gilt sales programme, the BoE also decided to launch a new Short Term Repo (STR) facility to help ensure that short-term market rates remain close to the Bank Rate.

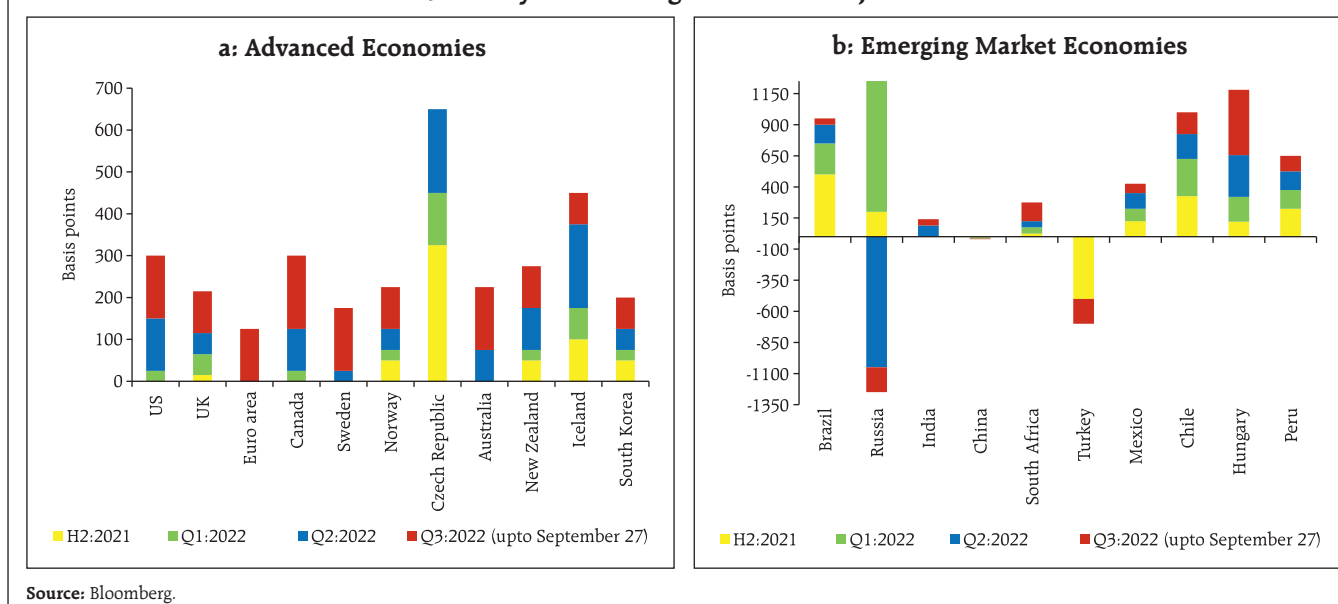
Other major AEs have also started unwinding their pandemic-led stimulus and normalising their monetary conditions. The Bank of Canada has raised its policy rate by 275 bps since April – 50 bps each in April and June, 100 bps in July and 75 bps in September, along with quantitative tightening to maintain price stability. The Reserve Bank of

Australia has increased its cash rate target by 225 bps since May – 25 bps in May and by 50 bps each in June, July, August and September. The Norges Bank and the Bank of Korea raised their policy rates by 175 bps and 150 bps, respectively in 2022 while the Central Bank of Iceland and the Czech National Bank effected cumulative hikes of 350 bps and 325 bps, respectively (Chart V.5a). Sveriges Riksbank (Sweden) has increased the policy rate by 175 bps in 2022 so far, including 100 bps hike in September 2022. Amongst the AEs, the Bank of Japan (BoJ) remained an outlier as it maintained an accommodative stance and kept the monetary policy parameters – key policy rates and the quantum of asset purchases – unchanged in 2022 so far.

Amongst EMEs, the People's Bank of China (PBoC) adopted an accommodative monetary policy stance effecting 25 bps and 50 bps cuts in the reserve requirement ratio for most banks and smaller banks, respectively, from April 25, 2022, which injected 530 billion yuan into the economy. It reduced the 1-year Loan Prime Rate (LPR) by 5 bps in August, the 5-year LPR by 15 bps and the 1-year medium-term lending facility loans and 7-day reverse repurchase agreements by 10 bps each.

In contrast, most other EME central banks continued with policy tightening. Amongst BRICS, the Banco Central do Brasil followed up on its 100 bps rate hike action of March with a 100 bps rate hike in May and 50 bps rate hikes each in June and August. It, however, paused its tightening cycle in its September meeting. The South African Reserve Bank raised its policy rate by 50 bps in its May meeting and by 75 bps in both its July and September meetings (Chart V.5b). Amongst Asian EMEs, the Bank of Thailand and the Bank Indonesia embarked on a tightening cycle by hiking 25 bps each in August 2022, followed by a hike of 25 bps and 50 bps, respectively, in September. In Latin America, the central banks of Mexico, Chile and Peru continued with monetary tightening. Amongst European EMEs, Hungary has

⁷ In light of the significant re-pricing of UK and global financial assets, the BoE announced on September 28 that it would carry out temporary purchases of long-dated UK government bonds on whatever scale necessary to restore orderly market conditions. Concomitantly, the BoE decided to postpone the planned gilt sales under £80 billion stock reduction programme, that were due to commence in early October, to October 31.

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

cumulatively increased the policy rate by 860 bps since April, including 200 bps in an off-cycle meeting in July.

The Bank of Russia switched gears in H1 as price and financial stability risks subsided. It had increased its key rate by 11.5 percentage points in February 2022 in two steps to stem depreciation and inflationary pressures amidst the geopolitical upheaval. As depreciation pressures waned, it cut its policy rate by 12.50 percentage points since April – including by 300 bps each in two off-cycle meetings held in April and May, thus offsetting the rate hikes in February. The central bank of Turkey cut its key policy rate by 100 bps each in August and September meetings, even as inflation skyrocketed to 80.2 per cent in August.

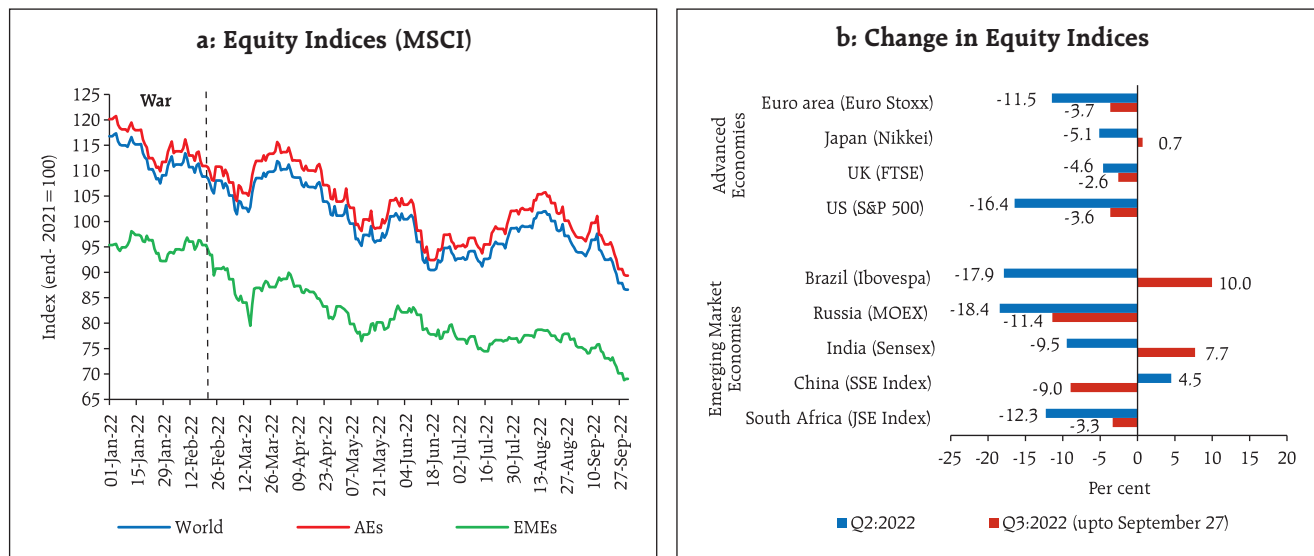
Overall, during 2022, central banks' rate hikes have been quite aggressive by historical standards. In a sample of 31 central banks (13 AEs and 18 EMEs) that raised their policy rates in 2022 (till September 28, 2022), 23 central banks have raised their policy rates by 75 bps or more. Out of these, 8 central banks raised rates by more than 100 bps.

V.4 Global Financial Markets

Global financial markets remained nervous during April-September as they grappled with protracted geopolitical tensions, the highest inflation rates in decades in many economies, aggressive monetary tightening and global recession concerns. Bond yields have firmed, equity markets have corrected and the US dollar has surged on hawkish Fed statements and safe haven demand while EME currencies broadly weakened.

In equity markets, the US S&P index plunged beginning April 2022 as uncertainty regarding the pace of unwinding by the US Fed along with mounting growth concerns rattled investor sentiments. The short-lived rebound in the first half of June was reversed by September on account of the large rate hikes by the Fed. With some dissipation in uncertainty and falling inflation expectations, US equities gradually rebounded in July but shed gains in August and September as the Fed continued with its aggressive rate hikes. Overall, the US S&P index fell by 17.9 per cent between end-March 2022 and September 28, 2022.

Chart V.6: Equity Markets



Sources: Bloomberg; and RBI staff estimates.

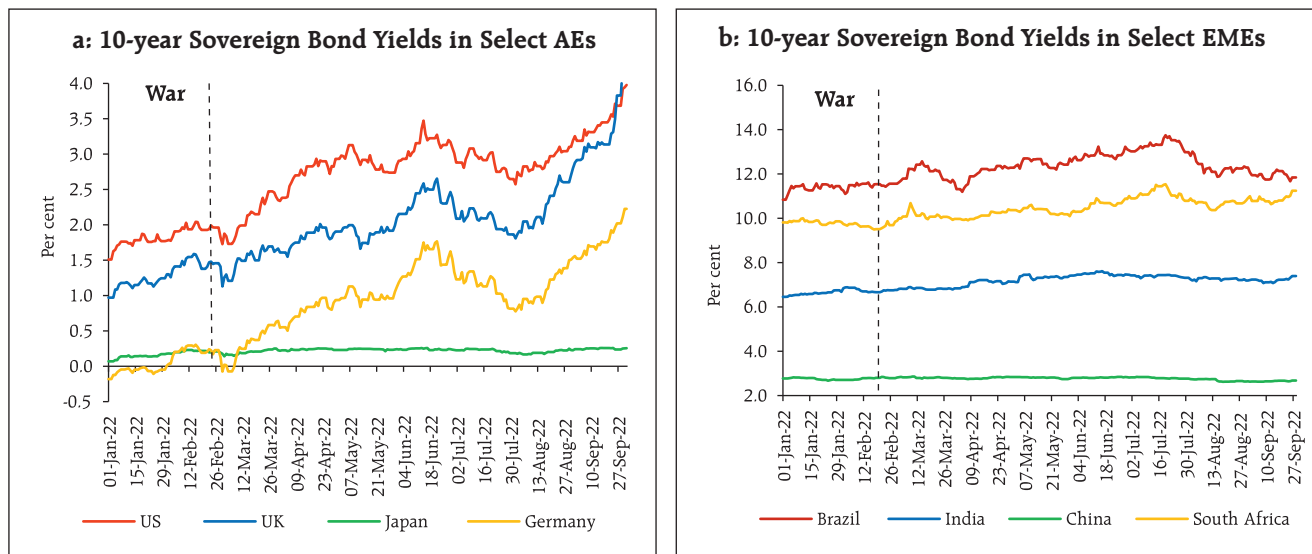
European stock markets broadly mirrored the US markets, inching down in April and May on account of mounting recession fears and worries over surging bond yields. After a short reversal in late-May and early-June, markets have been weighed down by rising inflation fears, soaring energy prices, gloomy business activity data and larger rate hikes by the ECB. The UK stock indices also tracked global cues. The Japanese market outperformed its peers on stable inflation and the continuation of ultra-accommodative monetary policy to support economic recovery. However, it fell to a 3-month low in September 28, 2022.

EME stock markets underperformed developed markets in Q2:2022 as growing inflationary pressures, recession fears, and monetary tightening in the major AEs impacted investors' sentiments (Chart V.6a). In Q3:2022, stock markets, especially for EMEs, posted negative returns with Brazil and India being exceptions. The dash for safe haven led to portfolio outflows and downward pressures on equities (Chart V.6b).

Sovereign bond yields across major AEs hardened in Q2 and Q3 over surging inflation and expectations

of higher rate hikes. Recession concerns pulled down long-term bond yields in July, but yields edged higher during August-September on expectations of further monetary tightening. In April, the US 10-year treasury yield raced up to a 3-year high as the market priced in more aggressive Fed tightening than previously anticipated. With short-term rates also rising sharply, the yield curve became flatter. As the growth outlook dimmed and recessionary fears rose, the short end of the yield curve hardened while long-term yields softened, causing yield curve inversion in July. The US 10-year yield, however, hardened again in August-September with stronger-than-expected payrolls data, hawkish commentary from the Fed Chair and FOMC members and third consecutive 75 bps rate hike by the Fed (Chart V.7a). The UK and German 10-year bond yields tracked the US markets. The UK 10-year bond yield shot up by 70 bps in the week ending September 28, on account of expansionary fiscal policy involving sweeping tax cuts. Differing from peers, Japanese bond yields were range bound, given the continued accommodative monetary policy stance. However, the 10-year yields

Chart V.7: Bond Yields



Source: Bloomberg.

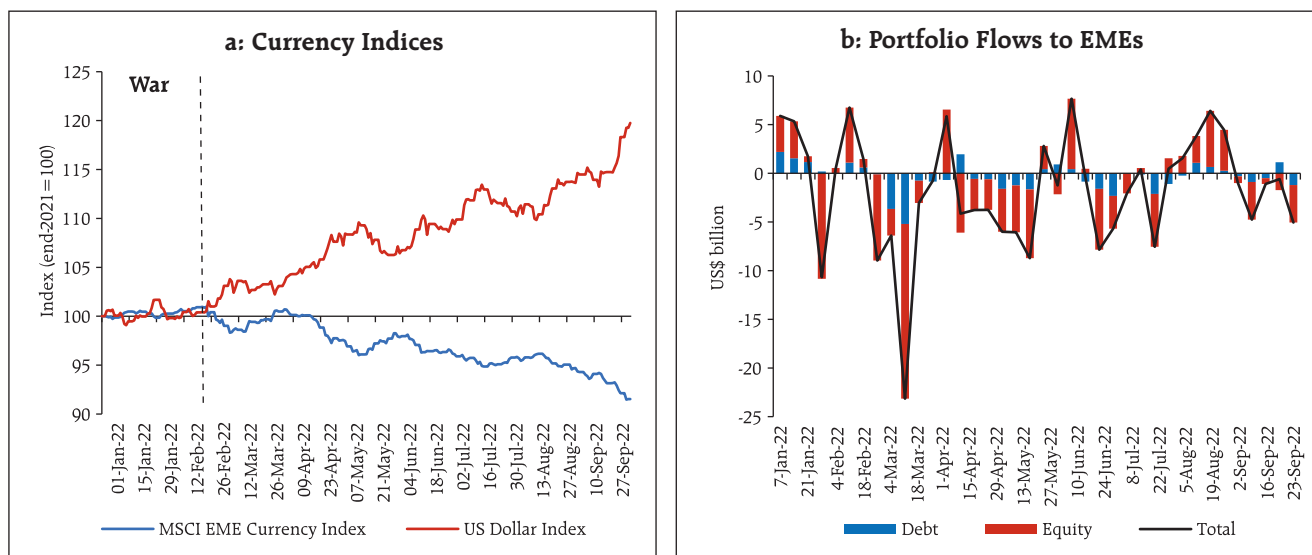
hit the upper limit of the BoJ's implicit band around its 0 per cent target in September on account of sharp rise in inflation and capital outflows, prompting BoJ to buy more bonds than planned.

Bond yields in major EMEs have moved with a hardening bias driven by domestic monetary

tightening as well as global cues (Chart V.7b). Chinese and Brazilian bond yields, however, softened modestly on their monetary policy actions.

In the currency markets, the US dollar strengthened further against major global peers in Q2:2022 and Q3, reflecting the faster pace of rate hikes

Chart V.8: Currency Movements and Capital Flows



Note: The data for portfolio flows to EMEs is weekly.

Sources: Bloomberg; and IIF.

and quantitative tightening plans relative to other major AEs (Chart V.8a). Rising safe haven demand amidst the ongoing geopolitical upheaval and soaring energy prices have further strengthened the US dollar. The US dollar's strength was mirrored in the weakening of EME currencies amidst ebbing investor interest. Capital outflows during March-July exacerbated the volatility in EME currencies. Capital flows resumed in August but the trend reversed in September led by equity outflows (Chart V.8b). The MSCI Emerging Market Currency Index declined by 4.4 per cent in Q2:2022 and by 5.4 per cent in Q3:2022 (up to September 28, 2022).

V.5 Conclusion

The risks to the global growth outlook are overwhelmingly tilted to the downside as monetary authorities undertake aggressive tightening to rein in high inflation. The uncertainty around the war and the pace of monetary tightening going ahead are imparting sizeable volatility to global financial markets, while also lending safe haven demand to the US dollar. These developments are generating large adverse spillovers to emerging market economies and posing sizeable downside risks to their growth prospects.

SPEECH

Fintech as a Force Multiplier
Shaktikanta Das

*Fintech as a Force Multiplier**

Shaktikanta Das

I am delighted to be here today in the third edition of the Global Fintech Festival (GFF). I would like to congratulate the organisers – the National Payments Corporation of India (NPCI), the Fintech Convergence Council (FCC) and the Payment Council of India (PCI) for organising this event. The theme of the event – Creating a sustainable financial world - is very relevant in current times.

In recent years, India has witnessed rapid progress in the financial services sector. Technology, innovation and fintech are working in tandem and contributing to the dynamism of this sector. In our journey towards higher levels of sustainable development and financial inclusion, these forces have morphed into force multipliers. We have leveraged a lot on these forces; we need to leverage even more.

Let me now get down to the specifics. There has been exponential growth of technological enablers in India. Telecom penetration, availability of internet services, adoption of technology in facilitating access to credit, more efficient payment systems and deepening of financial inclusion have made significant progress and are continuing to progress further.

The total number of broadband internet users in India stood at 80.7 crore at the end of July 2022¹. With more than 46.5 crore Jan Dhan accounts, 134 crore Aadhaar enrolments and 120 crore Mobile connections, new opportunities are opening up for implementing innovative ways of integrating and delivering services. This can be gauged from the emergence of 100 unicorns in the country with record 44 unicorns established last year².

For any society aspiring to grow faster, its financial institutions must be robust, efficient and accessible. The next decade of finance will be more focussed on two central themes: (i) sustainable development and (ii) technology led innovations transforming the lives of common people. Therefore, sustainable development and ensuring a resilient financial system form the fulcrum of our policy architecture.

As we have all witnessed, technology has been central to the resilience in the face of the COVID-19 pandemic, particularly during the lockdowns imposed around the world. It has also been central to our response to the crisis and in supporting the recovery. Technology coupled with finance safeguarded the economies by ensuring seamless disbursement of loans, robust 24x7 payment systems, access to financial markets, insurance, MSME credit, pension services and direct benefit transfers.

As per the World Bank, at least 58 governments in developing countries have used digital payments to deliver COVID-19 relief³. The scale of operations in India in this regard was of course much larger compared to other countries. The Global Findex Database 2021⁴ reported a significant increase in financial inclusion around the world. In developing countries, 71 per cent of people have bank accounts, up from 42 per cent a decade ago. Approximately 40 per cent of people who made a digital payment from their account (to a merchant or for a utility service) did so for the very first time since the start of the pandemic.

In India, the pandemic accelerated the push towards digitalisation, especially in the rural areas. The period from March 2020 to August 2022 has seen a massive growth of 427 per cent in UPI transactions, which reached a new high of 657 crore transactions

* Address by Shri Shaktikanta Das, Governor, Reserve Bank of India - September 20, 2022 - at the Global Fintech Festival, Mumbai.

¹ Telecom Regulatory Authority of India (TRAI).

² PIB Press Release

³ World Bank Report on the impact of COVID-19 on digital financial inclusion

⁴ <https://www.worldbank.org/en/publication/globalfindex>

in August 2022⁵ alone. The number of UPI QR code enabled payment acceptance points⁶ increased by about 9 crore ((86 per cent y-o-y) YoY) to reach 20 crore as at end of July 2022, reflecting the growing acceptance and preference for contactless payments.

Innovations in our Financial Sector

The financial services industry in India has seen an enormous transformation. Products like internet and mobile banking, electronic funds transfer, UPI, Aadhaar e-KYC, Bharat Bill Payment System (BBPS), QR Scan & Pay, digital pre-paid instruments and similar other initiatives have transformed the traditional banking operations. Banking hours have been transcended. We now have digital-mobile-anywhere-anytime banking. While several initiatives originated from the industry, the government and the regulators have created an enabling ecosystem to promote the FinTech sector. Initiatives like Startup India, Digital India, India Stack, Account Aggregators, Peer to Peer (P2P) lending platforms and 24x7 digital payment systems have proved to be key enablers. The Fintech ecosystem in India has indeed evolved and is poised for a giant leap.

Let me now touch upon some of the other initiatives taken by the RBI in this area. The **Regulatory Sandbox** framework was released in August 2019 with a view to foster innovation. With this, the Reserve Bank entered the select group countries that have their very own regulatory sandbox ecosystem. After four theme-based cohorts on retail payments, cross-border payments, MSME lending and prevention of financial frauds, a theme neutral fifth cohort was announced earlier this month. It reflects our keen desire to increase the footprint of innovation in the FinTech space. The success stories emanating from our Regulatory Sandbox initiative include, among others, the 'Framework for facilitating Small Value

Digital Payments in Offline Mode' and the recently launched UPI123Pay which was aimed at enhancing digital financial inclusion by enabling over 40 crore feature phone users to access the benefits of UPI in a safe and secure manner.

The Reserve Bank, for the first time, organised a **Global hackathon** titled **HaRBinger 2021** – with a view to make retail payments more innovative. This witnessed enthusiastic response. We received 363 proposals including 22 from abroad from countries like the USA and the UK. This exercise gave us a glimpse of the creative talent pool that India possesses and reinforced our belief that India is well positioned to provide leadership in the FinTech space. I understand that the winners of HaRBinger 2021 are also participating in this Global Fintech Festival to further showcase their creativity and talent.

More recently, the RBI has set up the **Reserve Bank Innovation Hub (RBIH)** as a subsidiary in Bengaluru. The Hub has an eminent Board of Directors drawn from the private sector and domain experts. The RBIH is currently undertaking several important projects. I am confident that going forward, the RBIH will benchmark itself as a centre of excellence.

We have also created a new **FinTech Department** in the RBI from January 2022 to give focused attention to this evolving and dynamic sector. The objective of this department is not only to promote innovation, but also identify the associated challenges and opportunities and address them in a timely manner. All matters relating to facilitation of constructive innovations and incubations in the FinTech space, with wider implications for the financial sector and markets, are being dealt with by this department, in addition to inter-regulatory issues and international cooperation.

Further, as you would be aware, the RBI is now actively working towards a phased implementation of **Central Bank Digital Currency (CBDC)** in both

⁵ NPCI website

⁶ Reserve Bank of India - Payment System Indicators (July 2022)

wholesale and retail segments. This is expected to give further fillip to the digital ecosystem.

FinTech; the road ahead

It is well known that FinTechs contribute to enhance efficiency in terms of service delivery and in bringing down costs. Through their customised products and customer interfaces, they provide an enriching and seamless consumer experience. They also have the potential to improve market access and a range of product offerings, apart from improving access to credit and financial inclusion in the traditionally unserved or underserved segments.

In India, one of the most transformative roles that can be played by FinTech is in the area of credit delivery in partnership with traditional lenders, especially in rural and semi urban areas. Timely availability of credit at reasonable cost, especially for agriculture and allied activities and MSMEs, is very crucial for our economic growth.

One of the key challenges currently associated with availing of such credit is that it is a largely paper based process with high Turn Around Time (TAT). Sometimes it requires multiple visits to bank branches and cumbersome documentation. It entails high operational costs for lenders and opportunity cost for borrowers. Considering these challenges and taking forward RBI's FinTech initiatives, digitalisation of Agri-Finance in India was ideated between the Reserve Bank and the Reserve Bank Innovation Hub. The idea was to enable frictionless delivery of Kisan Credit Card (KCC) loans in a paperless and hassle-free manner and also reduce the turnaround time and avoid multiple visits to bank branches. I am happy to state that the Reserve Bank Innovation Hub has designed an end-to-end digital process for seamless and quick access to rural credit. A pilot project based on this innovation has been launched in Madhya Pradesh and Tamil Nadu in partnership with the Union Bank of

India and the Federal Bank respectively, for both new KCC loans and renewal of such loans up to a threshold (₹1.60 lakh) per borrower. Going forward, based on the learnings from the pilot, the digitalisation of KCC loans is proposed to be expanded to all districts of these two states as also to other states. Eventually, our desire is to develop and operationalise an integrated and standardised technological platform to facilitate frictionless credit to all segments of society for the whole country, with special emphasis on rural and agricultural credit. And if we can do this in the next one year, it would be a major milestone in India's growth story and journey towards India@2047.

Another example of tech-enabled regulatory innovation by the RBI is the Account Aggregator (AA) framework. This is an important step towards realising the potential of empowering millions of underserved customers to digitally access and share their financial data across institutions in a secure and efficient manner. The framework has been expanded to include institutions regulated by SEBI, IRDAI and PFRDA. This is a progressive step to help customers gain control over their financial data and use it for accessing a variety of products including credit, insurance, investments for their own benefit. Centralised KYC (CKYC) and Video KYC are other enablers to facilitate seamless onboarding of customers in a digital and cost effective manner. We are giving greater focus on these initiatives.

The Reserve Bank is committed to take more such initiatives with the support of all stakeholders. In this endeavour and in collaboration with the stakeholders, three exciting new products are being launched later today. Two of these pertain to enhancing the feature set of UPI by facilitating small value transactions through 'UPI Lite' and linking credit cards to UPI. The third initiative is the enablement of cross-border inward bill payments using Bharat Bill Payment System (BBPS).

The emergence of FinTech players and the growing popularity of their innovative products have challenged the existing players in financial services in maintaining their market share, margins and customer base. The incumbent firms are responding to these challenges by adopting various strategies, which include making investments in FinTech companies and partnering with them. They are also enhancing their in-house capabilities to adapt to the new realities.

A wave of changes brought in by FinTech have had a positive impact in terms of enhancing inclusion and further penetration of financial services. At the same time, these developments have also ushered in an era where enormous amount of consumer data is being generated and leveraged upon by a few entities (so called BigTechs) by virtue of their huge customer base. Such developments raise concerns over concentration risk and potential spillovers as their level of engagement with the financial system strengthens in the years to come. Therefore, potential risks to public policy objectives of maintaining competition, market and business conduct, operational resilience, data privacy, cyber security and financial stability need closer attention.

As we have seen, the way digital lending has taken off in the recent past was phenomenal. While it has served the needs of various segments, it has also raised several concerns which manifested itself through a spate of complaints regarding usurious interest rates, unethical recovery practices and data privacy issues. The Reserve Bank has endeavoured to address these issues proactively and, as early as in June 2020, regulatory guidance was provided to our Regulated Entities. This guidance, among other things, mandated that digital lending platforms disclose the names of the banks/ NBFCs upfront on whose behalf they were providing credit. The recently issued

regulatory guidelines on digital lending⁷ strike a well considered balance between customer protection and business conduct on the one hand and supporting innovation on the other. Let me emphasise that while innovations are very much welcome, they must be responsible and should enhance the efficiency and resiliency of the financial system while benefitting the consumers. Robust internal product and service assurance frameworks, together with fair and transparent governance, will go a long way to safeguard the interest of customers and ensure long-term sustainability of the FinTech entities themselves. The level of due-diligence and oversight exercised by the regulated entities on their outsourced activities needs to be strengthened further. This would help in proactive mitigation of risks at the incipient stage itself.

I would also like to flag certain material concerns regarding the unbridled mushrooming of digital lending apps. The need of the hour is to ensure assurance of safety after following a process of green-lighting (whitelisting) and due-diligence by the regulated entities. The RBI, in association with other relevant agencies, is taking steps to address this issue and take further steps as may be necessary.

Governance and Conduct

As we continue to support technological advancement and innovation, it is equally important that adequate attention is also placed on governance and conduct issues. At the end of the day, sustainability of any FinTech activity or business is about enhanced customer protection, better cyber security and resilience, managing financial integrity and strong data protection.

⁷ https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=54187; <https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=12382&Mode=0>

I wish to assure the FinTech community that the RBI will continue to encourage and support innovation. At the same time, we would expect the ecosystem to pay attention to governance, business conduct, regulatory compliance and risk mitigation frameworks. The fintech road ahead will witness ever growing traffic in addition to the large number of existing players who are already there. It is, therefore, imperative that every player on this road follows the traffic rules for his/her own safety and the safety of others.

Conclusion

A sustainable financial world is not just for us, it is also for the future generations. It is up to us how

we want to move forward in this journey. The RBI's focus has always been on encouraging innovation by providing an enabling environment. Simultaneously, as guardian of financial stability, the RBI also remains watchful of any undue risk build-up and responds to them. The Fintech players, I am sure, will join us in this endeavour.

With the amazing talent base that we have in India and the giant leaps we have taken in the digital and FinTech space in recent years, I am confident that India is well positioned to shape the future course in this area. As we set sail for a brighter future, I wish you all a safe and fulfilling journey ahead.

Thank you.

ARTICLES

State of the Economy

Estimation of Green GDP for India

'Bigtechs' in the Financial Domain:
Balancing Competition and Stability

Market Returns and Flows to Debt Mutual Funds

Financial Liabilities of Household Sector in India –
An Assessment

State of the Economy*

Aggressive and synchronised monetary tightening has further weakened global economic prospects as financial markets sold off, investors took fright and jettisoned risky assets. In India, broader economic activity has remained resilient and poised to expand further with domestic demand accelerating as the contact-intensive sectors are experiencing a bounce-back. Robust credit growth and fortified corporate and bank balance sheets provide further strength to the economy. Headline inflation is set to ease from its September high, albeit stubbornly, on the back of easing momentum and favourable base effects. These factors will entrench India's prospects as one of the fastest growing economies of the world.

Introduction

Following the week beginning September 19, 2022 when eight central banks matched the US Fed in raising policy rates by a cumulative 500 basis points – and another went the other way by cutting rates – storm clouds darkened the horizon, posting the world into a dangerous, poli-crisis phase. Financial markets sold off, investors took fright and jettisoned risky assets, the World Bank warned of a devastating recession, and more recently, the International Monetary Fund has cautioned about a cost-of-living crisis affecting people around the world. More than 200 years of globalization is threatened by fragmentation, financial conflict and the spectre of inflation at levels and of a tenacity not seen in four decades. As central banks dig in, determined to bring inflation under control, hopes of an 'immaculate disinflation'¹ fade. Households and

businesses lose hope and brace for pain. Are there risks of doing too much or too little? The US Fed's Federal Open Markets Committee (FOMC) believes that 'the cost of taking too little action to bring down inflation outweigh the cost of too much action'². Yet several participants also noted that in the current highly uncertain global economic and financial environment, it would be important to calibrate the pace of further tightening with the aim of mitigating the risk of significant adverse effects on the economic outlook. Clearly, the risks have become two-sided and there is a greater sensitivity than before that the cumulative restraint on aggregate demand due to monetary policy actions could well exceed what is required to bring inflation to target. As Mark Twain once wrote, "it is not what you don't know that kills you, it's what you know for sure that ain't true."

As in the early 1980s, the 1990s and in the summer of 2013 when the US tightened monetary policy or talked of it, emerging and developing countries are again particularly at risk and face an extremely daunting outlook. It is feared that the deadly cocktail of higher food, fertilizer and energy prices, outsized currency depreciations, capital flight, and the sharp slowdown in global growth is going to push more than 70 million people in these countries into abject poverty. In an influential view, the human consequences of these overlapping crises is catastrophic.³ By comparison, however, this time around they seem to be coping. They were first off the mark in tightening monetary policy, their currencies have fallen by less than their advanced economy peers, and their fundamentals and macroeconomic policy frameworks have improved relative to past episodes⁴, with bigger foreign exchange reserves and deeper local financial markets that help to absorb shocks. In fact, the IMF estimates that they

* This article has been prepared by G. V. Nadhanael, Shashi Kant, Kunal Priyadarshi, Harshita Keshan, Jessica Maria Anthony, Kaustubh, Pankaj Kumar, Satyarth Singh, Prashant Kumar, Ipsita Padhi, Aayushi Khandelwal, Jobin Sebastian, Rohan Bansal, Sudhanshu Goyal, Priyanka Sachdeva, Akshara Awasthi, Yuvraj Kashyap, Satyam Kumar, Deepika Rawat, Ashish Santosh Khobragade, Savita Pareek, Nivedita Banerjee, Rajendra Nana Chavhan, Shivangee Misra, Vineet Kumar Srivastava, Samir Ranjan Behera, Deba Prasad Rath 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.

¹ Martin Wolf.

² FOMC minutes, October 12, 2022.

³ David Malpas, President, World Bank, speaking at Stanford University on September 28, 2022.

⁴ Many of them have adopted inflation targeting and have married them with foreign exchange interventions, as noted by the Bank for International Settlements (BIS) in its Annual Economic Report 2019.

have drawn down reserves to the extent of US \$ 400 billion in the first half of 2022, but this is a small fraction of their cumulative holdings of US \$ 4 trillion. For several of them, the descent of their currencies against the unrelenting strength of the US dollar has been more orderly than the tumbles experienced by even reserve currencies. The next 150 basis points of rate increases by the Fed will, however, test them and hence they remain on high alert. With CPI inflation in the US showing no signs of abating in the reading for September 2022 that was released on October 12, futures markets in the US are pricing in a 75 basis points increase in the target federal funds rate in November 2022 with close to 100 per cent probability. The risk of investors fleeing into US treasuries if turbulence intensified is real and present.

For all countries, advanced and emerging alike, risks to financial stability have increased and some have materialized as recently in the UK. The IMF's October 2022 Global Financial Stability Report alerts us about tightening financial conditions, deteriorating market liquidity, and snowballing financial vulnerabilities fuelled by years of ultra-low interest rates and cheap credit. In fact, as the GFSR points out, four frontier economies have already defaulted, eight low income countries (LICs) are in debt distress and 30 LICs are at high risk of debt crisis. The risk of a disorderly tightening of financial conditions confronting them is amplified by capital flows pulling back from these jurisdictions. An immediate concern is about the second order effects of aggressive monetary policy tightening - financial market contagion and sudden stops in credit markets setting off a more severe recession than currently anticipated.

Another common risk is the rising frequency and intensity of extreme floods and droughts that have characterized 2022 so far. These events have collided with geopolitically induced threats to food and energy security. 2022 has turned to be the sixth warmest year on record⁵. In the view of the IMF, climate

change poses a major threat to long-term growth and prosperity, and it has a direct impact on the economic well-being of all countries. Economies in south and southeast Asia are most vulnerable to the physical risks associated with climate change. They are also the countries that have most to gain if the world is able to rein in temperature increases. These economies will need significant climate financing in the coming years to reduce their emissions and adapt to the physical effects of climate change⁶.

In contrast to the synchronized tightening of monetary policy worldwide alluded to earlier, the Reserve Bank of India (RBI) delivered a 'perfect 50' on September 30. Reading the move as in sync with expectations, markets in India broke away from the global pessimism and serenaded the increase in the policy rate to 5.90 per cent, with the Indian rupee appreciating over the previous day's close, while bond yields remained steady and equities shed bearish sentiments to rise by 2 per cent on the same day. The monetary policy committee (MPC) was of the view that inflation is likely to be above the upper tolerance level of 6 per cent through the first three quarters of 2022-23, with core inflation remaining high. While the global outlook was seen as shrouded by considerable uncertainty, the MPC adjudged that domestic economic activity is holding up well and is expected to be buoyant in the second half of the year amidst consumer and business optimism. Accordingly, it felt that further calibrated monetary policy action is warranted to keep inflation expectations anchored, restrain the broadening of price pressures, pre-empt second round effects and support medium-term growth prospects. The MPC also decided to persevere with the withdrawal of accommodation to ensure that inflation aligns with the target going forward, while supporting growth.

⁵ National Oceanic and Atmospheric Administration, Global Climate Report, July 2022.

⁶ GFSR, IMF, October 2022.

Broader economic activity has remained resilient and poised to expand further. Domestic demand is accelerating, with auto sales having rebounded, real estate sales on the rise in spite of a pick-up in borrowing costs and the contact-intensive hospitality services experiencing a bounce-back. Bank credit is increasing by double digits and the sustained surge in goods and service tax collections is signalling growing formalisation of the economy. Indian equities are outperforming both advanced and emerging peers. Selling by foreign portfolio investors is being more than matched by domestic institutional investors' buying. Corporate and bank balance sheets have become fortified through the period of the pandemic. There is a view that India is likely to be among the few emerging economies that would be left standing after the global hurricane has passed.

So, is India decoupling? Time will tell. For now, reasonably strong macrofundamentals by comparator comparison are being tested by the twin whammies of rising international interest rates and an inexorably strengthening US dollar. This is inflicting collateral damage – imported inflation and INR depreciation. Financial market notwithstanding and despite periodic revisions of forecasts by various agencies in India and abroad, the consensus seems to be that real GDP growth in India will clock 7 per cent or close to it in 2022-23.

Some recent developments inspire this confidence. First, as foretold in the August issue of the State of the Economy, 5G was launched in India in several cities on October 1, 2022. Introduction of 5G technology is likely to be a game changer for Indian manufacturing and services sector with high data speed, low latency, high quality video services and highly reliable communications. 5G can also generate significant social benefits in terms of telesurgeries and real-time monitoring of disasters, precision agriculture, minimising the role of humans in dangerous industrial operations such as in deep

mines, offshore activities and the like. Second, India is reshoring. The National Logistics Policy (NLP) launched on September 2022 aims to lower the cost of logistics to best international standards, increase the competitiveness of Indian products at home and abroad and increase efficiency across all sectors of the economy, thereby boosting value addition and enterprise. Coordination improvements will boost sector speed, value creation, and entrepreneurship. The Policy includes integration of digital systems, across road transport, railways, aviation, commerce ministries and foreign trade; a unified logistics interface platform that will ensure shorter and smoother cargo movement and enable the exchange of information confidentially on a real-time basis; and ease of logistics business through transparency and accessibility. A systems improvement group will monitor all logistics-related projects. The Policy is aimed at making India a global manufacturing powerhouse and pave its way to becoming a logistics hub. Third, in pursuance of the announcement made in the Union Budget 2022-23, 75 digital banking units (DBUs) in 75 districts of the country were dedicated to the nation on October 16, 2022. The DBUs will provide banking services and products in an efficient, paperless, secure and connected environment on a 24X7X365 basis in self-service mode. They will also be instruments of financial inclusion and financial literacy.

Set against this backdrop, the remainder of the article is structured into four sections. Section II captures the rapidly evolving developments in the global economy. An assessment of domestic macroeconomic conditions is presented in Section III. Section IV reviews financial conditions in India, while the last Section concludes the article.

II. Global Setting











Downside risks to the global economic outlook have increased since the last edition of this article. Aggressive rate hikes and hawkish forward guidance

by advanced economy (AE) central banks have accentuated financial stability risks to the global recovery that has started to stall in Q2:2022. GDP in several parts of the world has either started contracting or decelerating. The prolonged geopolitical conflict and the likelihood of a harsh winter have amplified energy and food price shocks.

The International Monetary Fund in its latest World Economic Outlook (WEO), released on October 11, 2022 has projected global growth to slow from an estimated 6.0 percent in 2021 to 3.2 per cent in 2022 (unchanged from July 2022 WEO update) and 2.7 per cent in 2023 (revised down by 0.2 percentage points from July 2022 projection) [Table 1]. These forecasts factor in a number of turbulent challenges that the global economy faces including multi-decadal high inflation, tighter financial conditions, conflict in Ukraine, lingering COVID-19 pandemic and slowdown in China. Moreover, the global inflation is projected to rise to 8.8 percent in 2022 (revised up by 0.5 percentage points relative to July 2022 WEO update), then moderate to 6.5 percent in 2023 (revised up by 0.8 percentage points relative to July

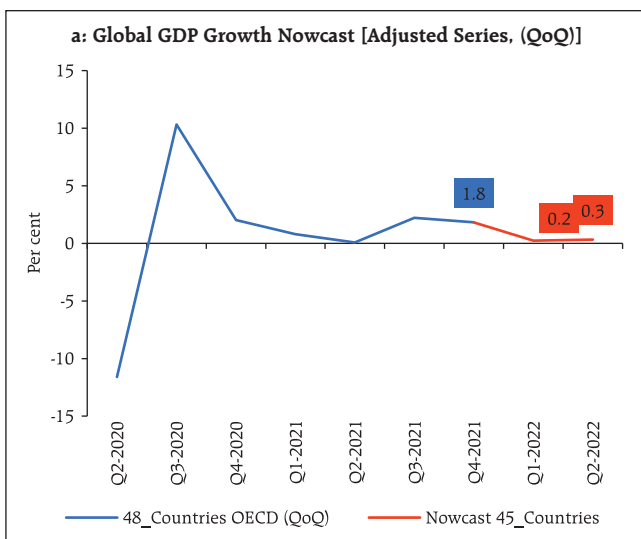
**Table 1: GDP Growth Projections –
Select AEs and EMEs**

(Per cent)

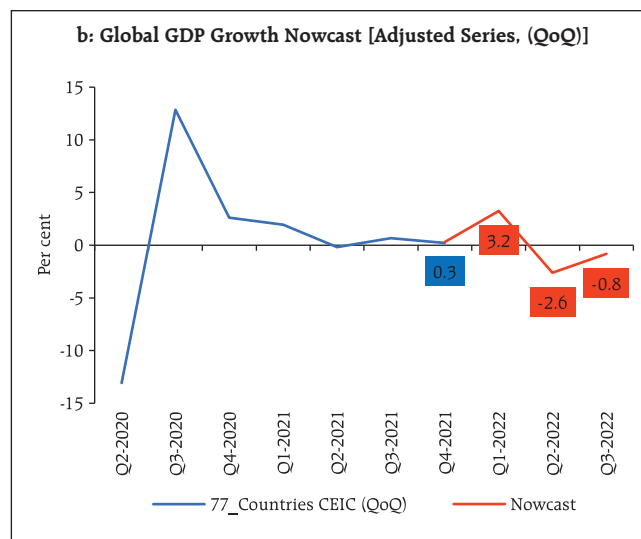
Projection for		2022		2023	
Month of Projection		October 2022	July 2022	October 2022	July 2022
	World	3.2	3.2	2.7	2.9
Advanced Economies					
	US	1.6	2.3	1.0	1.0
	UK	3.6	3.2	0.3	0.5
	Euro area	3.1	2.6	0.5	1.2
	Japan	1.7	1.7	1.6	1.7
Emerging Market Economies					
	Brazil	2.8	1.7	1.0	1.1
	Russia	-3.4	-6.0	-2.3	-3.5
	India	6.8	7.4	6.1	6.1
	China	3.2	3.3	4.4	4.6
	South Africa	2.1	2.3	1.1	1.4

Source: IMF.

Chart 1: Global GDP Nowcasts



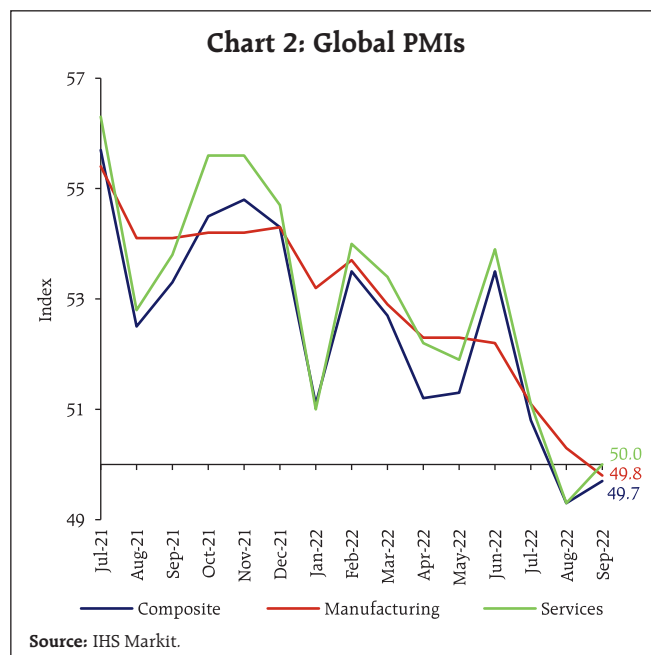
Source: RBI staff estimates.



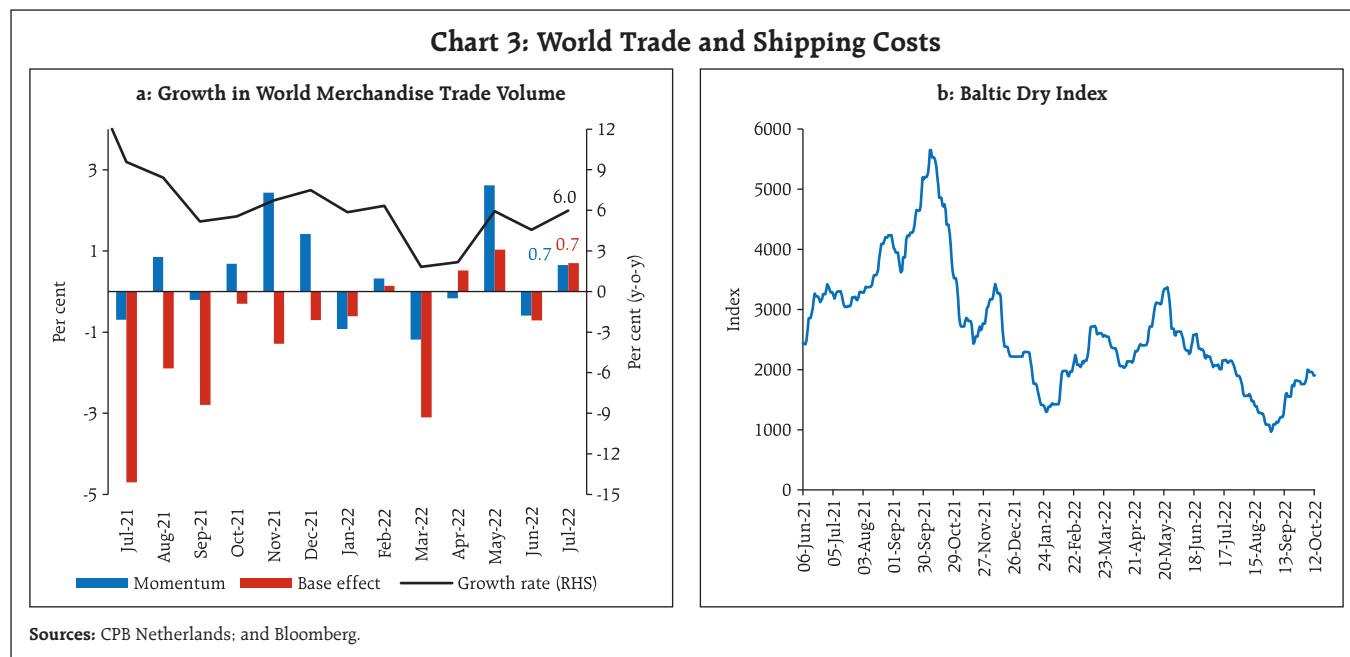
2022 WEO update) and further ease to 4.1 percent by 2024 – reflecting confidence that inflation will recede with tighter monetary policy. Our model-based nowcast indicates that the contraction witnessed in Q2:2022 has likely extended into Q3:2022 (Chart 1: a and b).⁷

Among high frequency indicators, global composite purchasing managers index (PMI) inched up marginally to 49.7 in September from August's 26-month low of 49.3 as services business activity stabilised while manufacturing output declined. The global manufacturing PMI fell to 49.8 in September from 50.3 in August, lapsing into the contraction zone for the first time since June 2020. Output fell in intermediate and investment goods sectors while business optimism sank to a 28-month low (Chart 2).

World merchandise trade volume rose by 6.0 per cent (y-o-y) in July 2022 from 4.6 per cent in June on the combination of a positive momentum and a favourable base effect (Chart 3a). Increased demand for vessels caused the Baltic Dry Index – a measure of



shipping charges for dry bulk commodities – to rise by 82.4 per cent in September bucking the decline witnessed for the previous four consecutive months (Chart 3b). According to World Trade Organization (WTO), world merchandise trade volume is expected



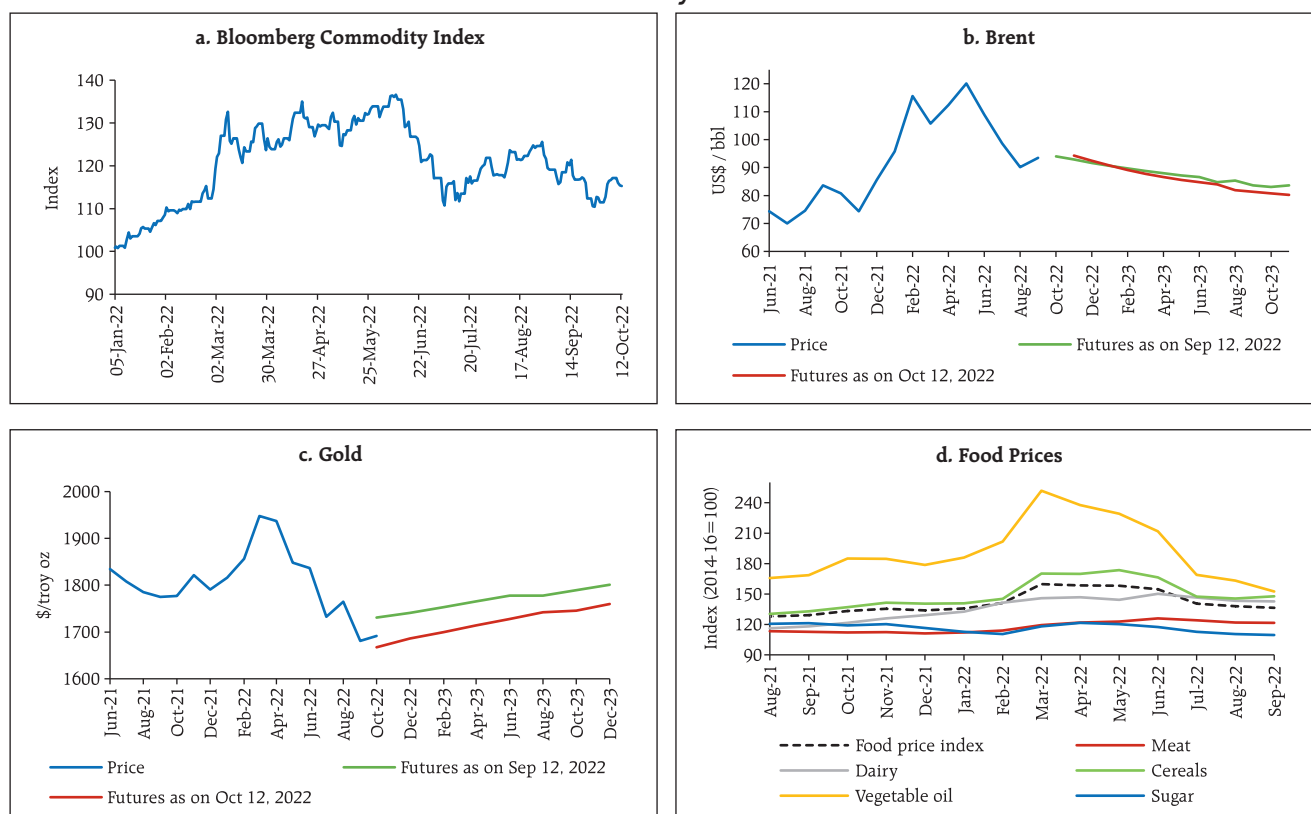
⁷ The model-based nowcast is the average of various ARIMA models augmented with global indicators, such as PMI Manufacturing and global IIP etc.. If available, actual values of exogenous variables were taken for generating the nowcast, otherwise, it was imputed using moving average method. Ramesh Kumar *et al.*, "Nowcasting Global GDP", RBI Bulletin, June 2022.

to grow 3.5 per cent in 2022 before slowing to 1.0 per cent in 2023 (downward revision of 2.4 per cent). PMI sub-indices also indicate a fall in the volume of new export business for the seventh consecutive month and receding international trade flows.

Global commodity prices remained volatile, shedding 8.3 per cent by end-September as slowing global growth dampened demand (Chart 4a). Crude oil prices traded at an average of US\$ 90 per barrel in September, their lowest in 7 months, and continued to decline till October 3 in response to slowing global demand and the monotonically strengthening US Dollar. Prices inched up as the OPEC *plus* cartel and the allied producers agreed to collectively reduce

output by 2 million barrels per day or approximately 2 per cent of global consumption on October 5 (Chart 4b). Gold prices declined in September hitting a low of US\$ 1,618 per troy ounce on September 28, lowest since April 2020, reflecting rising US 10-year G-sec yields (Chart 4c). In October so far, gold prices have been highly volatile, edging up marginally driven by safe haven demand. The FAO food price index registered its sixth consecutive monthly decline, dropping by 1.5 per cent in September 2022, marked by fall in all its sub-indices⁸ barring cereal sub-index (Chart 4d). The correction in vegetable oil prices has been the sharpest as they fell by 40 per cent from the historical high levels recorded in March 2022.

Chart 4: Commodity and Food Prices



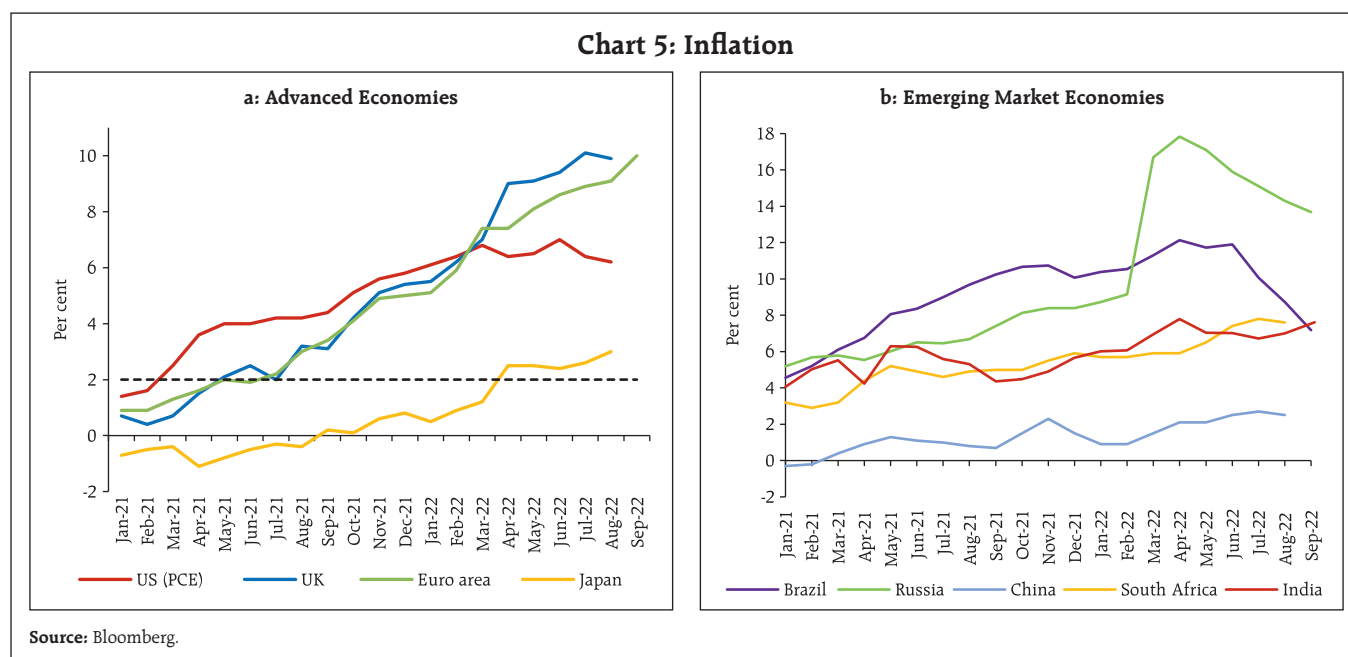
Sources: Bloomberg; World Bank Pink Sheet; and FAO.

⁸ Food and Agricultural Organization (FAO) sub-indices include Cereal, Vegetable oil, Dairy, Meat and Sugar Price Indices.

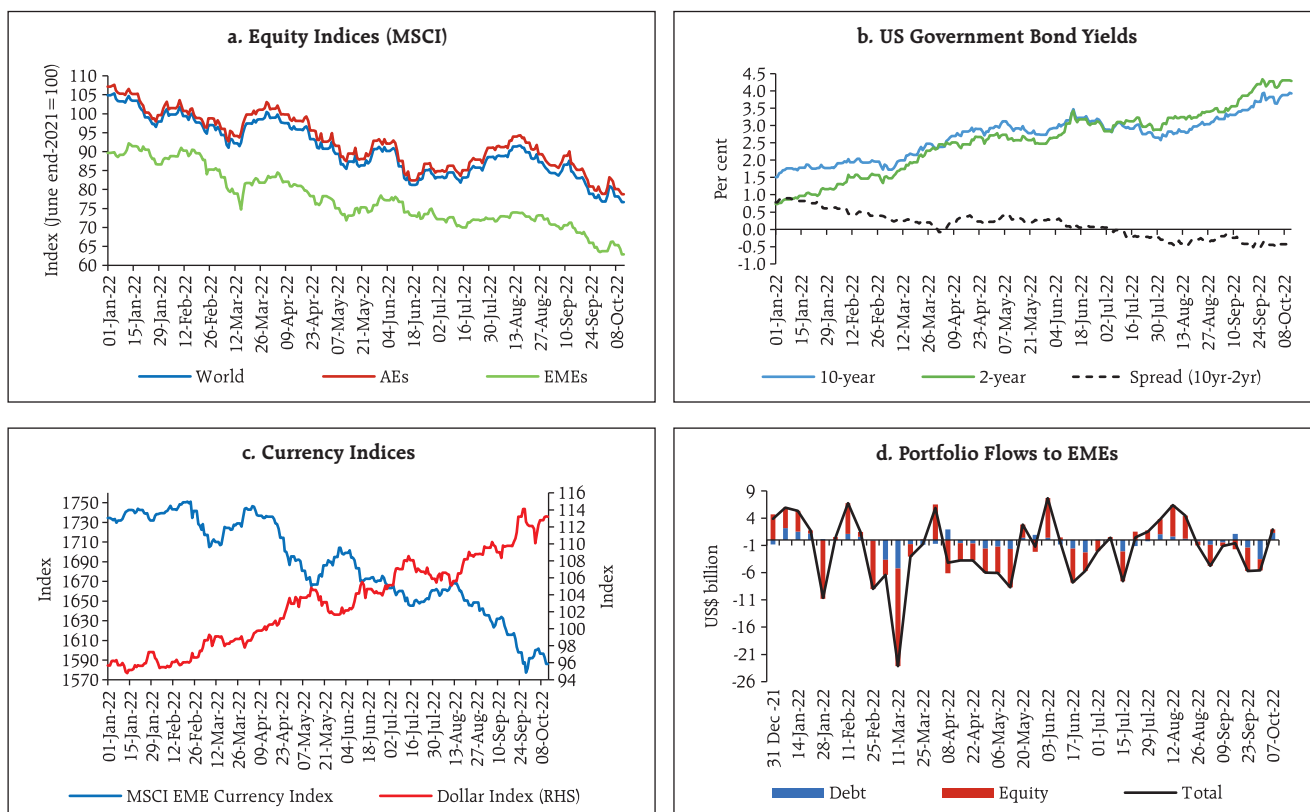
Elevated inflation remains the major policy concern for most economies even though the recent fall in commodity prices has led to inflation coming off peaks in many countries. The US headline CPI inflation (y-o-y) moderated to 8.2 per cent in September 2022 from 8.3 per cent in August while core CPI inflation firmed up to 6.6 per cent in September. Inflation based on the personal consumption expenditure (PCE) index (Fed's preferred measure) was at 6.2 per cent y-o-y in August 2022, marginally down from 6.4 per cent in July on account of a favourable base effect (Chart 5a). In the Euro Area, annual inflation soared to a new peak of 10.0 per cent in September 2022, up from 9.1 per cent in August, led by energy, food, alcohol and tobacco. In the UK, CPI inflation was at 9.9 per cent in August, marginally down from 10.1 per cent in July due to the decline in the transport sub-index. Among the BRICS⁹ economies, inflation in Brazil eased to 7.2 per cent in September from 8.7 per cent in August, while in Russia it eased to 13.7 per cent in September from 14.3 per cent in August (Chart 5b).

Global equity markets shed gains in the second half of September, with the MSCI world equity index ending the month 9.7 per cent lower than in August. The decline in the EME sub-index was much more pronounced than that for the AEs (Chart 6a). In the bond market, 10-year G-sec yields hardened across major AEs, reflecting central banks' hawkish stances. The 10-year US treasury yield shot up by 64 basis points in September while the 2-year G-sec yield rose by 79 bps, leading to a steep inversion in the yield curve (Chart 6b). The US Dollar continued its rally in September on the Federal Reserve's hawkish tone and on safe haven demand, reaching fresh 20-year highs. Concomitantly, the MSCI currency index for EMEs declined in September, exacerbated by capital outflows (Chart 6c & 6d).

Heightened volatility in foreign exchange markets driven by bets on how aggressively the Fed will tighten monetary policy in the face of surging inflation has given a boost to the US dollar, while other currencies have been hit (Chart 7). The Deutsche Bank's Currency



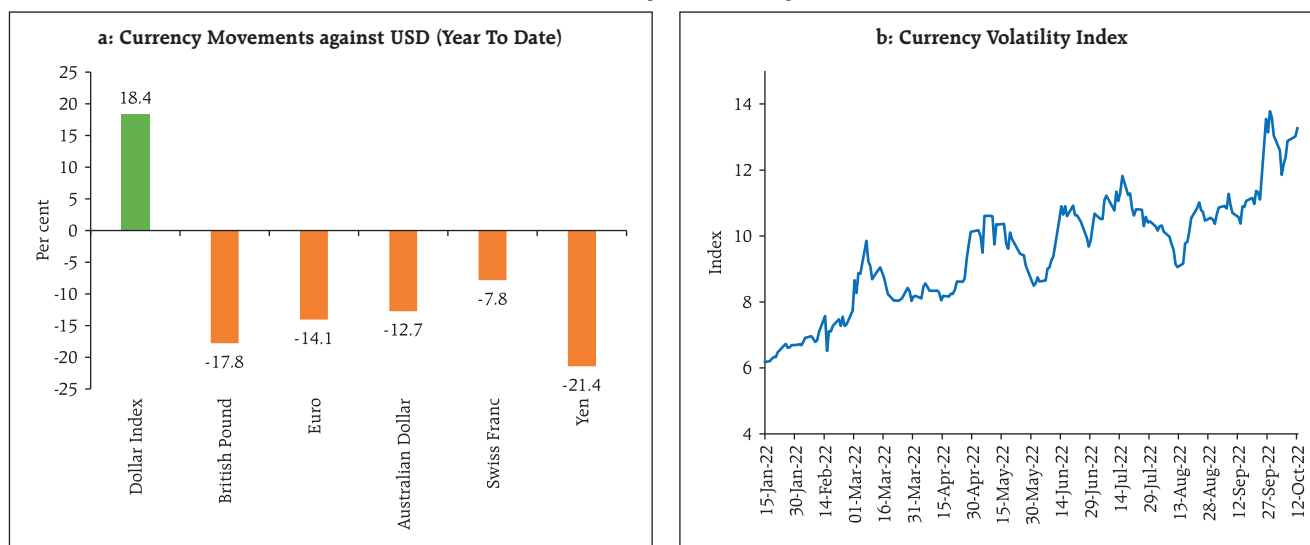
⁹ BRICS stands for Brazil, Russia, India, China and South Africa.

Chart 6: Financial Markets

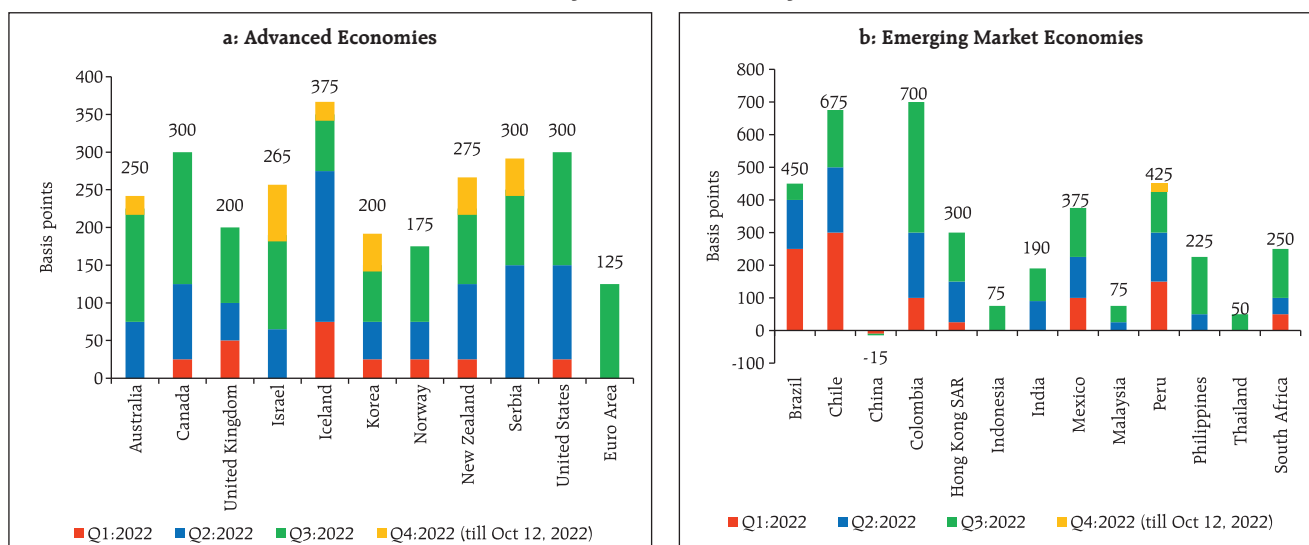
Sources: Bloomberg; and IIF.

Volatility Index –historical volatility index of the major G7 currencies – reached a multi-month high

in October as central banks continue withdrawing liquidity.

Chart 7: Currency Market gyrations

Source: Bloomberg.

Chart 8: Synchronous Policy Hikes

Source: BIS.

Central banks of most AEs and EMEs continued with synchronised monetary tightening to break the back of entrenched inflation pressures (Chart 8). During the month of September, the Federal Reserve increased its target range of the federal funds rate by 75 bps, its third consecutive 75 bps hike, with projections showing that the benchmark rate would rise to 4.4 per cent by the end of this year before peaking at 4.6 per cent next year. The European Central Bank (ECB) and Bank of Canada also front-loaded their monetary policy actions with 75 bps rate hikes. Sweden hiked its policy rate by 100 bps and Switzerland ended Europe's negative rate era with a 75 bps rate increase. The UK, South Korea and New Zealand raised their policy rates by 50 bps each while Australia and Iceland raised their policy rates by 25 bps each in their latest meetings. Japan, on the other hand, has continued to diverge by maintaining an accommodative stance.

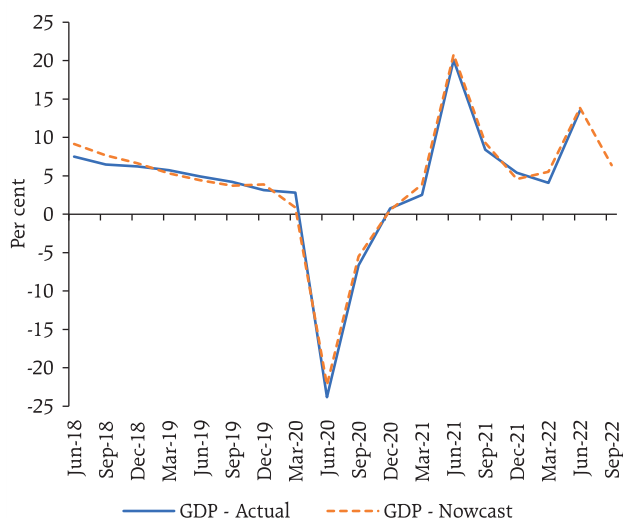
Most EME central banks have also continued with policy tightening. Hungary, Chile and Thailand

raised their policy rates by 125 bps, 50 bps and 25 bps, respectively, in their latest meetings. In contrast to other EMEs, Turkey cut its rate by 100 bps each in August and September and China remained accommodative while Brazil and Czech Republic have maintained a pause in their latest meetings.

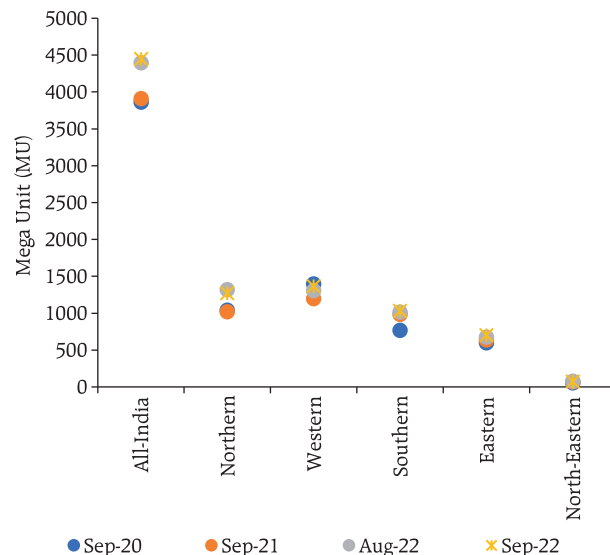
III. Domestic Developments

In an uncertain and fragile global economic environment, the Indian economy showed resilience. Indicators of aggregate demand indicate that the onset of the festive season and pent-up demand kept growth impulses strong. Our economic activity index that employs a dynamic factor model (DFM) with 27 high frequency indicators nowcasts GDP growth for Q2: 2022-23 at 6.4 per cent (Chart 9).

Several high-frequency indicators remain upbeat. The withdrawal of the south west monsoon has aided travel, hospitality and construction sectors. Electricity generation picked up in September (Chart 10).

Chart 9: GDP: Actual and Nowcast

Source: RBI staff estimates.

Chart 10: Electricity Generation

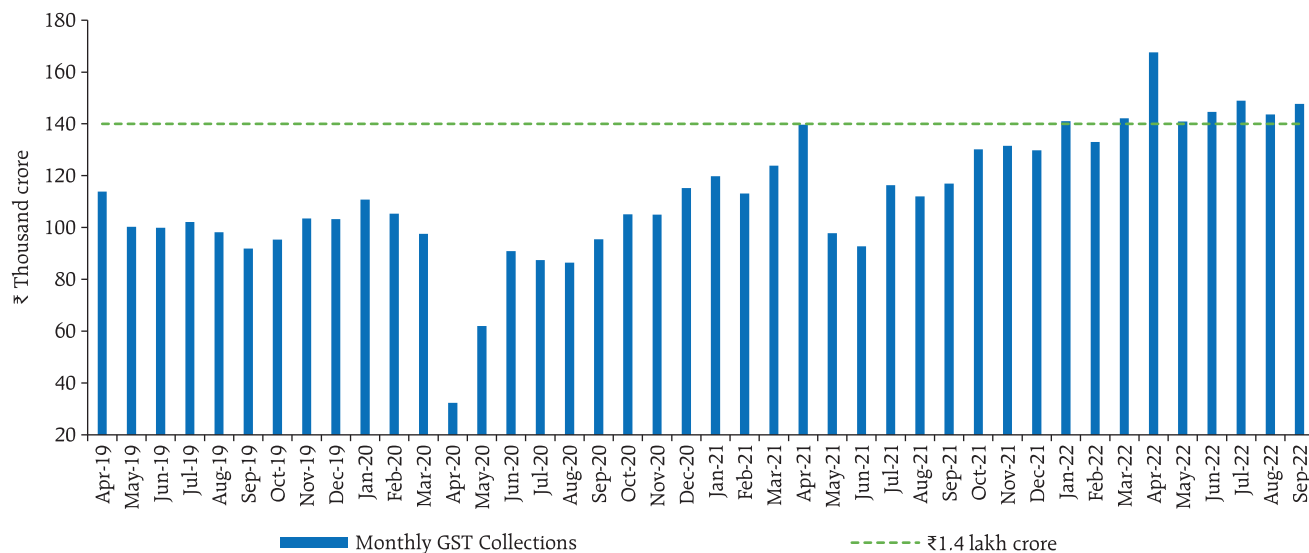
Source: Power System Operation Corporation Limited.

GST collections (Centre *plus* states) recorded a robust year-on-year (y-o-y) growth of 26.2 per cent and stood at ₹1.48 lakh crore in September 2022, surpassing ₹1.4 lakh crore for the seventh consecutive month (Chart 11).

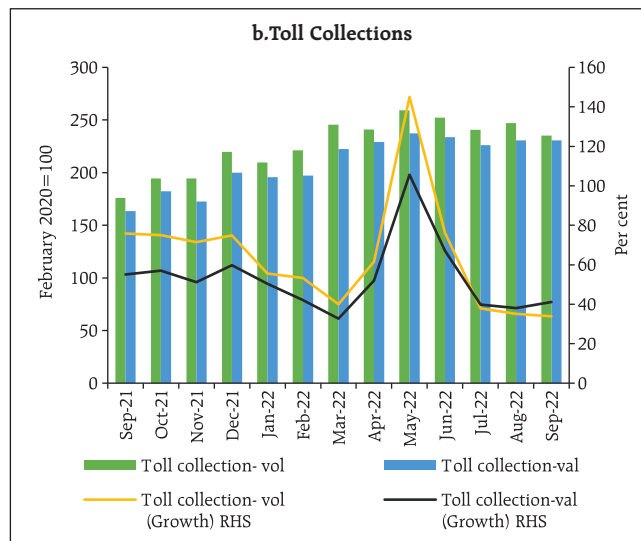
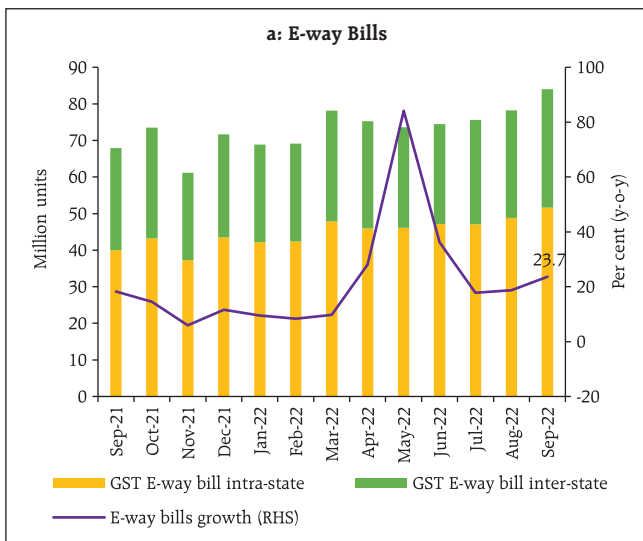
E-way bills generation recorded an all-time high of 84 million in September, on the back of increased

economic and trading activity in the economy induced by festive season (Chart 12a). Toll collections too grew strongly both in volume and value terms (Chart 12b).

Fuel consumption moderated across all categories in September due to seasonal maintenance of refineries (Chart 13a). Pent-up demand and easing of chip shortage elevated automobile wholesale

Chart 11: Monthly GST Revenue

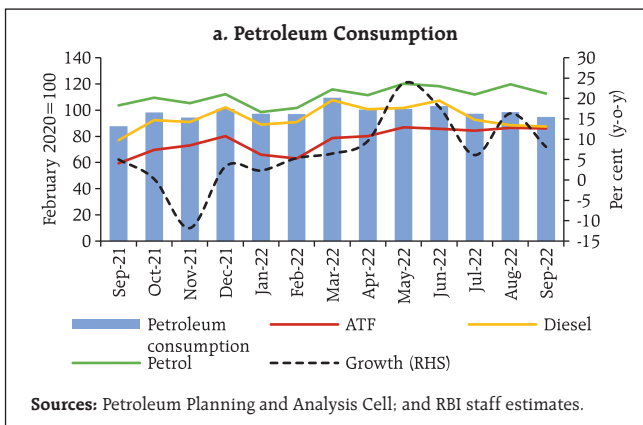
Source: Press Information Bureau (PIB).

Chart 12: E-way Bills and Toll Collections

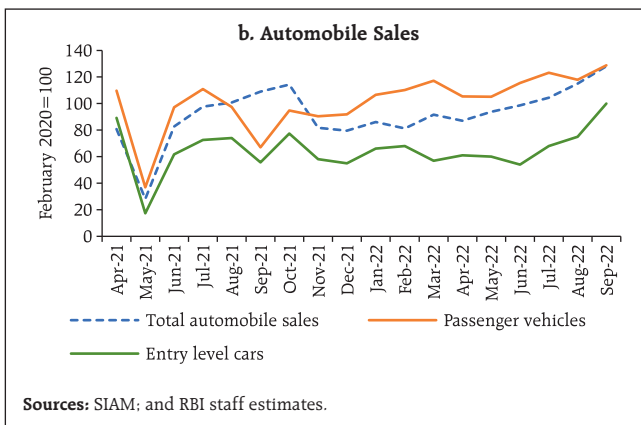
Sources: GSTN; RBI; and RBI staff estimates.

dispatches to eleven-month high in September. This led to normalisation of sales for the entry level car

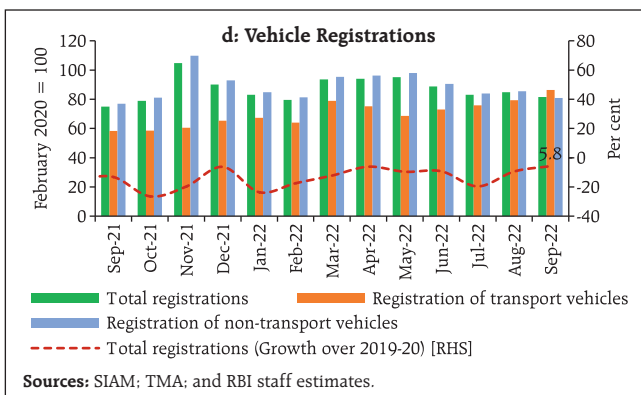
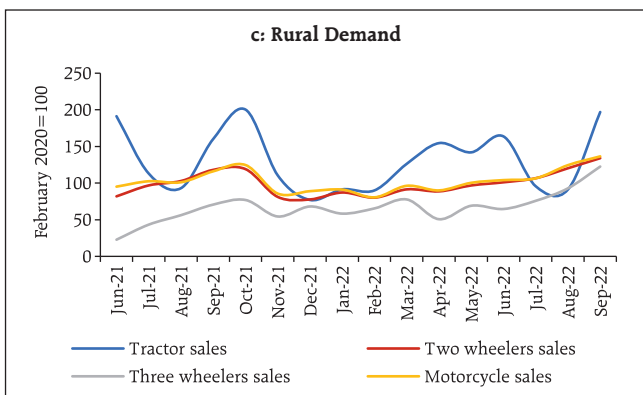
segment and three-wheelers to pre-pandemic levels (Chart 13b).

Chart 13: Automobile Sector Indicators

Sources: Petroleum Planning and Analysis Cell; and RBI staff estimates.



Sources: SIAM; and RBI staff estimates.

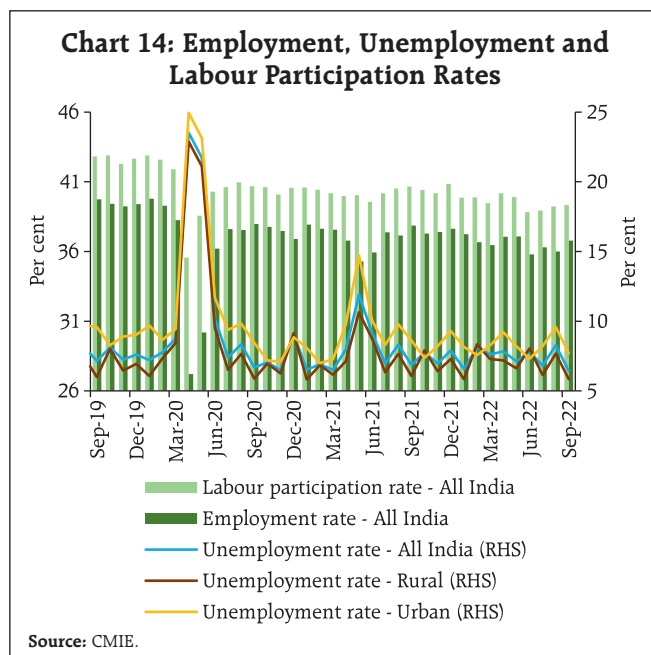


Sources: SIAM; TMA; and RBI staff estimates.

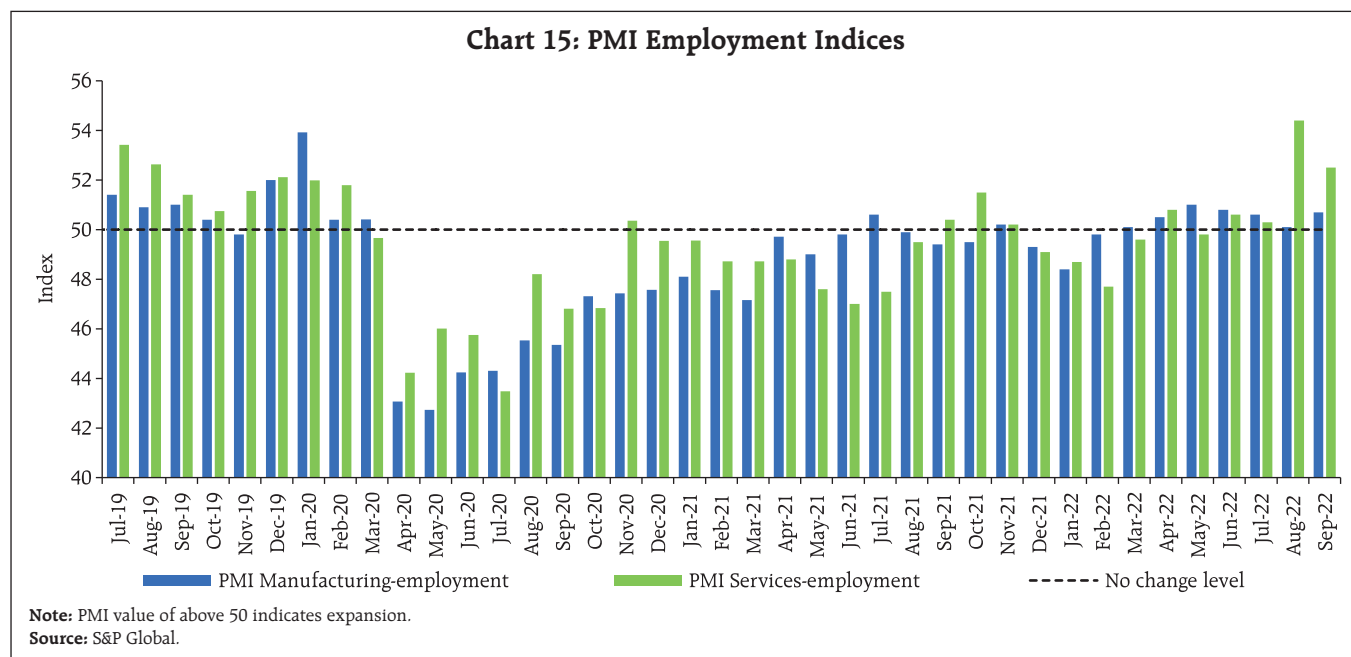
Rural demand indicators picked up, with domestic sales of two wheelers, three wheelers and motorcycles increasing y-o-y as well as over pre-pandemic levels. Domestic tractor sales picked up sharply to an eleven-month high in September (Chart 13c). As per Federation of Automobile Dealers Associations (FADA), commercial vehicle sales registrations also increased in September, led by an increase in sales of heavy commercial vehicles due to bulk fleet purchases (Chart 13d).

Sales of fast-moving consumer goods (FMCG) products increased by 12 per cent (y-o-y), driven by double digit growth in commodities and packaged food. Price corrections led to a sequential decline in value growth in September 2022, even as volume growth sustained in both urban and rural areas.

As per the household survey of the Centre for Monitoring Indian Economy (CMIE), the unemployment rate fell to 6.4 per cent in September 2022, the lowest since August 2018 against the backdrop of a marginal improvement in labour participation and an increase in the employment rate to 36.8 per cent – the highest in the last four months (Chart 14).



In terms of the organised sector employment outlook, the purchasing managers' index (PMI) employment sub-index for manufacturing picked up registering an expansion for the seventh consecutive month. The services sector employment PMI remains in the expansionary zone for the fourth consecutive month *albeit* moderating from a 14-year high last month (Chart 15).

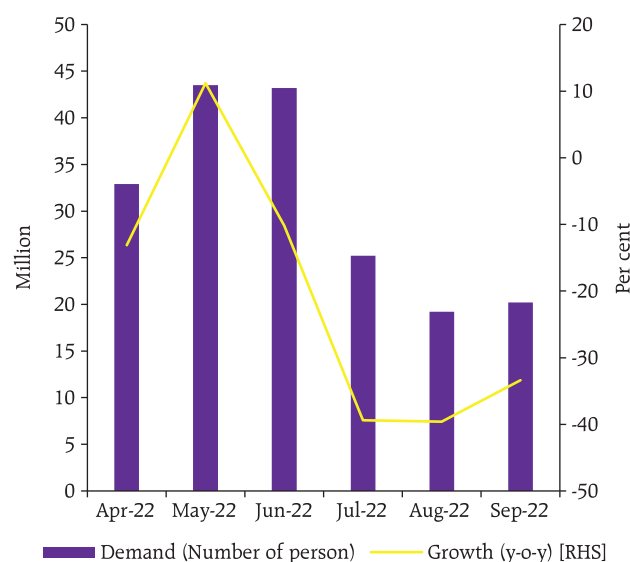


In rural areas, demand for work under the Mahatma Gandhi National Rural Employment Act (MGNREGA) increased marginally in September, reflecting the ebbing of *Kharif* sowing. On a y-o-y basis, it declined by 33.4 per cent, indicating availability of better employment opportunities in the non-farm sector (Chart 16).

India's merchandise exports at US\$ 35.4 billion recorded growth of 4.8 per cent on y-o-y basis, despite a sequential decline of 3.8 per cent in September, reflecting the knock-on effects of slowing external demand (Chart 17). During H1:2022-23 as a whole, however, merchandise exports at US\$ 231.9 billion posted a robust growth of 17.0 per cent.

In terms of broad categories, petroleum exports increased on y-o-y basis, reflecting the impact of the reduction of export taxes on petroleum products. Non-oil exports, on the other hand, contracted for the second consecutive month in September 2022. Engineering goods, constituting around a fourth of the export basket, declined for the third consecutive month, reflecting the impact of the export tax imposed on iron and steel products (Table 2). Textiles and cotton yarn were the other

Chart 16: Demand for Work under the MGNREGS

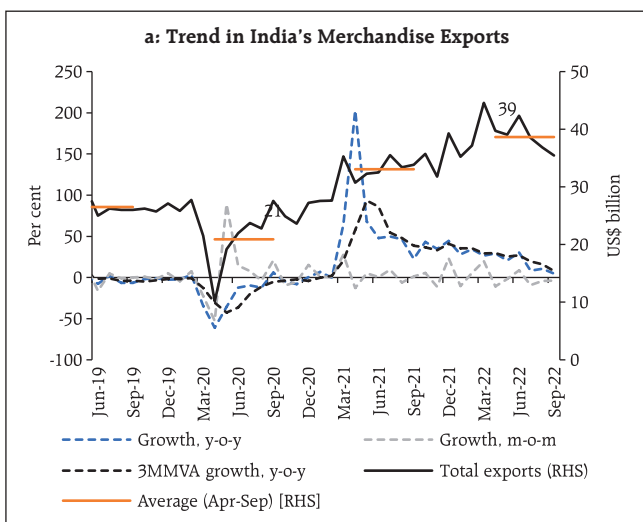


Sources: Government of India; and RBI staff estimates.

major groups which contracted on both sequential and y-o-y bases.

Robust performance was recorded by exports of electronic goods and gems and jewellery, the latter benefitting from strong demand in the UAE post implementation of the Comprehensive Economic Partnership Agreement (CEPA).

Chart 17: India's Merchandise Exports – September 2022



Note: 3MMVA stands for three-month moving value average.
Sources: PIB; DGCI&S; and RBI staff estimates.

b: Decomposition of Sequential Change in y-o-y Export Growth

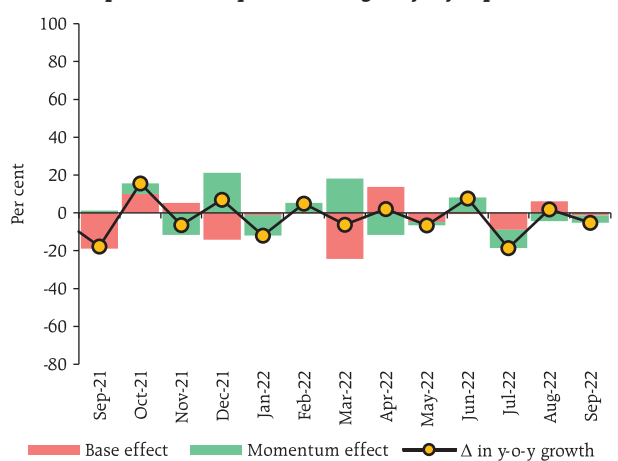


Table 2: Top 10 Export Commodities

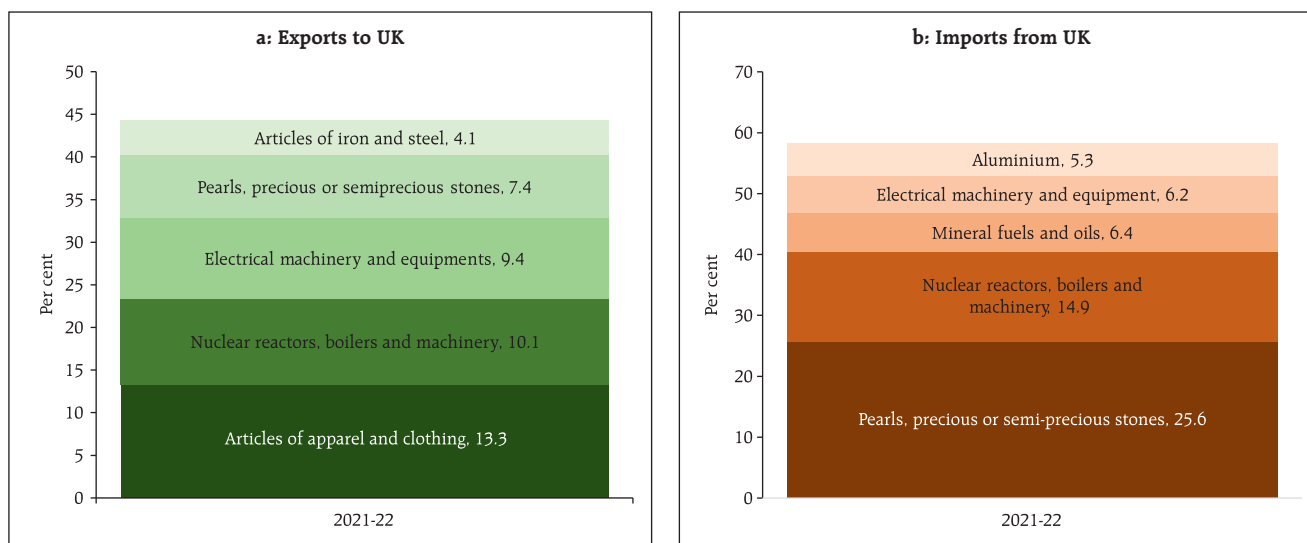
Top 10 Commodity Group	September 2022				April-September 2022	
	Share (per cent)	US\$ Bn	Y-o-Y Growth (per cent)	M-o-M Growth	US\$ Bn	Y-o-Y Growth (per cent)
Engineering goods	24	8.4	-10.9	1.2	55.0	0.9
Petroleum products	18	7.4	43.0	-12.5	51.2	79.3
Gems and Jewellery	11	3.8	17.3	13.9	20.6	6.9
Organic and Inorganic chemicals	7	2.4	3.0	-6.1	15.9	14.0
Drugs and Pharmaceuticals	6	2.2	6.9	2.4	12.7	6.0
Electronic goods	6	2.0	72.0	16.7	10.3	57.6
RMG of all Textiles	3	1.1	-18.1	-13.6	8.2	11.4
Cotton Yarn/Fabs./Madeups, Handloom products etc.	2	0.8	-39.0	-9.5	5.8	-20.6
Rice	2	0.8	1.6	-23.9	5.5	18.5
Marine products	2	0.7	6.3	8.7	4.1	7.4
Total of 10 Major Commodity Groups	84	29.6	7.8	-2.5	189.3	19.0
Total Exports	100.0	35.4	4.8	-3.8	231.9	17.0

Source: MoCI.

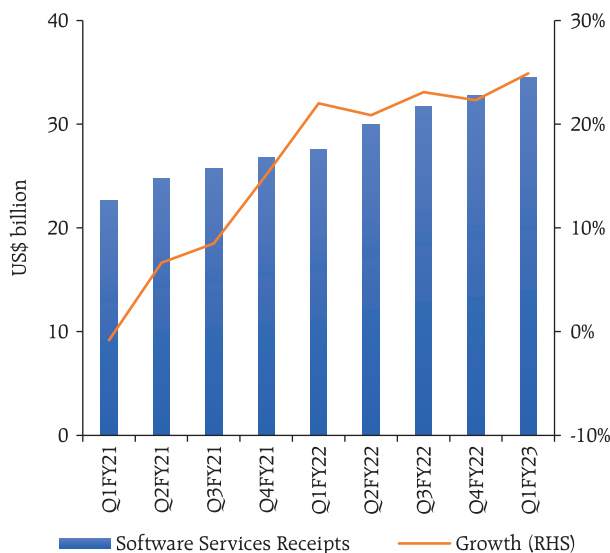
India and UK initiated free trade agreement (FTA) negotiations in January 2022. The fifth round of talks concluded in July 2022. India runs a merchandise trade surplus with the UK, with the major exports being apparel and clothing, machinery, pearls, precious and semi-precious stones, whereas key items imported

from UK are stones, nuclear reactors, mineral fuels and oils (Chart 18).

Exports of software services have been seeing steady growth of more than 20 per cent since Q1:2021-22, partly boosted by strong forward external trade linkages as reflected in the export intensity of foreign

Chart 18: India's Merchandise Trade with UK

Source: Bloomberg.

Chart 19: Software Services Receipts

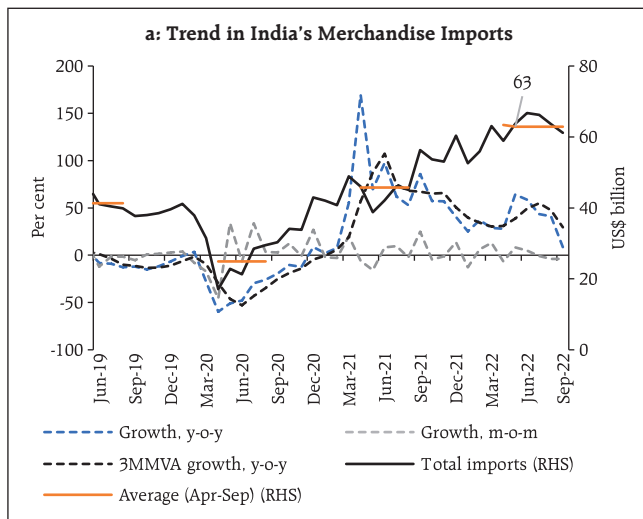
Source: RBI.

subsidiaries in India in the information technology (IT) sector alongside waning import intensity (Chart 19)¹⁰. Computer services account for over two-

thirds of total software services exports. As per the Reserve Bank's annual survey on exports of computer software and information technology enabled services (ITES) 2021-22, North America accounts for more than a half of total software exports, followed by Europe¹¹. IT and business process outsourcing (BPO) services have been resilient in the pandemic.

India's merchandise imports remained above US\$ 60 billion for the fifth consecutive month in September 2022, however import growth moderated to 8.7 per cent on a y-o-y basis and declined sequentially by 3.8 per cent (Chart 20). During H1:2022-23, imports were US\$ 380.3 billion, growing by 38.6 per cent.

An analysis of the top 10 major commodity groups reveals that items such as crude products, electronic goods, machinery and chemicals witnessed contraction on a sequential basis in September (Table 3).

Chart 20: India's Merchandise Imports – September 2022

Note: 3MMVA stands for three month moving value average.

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

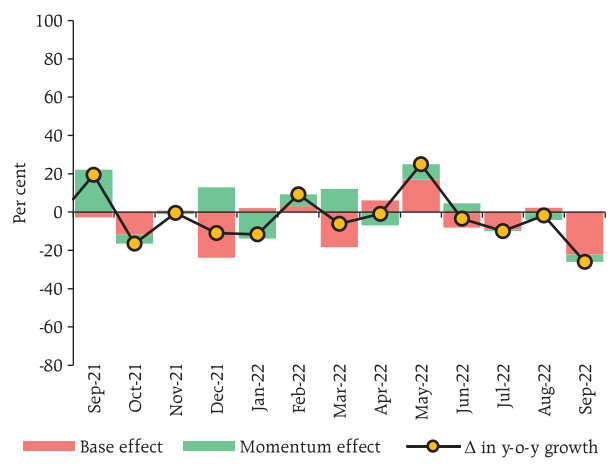
b: Decomposition of Sequential Change in y-o-y Import Growth¹⁰ Census on Foreign Liabilities and Assets of Indian Direct Investment Entities: 2021-22;https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=54408¹¹ Survey on Computer Software and Information Technology Enabled Services Exports: 2021-22;https://rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=54338

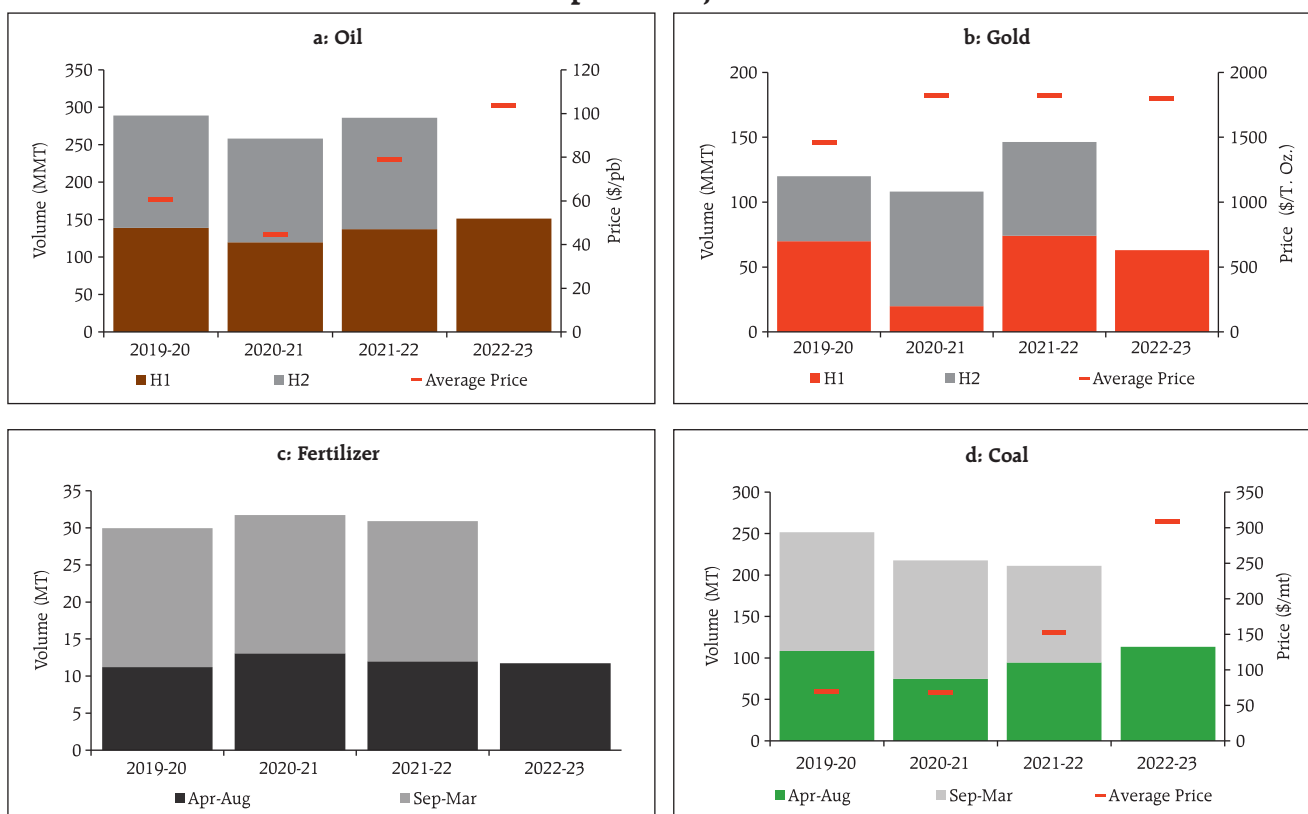
Table 3: Top 10 Import Commodities

Top 10 Commodity Group	September 2022				April - September 2022	
	Share (per cent)	US\$ Bn	Y-o-Y Growth (per cent)	M-o-M Growth (per cent)	US\$ Bn	Y-o-Y Growth (per cent)
Petroleum, Crude & products	26	15.9	-5.4	-17.9	115.3	65.8
Electronic goods	12	7.1	3.8	-2.2	39.9	24.4
Gold	6	3.9	-24.6	8.3	20.3	-15.2
Machinery, electrical & non-electrical	6	3.7	16.5	-4.3	21.9	20.8
Coal, Coke & Briquettes, etc.	6	3.5	60.8	-22.3	30.3	153.6
Transport equipment	5	2.9	65.6	82.6	11.6	27.2
Pearls, precious & Semi-precious stones	4	2.7	3.4	10.1	16.6	12.7
Organic & Inorganic Chemicals	4	2.5	0.4	-15.7	18.8	34.0
Vegetable Oil	3	2.0	-2.1	3.6	11.1	25.4
Iron & Steel	3	1.9	39.2	6.4	10.0	29.8
Total of 10 Major Commodity Groups	75	46.0	3.8	-6.5	295.7	40.8
Total Imports	100.0	61.2	8.7	-3.8	380.3	38.6

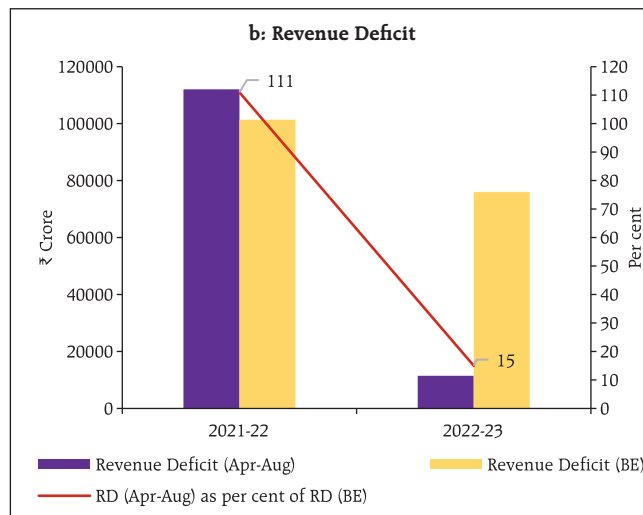
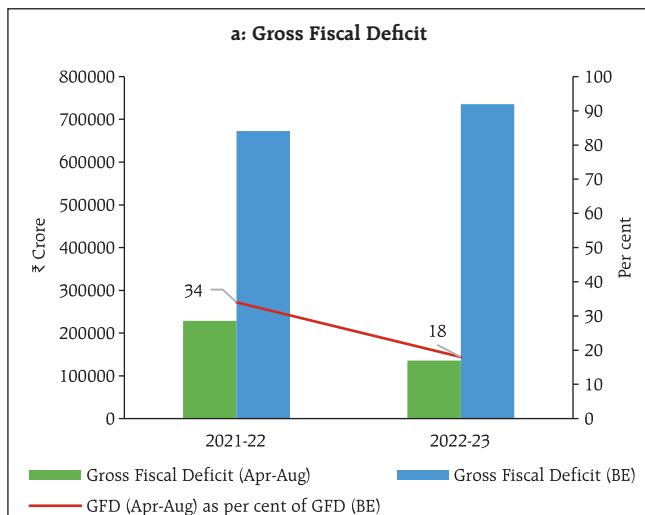
Source: MoCI.

During April-September 2022-23 import of oil, gold, fertiliser, and coal, which together accounts for around 41 per cent of India's total imports,

recorded a robust growth, both in value and volume terms, exerting further pressure on the trade deficit (Chart 21).

Chart 21: Import of Major Commodities

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

Chart 22: Trends in Budgetary Deficits of the States during April-August

Note: The data pertains to 22 States.

Source: Comptroller and Auditor General of India (CAG), Budget Documents of the States.

India's trade deficit at US\$ 25.7 billion in September 2022 was marginally lower on a sequential basis but was about 14.4 per cent higher than a year ago.

The fiscal parameters of states improved during April-August 2022-23, with moderation in both the gross fiscal deficit (GFD) and the revenue deficit (RD) – both in absolute terms as well as proportions to budget estimate (BE) (Chart 22).

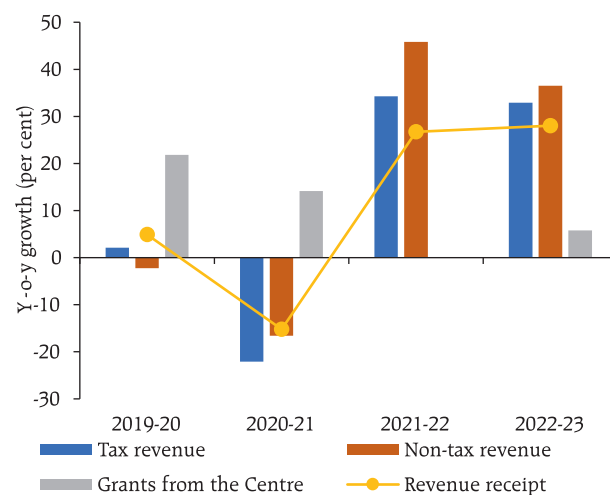
This consolidation has been achieved primarily through the growth in revenue receipts by 28 per cent. Tax revenue, which accounted for 76 per cent of the revenue receipts in this period, grew at a robust pace of 32.9 per cent on the back of buoyant SGST collections and a sharp increase in tax devolution from the Centre (Chart 23). Non-tax revenue also posted a healthy y-o-y growth.

Turning to states, capital outlay grew at a modest rate of 6.5 per cent during this period, recovering from a decline in Q1:2022-23. With strong growth in revenue receipts, pick up in interest-free 50-year loans under the scheme of Special Assistance to States for Capital Investment, and front-loading of tax devolution by

the Centre, states are expected to step up their capital outlay in the latter half of 2022-23.

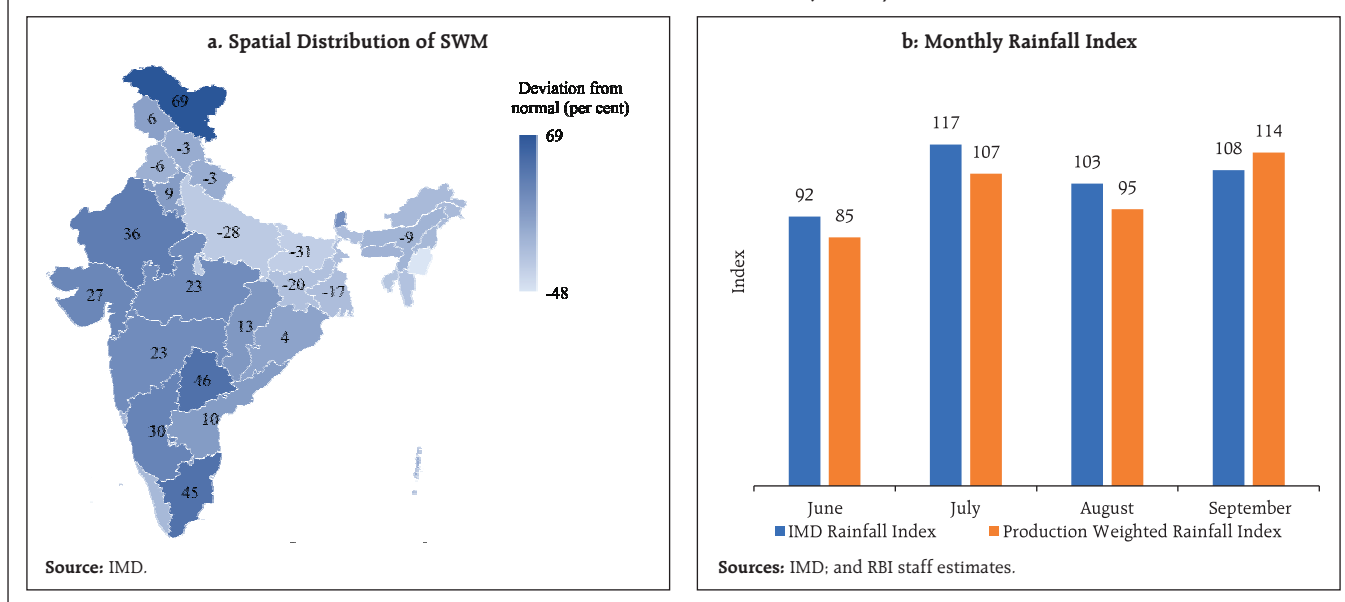
Aggregate Supply

The southwest monsoon (SWM) has begun to gradually withdraw from the Indian subcontinent. The total rainfall during the season (June 1 - September 30, 2022) was 6 per cent above the long period (1971-

Chart 23: Trends in Revenue Receipts of the States during April-August

Note: The data pertains to 22 States.

Source: Comptroller and Auditor General of India.

Chart 24: South West Monsoon (SWM) 2022

2020) average (LPA). Despite an early start, however, the temporal and spatial distribution of rainfall was uneven (Chart 24a). Geographically, except for east and north-east India (-18 per cent), all other regions of the country received above normal rainfall. Thirty out of the 36 meteorological sub-divisions recorded normal to above normal rainfall. The production-weighted rainfall index (PRN) stayed below the aggregate rainfall index of the Indian Meteorological Department (IMD) except for the month of September (Chart 24b). *Kharif* sowing caught up substantially in September and by the end of the month, the total sown area was 1102.8 lakh hectares, which was 1.8 per cent higher than the normal sown area but marginally lower by 0.8 per cent than last year's average.

The first advance estimates (1st AE) of the production of *Kharif* foodgrains for the year 2022-23 was placed at 149.9 million tonnes, which is lower by 0.4 per cent and 3.9 per cent over the first and fourth advance estimates for 2021-22 respectively. The lower production reflects the impact of uneven spatial and temporal distribution of the south-west monsoon with rice and oilseeds being most affected on account of the rainfall deficit in the major production regions

(Chart 25). However, sugarcane and maize are estimated to touch record levels of production for the third and fourth consecutive years, respectively.

The procurement of rice during the *Kharif* marketing season 2021-22 (up to October 13, 2022) at 592.7 lakh tonnes was lower by 1.4 per cent (y-o-y). The new *Kharif* marketing season 2022-23 has commenced with the procurement of 28.8 lakh tonnes so far. As per

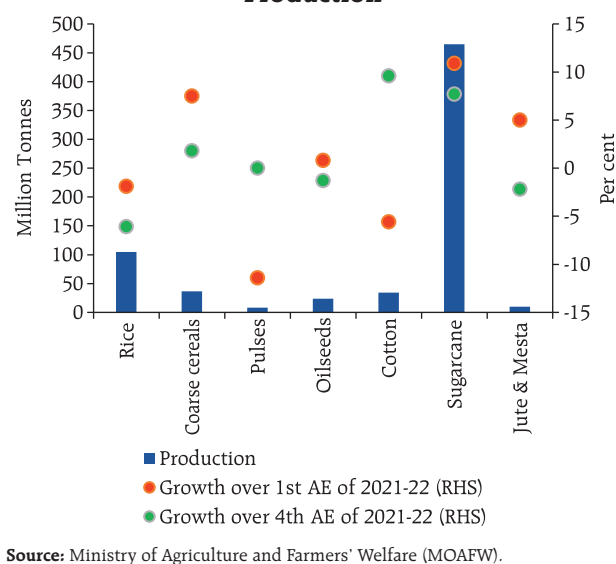
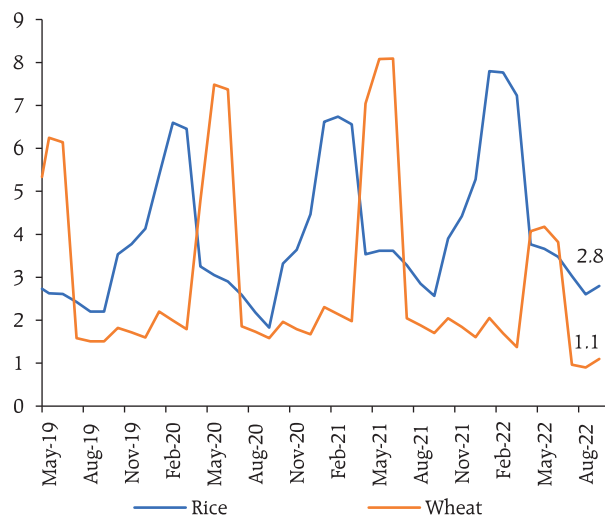
Chart 25: First Advance Estimates of Crop Production

Chart 26: Stock to Norm Ratio for Rice and Wheat

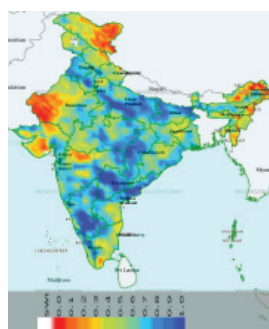
Source: FCI.

the quarterly buffer norms (October-December), stock levels of rice remained comfortable (2.8 times) as of

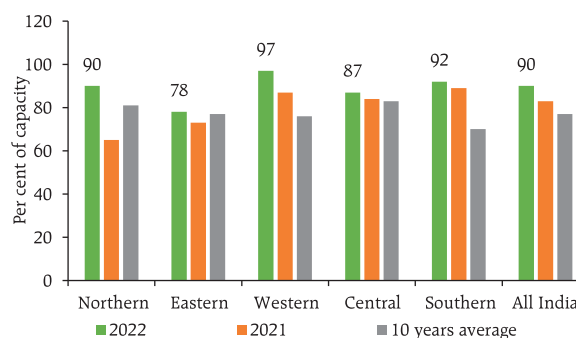
October 01, 2022. In the case of wheat, the cumulative procurement of 187.9 lakh MT led to a total stock of 227.5 lakh MT which is 1.1 times; marginally above the prescribed buffer norms for the ongoing quarter (Q3:2022-23) (Chart 26).

The late revival of the south-west monsoon augurs well for the *Rabi* season. The surplus rainfall during July-September led to congenial soil moisture levels and reservoir storage conditions (Chart 27a). As on October 13, the reservoir level stood at 90 per cent of the full capacity, in comparison to last year's level of 83 per cent and the decadal average of 77 per cent (Chart 27b). The availability of all major fertiliser groups and seed categories is in surplus, further brightening *Rabi* prospects (Chart 27c & 27d).

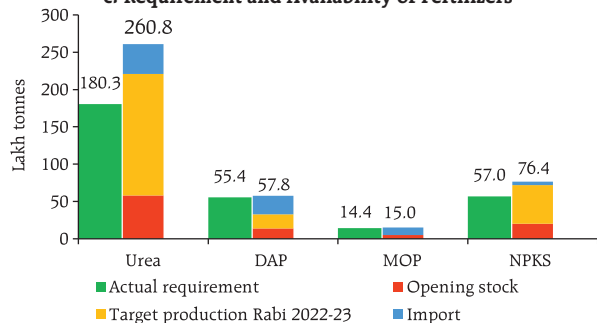
In order to ensure adequate food security among the poor and vulnerable sections of the country, the Union Government has extended the "Pradhan Mantri

Chart 27: Rabi 2022-23 – Preparedness and Prospects**a: Soil Moisture Index**

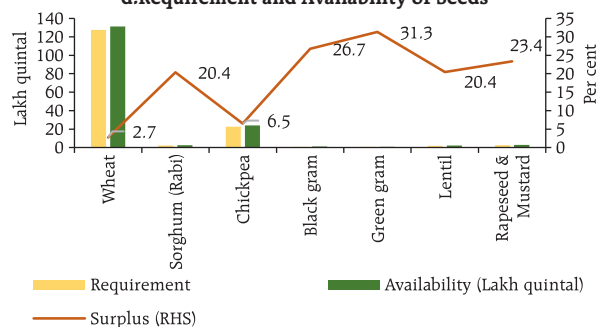
Sources: Indian Space Research Organisation (ISRO).

b. Reservoir level (October 13, 2022)

Sources: Central Water Commission.

c: Requirement and Availability of Fertilizers

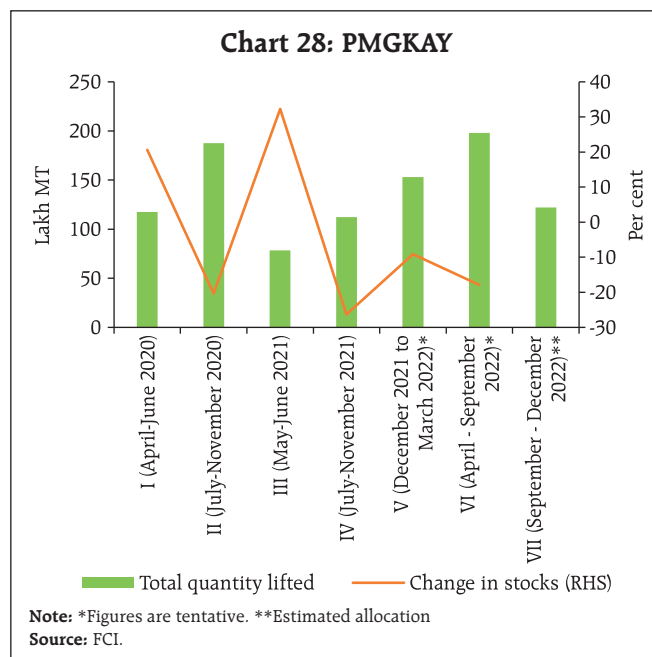
Sources: Ministry of Agriculture and Farmers' Welfare (MOAFW).

d: Requirement and Availability of Seeds

Sources: Ministry of Agriculture and Farmers' Welfare (MOAFW).

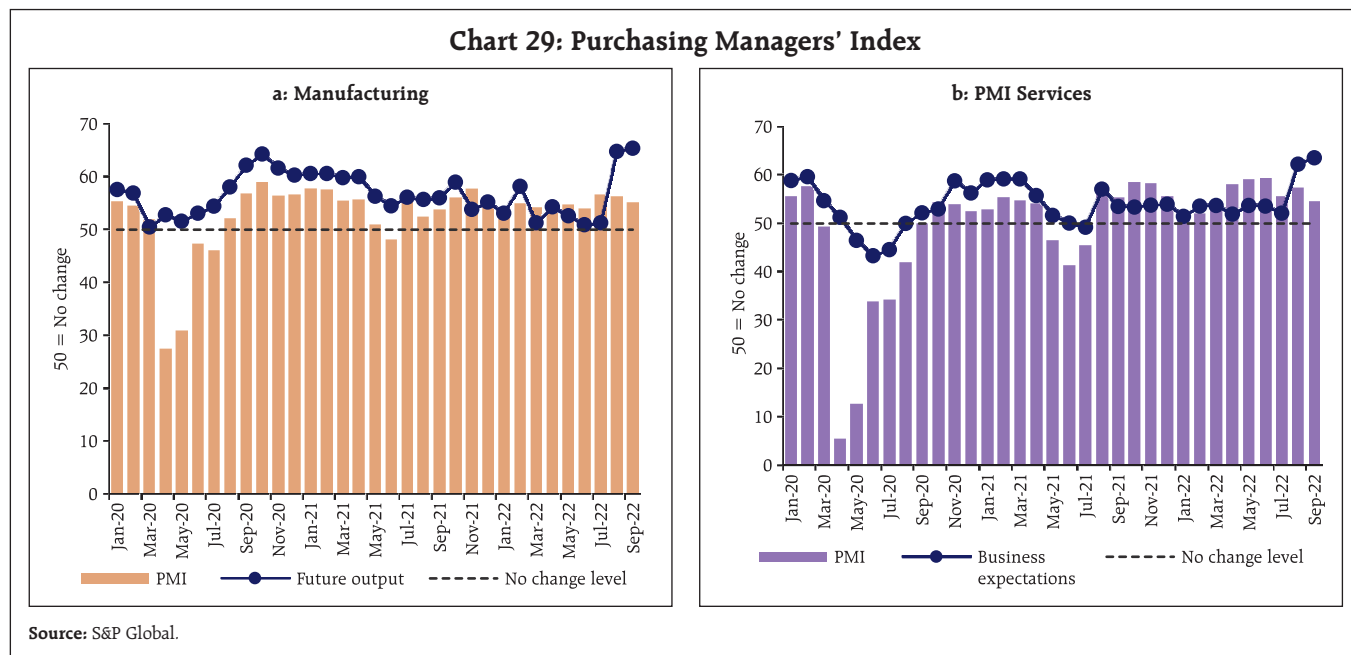
Garib Kalyan Anna Yojana (PMGKAY-Phase VII)" till December. With a food grain offtake target of 122 lakh metric tonnes (LMT), this entails an additional outlay expenditure of ₹44,762 crore. Under phases I to VI, approximately a total of 927.8 LMT of food grains (576.2 LMT rice and 351.6 LMT Wheat) has been lifted so far (Upto September 18, 2022) (Chart 28).

In the industrial sector, the headline manufacturing purchasing manager's index (PMI) remained in the expansionary zone *albeit* at a lower pace as compared with the previous two months. Future output expectations were the highest since February 2015 while the input prices sub-component expanded at the slowest pace since October 2020, reflecting the recent fall in commodity prices (Chart 29a). Services PMI signaled strengthening of business expectations for the second consecutive month, climbing to its highest value since January 2015. Headline PMI services remained in the expansionary zone *albeit* moderated marginally from last month under the impact of sustained input price

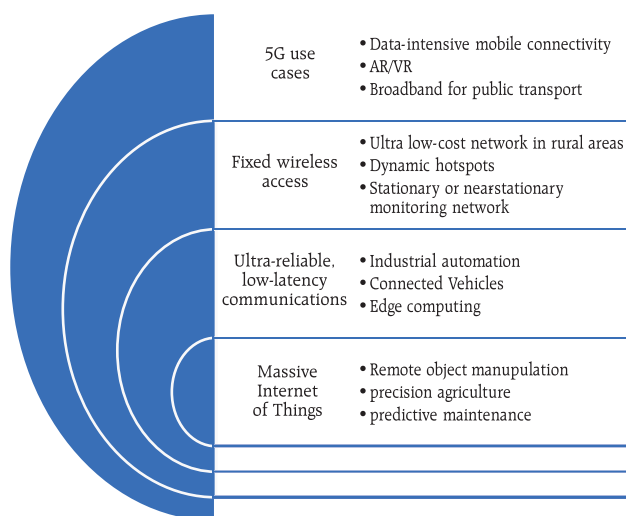


pressures, increasingly competitive environment, and interest rate hikes by advanced economies (Chart 29b).

Higher post-tax profits¹² recorded by the listed non-financial private corporate sector have helped



¹² The Government of India reduced the corporate tax for the domestic companies in September 2019. Domestic company was given an option to pay income tax at 22 per cent as against 30 per cent, while new domestic manufacturing companies can pay corporate tax at 15 per cent down from the existing 25 per cent if no exemption is claimed. Our estimates assess an impact of 60 bps on net profitability by this taxation change.

Chart 30: 5G Use Cases and Example Applications

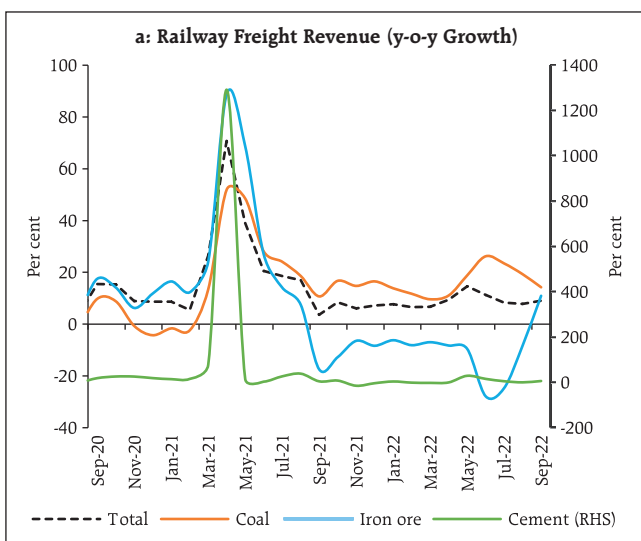
Source: RBI staff estimates.

it to maintain leverage and resilient performance. High-frequency data for the second quarter reflect sustained demand conditions supporting corporate sector performance. The credit ratio¹³ as measured by number of upgrades *versus* downgrades remained high at 5.5 times in the first half of 2022-23 (five times

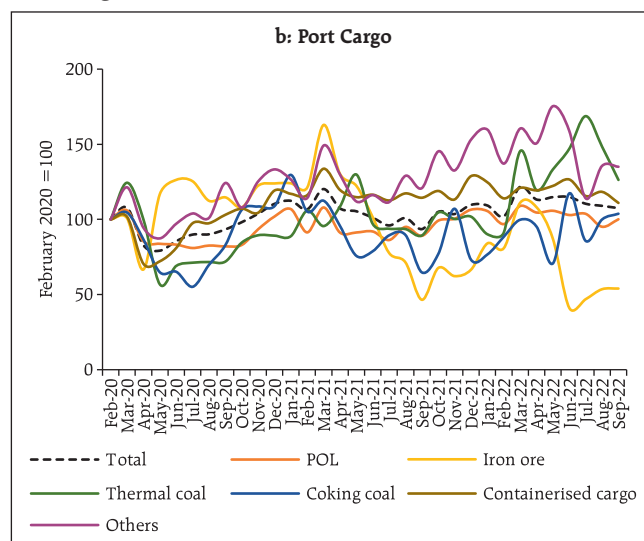
during H2:2021-22), pointing to the ongoing broad-based improvement in India Inc's credit quality. The recent sharp moderation in international commodity prices bodes well for corporate profitability.

As per the estimates of Global System for Mobile Communications Association (GSMA), the adoption of 5G, which is likely to account for more than a third of total connections in India by 2030, is expected to contribute around US\$455 billion to the Indian economy (0.6 per cent of GDP by 2040). The high 4G adoption rate (79 per cent) will provide a conducive environment for a faster 5G transition, crucial for industrial automation, connected vehicles, predictive maintenance and precision agriculture (Chart 30).

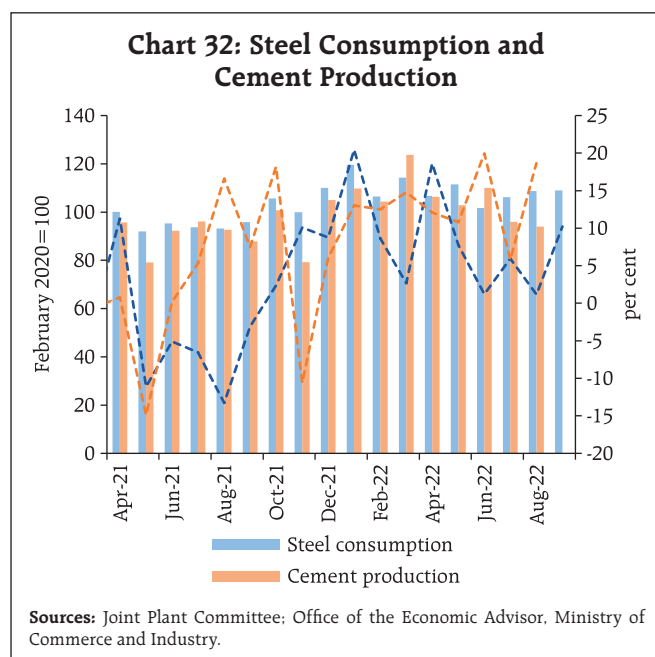
In the services sector, transport sector indicators remained in expansion, with railway freight traffic earnings growing by 9.1 per cent (y-o-y) in September 2022 as compared to 7.9 per cent in the previous month (Chart 31a). While coal and iron ore dispatches recorded double-digit growth annually, food grains and pig iron declined. Cargo traffic at major ports recorded slight moderation in September owing to

Chart 31: Railway and Cargo Traffic

Source: Indian Ports Association.



¹³ <https://www.crisil.com/en/home/newsroom/press-releases/2022/10/corporate-credit-quality-continues-to-be-strong-in-the-first-half.html>



a decrease in containerized cargo and fertilizer raw material tonnage (Chart 31b).

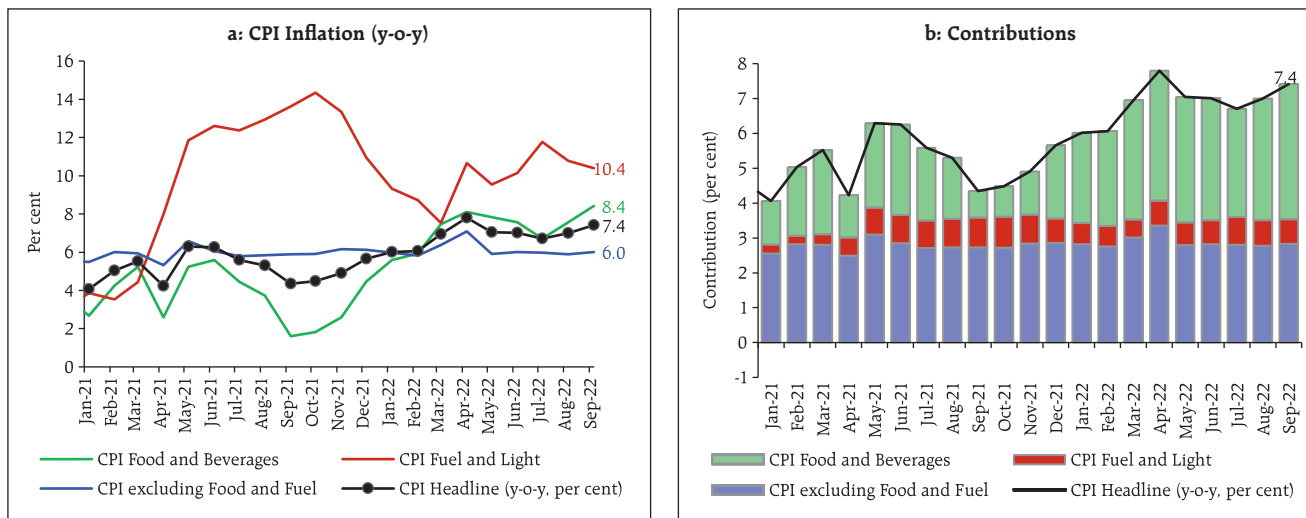
In the construction sector, cement production and steel consumption continued to show an uptick. Steel consumption recorded a sustained growth over pre-pandemic levels for a year now, while cement production moderated in August as the extended monsoon slowed down construction activity, yet it recorded a double-digit growth over August 2019 (Chart 32).

In October (up-to 12th October), activity in the passenger segment increased on a m-o-m basis, with a pick-up in festive demand in the domestic passenger segment. The cargo segment, however, contracted for both domestic and international freight (Table 4).

Table 4: High Frequency Indicators- Services

Sector	Indicator	High Frequency Indicators- Services Growth (y-o-y, per cent)				Growth over 2019			
		Jun-22	Jul-22	Aug-22	Sep-22	Jun-22/ Jun-19	July-22/ July-19	Aug-22/ Aug-19	Sep-22/ Sep-19
Urban Demand	Passenger Vehicles Sales	19.1	11.1	21.1	91.9	31.6	54.6	48.7	42.9
Rural Demand	Two Wheeler Sales	23.4	9.6	17.0	12.9	-20.7	-8.6	2.9	4.7
	Three Wheeler Sales	183.9	72.8	65.3	73.4	-48.5	-43.8	-34.8	-23.7
	Tractor Sales	-14.4	-15.3	-1.9		24.5	21.2	42.2	
Trade, hotels, transport, communication	Commercial Vehicles Sales	112.2	39.4			7.8	38.6		
	Railway Freight Traffic	11.3	8.3	7.9	9.1	23.7	22.5	31	30.6
	Port Cargo Traffic	12.2	15.1	8.6	15.0	14.6	6.9	8.6	13
	Domestic Air Cargo Traffic	40.4	18.8	4.8		4.4	-1.6	-9	
	International Air Cargo Traffic	0.5	-1.5	-5.0		-5.1	-9.4	-10.2	
	Domestic Air Passenger Traffic	247.9	97.9	54.9		-10.5	-17.1	-12.9	
	International Air Passenger Traffic	753.6	487.7	256.9		-21.5	-18.1	-19.8	
	GST E-way Bills (Total)	36.2	17.8	18.7	23.7	49.7	44.9	52.7	60.3
	GST E-way Bills (Intra State)	38.6	19.8	22.5	28.9	58.7	51.5	62.6	71.5
	GST E-way Bills (Inter State)	32.2	14.7	12.9	16.2	36.4	35.2	38.7	45.3
	Tourist Arrivals	1349.2	783.9	-37.8		-28	-21.7	-37.8	
Construction	Steel Consumption	6.4	13.0	13.0	10.1	1.2	5.9	1.2	10.2
	Cement Production	19.7	0.5	1.8		19.9	5.8	18.6	
PMI Index	Manufacturing	53.9	56.4	56.2	55.1				
	Services	59.2	55.5	57.2	54.3				

Sources: CMIE; CEIC data; IHS Markit; SIAM; Airports Authority of India; and Joint Plant Committee.

Chart 33: Trends and Drivers of CPI Inflation

Note: CPI inflation for April-May 2021 was computed based on imputed CPI indices for April-May 2020.

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

Inflation

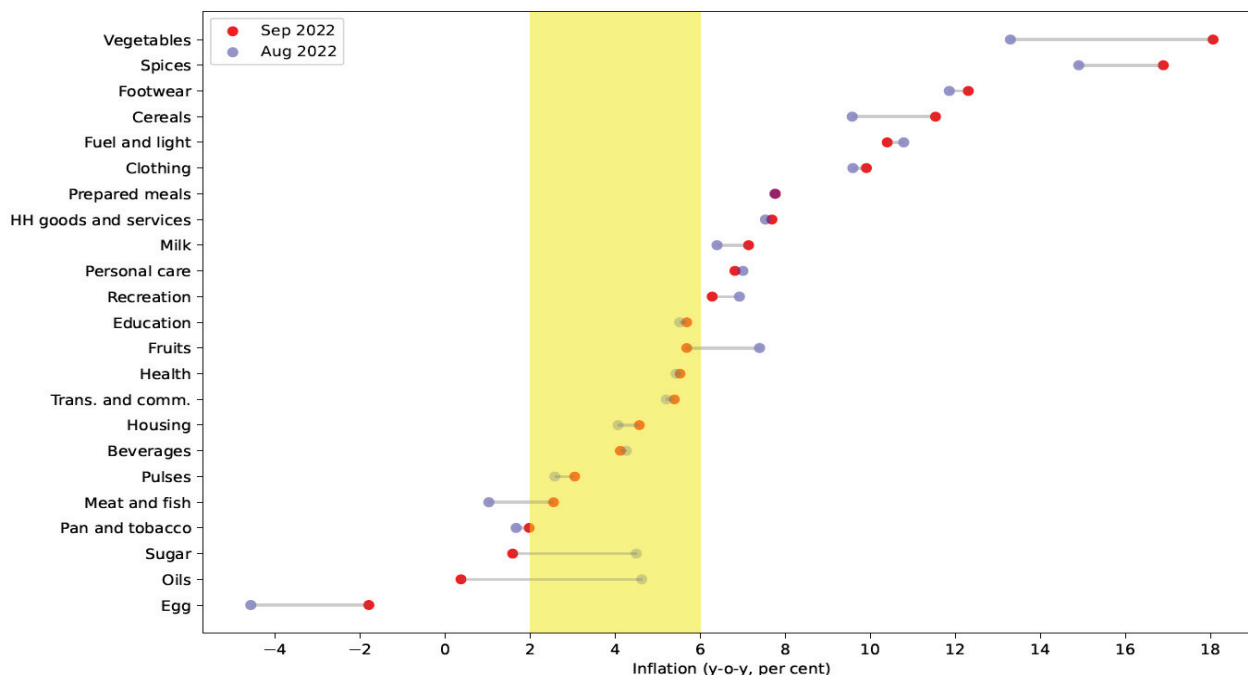
Data released by the National Statistical Office (NSO) on October 12, 2022 showed that inflation, measured by year-on-year (y-o-y) changes in the all-India consumer price index (CPI), increased to 7.4 per cent in September, up from 7.0 per cent in August (Chart 33a). This increase of 40 basis points (bps) in September was on account of a positive momentum (month-on-month increase in CPI) of about 60 bps, partly offset by a favourable base effect (month-on-month change in prices a year ago) of about 20 bps. All the three major components of the CPI reflected price pressures with m-o-m increases being of the order of 85 bps in the food and beverages group, 39 bps in the fuel group and 33 bps in the 'core' (excluding food and fuel) category (Chart 33b).

Headline inflation was mainly pushed up by the sharp increase in CPI food inflation to 8.4 per cent in September from 7.6 per cent a month ago (Chart 34). Price pressures were most visible in the case of vegetables, spices and cereals. They also edged up in case of meat and fish, milk and pulses. On the other hand, price pressures softened in the case of

edible oils, fruits, sugar and non-alcoholic beverages. Despite positive momentum, y-o-y inflation in respect of eggs continued to remain in the negative territory (Chart 35).

Inflation in the fuel and light category moderated to 10.4 per cent in September from 10.8 per cent in August on account of favourable base effects that offset positive price momentum. A sharp decline in LPG and kerosene (PDS) inflation was partly offset by a pick-up in price pressures in other fuels (dung cake and firewood and chips). Despite the monthly increase by 1.6 per cent, electricity prices remained in deflation on a y-o-y basis. With a weight of 6.8 per cent in the CPI, the fuel group contributed 9.6 per cent of headline inflation in September.

Core inflation edged up to 6.0 per cent in September from 5.9 per cent in August. While sub-groups such as recreation and amusement and personal care and effects witnessed moderation in inflation, pan, tobacco and intoxicants, clothing and footwear, housing, household goods and services, health, transport and communication and education registered an increase.

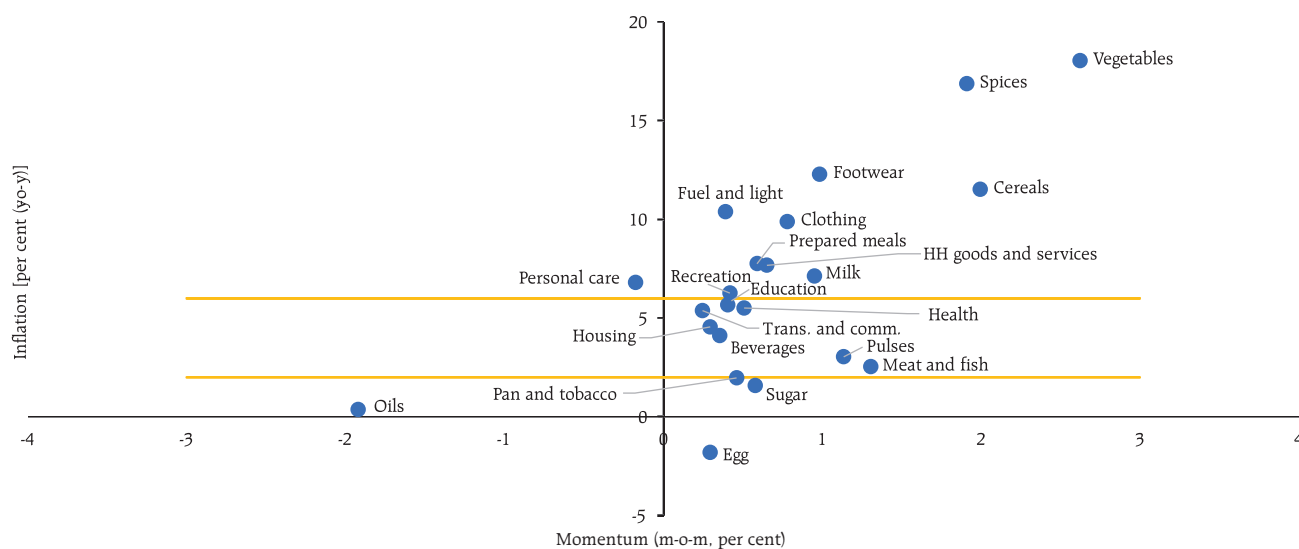
Chart 34: Annual Inflation across Subgroups (August vs September 2022)

Sources: NSO; and RBI staff estimates.

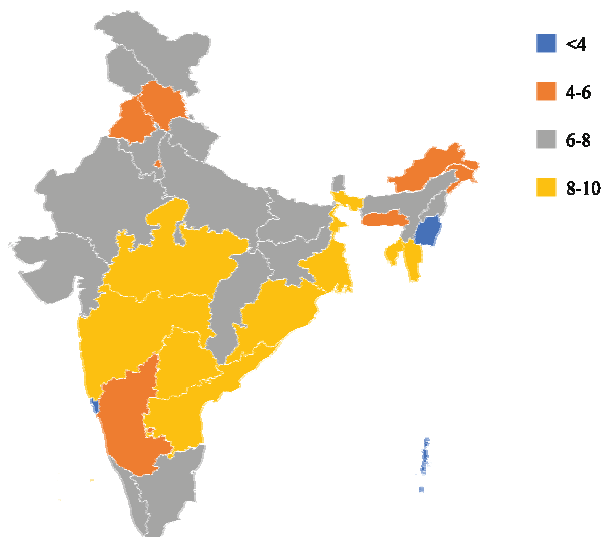
In terms of regional distribution, rural inflation at 7.6 per cent was higher than urban inflation (7.3 per cent) in September 2022. Among the states, Andhra Pradesh, Madhya Pradesh, Maharashtra, Mizoram, Odisha, Telangana, Tripura, West Bengal and

Lakshadweep experienced inflation in excess of 8 per cent whereas Goa, Manipur and Andaman & Nicobar Islands recorded inflation below 4 per cent (Chart 36).

High-frequency food price data for October so far (October 1-12) from the Department of Consumer

Chart 35: Annual Inflation (y-o-y) and Momentum (m-o-m) across Subgroups

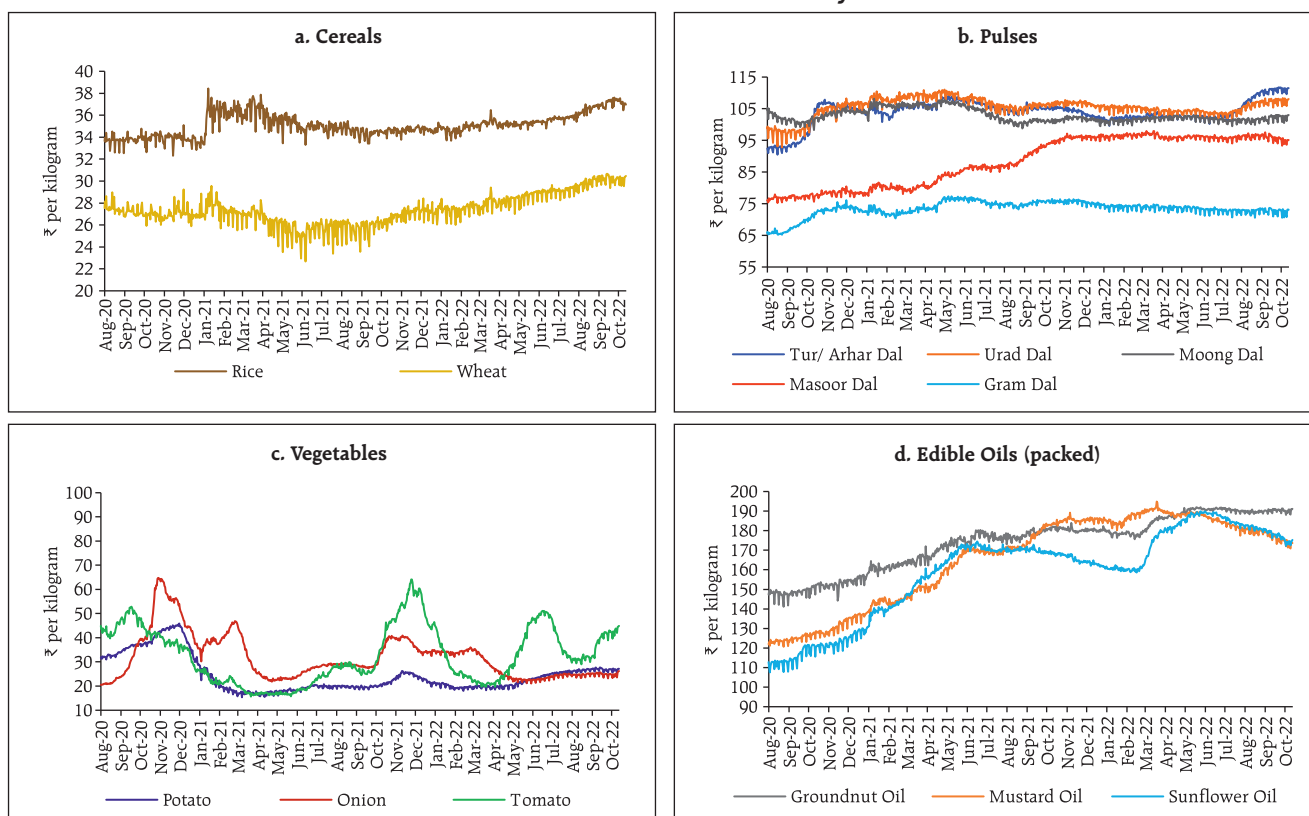
Sources: NSO; and RBI staff estimates.

Chart 36: CPI-Combined Inflation across States

Sources: NSO; and RBI staff estimates.

Affairs (DCA) point to a softening of prices of cereals, primarily on account of a decline in wheat prices. Pulses prices registered a broad-based decline other than for *tur*. Within edible oils, prices continued to decline for mustard oil and sunflower oil. Among key vegetables, onion and potato prices remained range-bound while tomato prices continued to harden due to heavy rains in August-September in key tomato producing areas, which resulted in lower *mandi* arrivals (Chart 37).

Retail selling prices of petrol and diesel in the four major metros remained unchanged in October. While kerosene prices moderated in September *vis-à-vis* August, it remained steady in October. LPG prices were kept unchanged in September and October so far (Table 5).

Chart 37: DCA Essential Commodity Prices

Sources: Department of Consumer Affairs, GoI; and RBI staff estimates.

Table 5: Petroleum Products Prices

Item	Unit	Domestic Prices			Month-over-month (per cent)	
		Oct-21	Sep-22	Oct-22 ^	Sep-22	Oct-22
Petrol	₹/litre	106.37	102.92	102.92	0.0	0.0
Diesel	₹/litre	97.92	92.72	92.72	0.0	0.0
Kerosene (subsidised)	₹/litre	34.56	57.55	57.55	-8.3	0.0
LPG (non-subsidised)	₹/cylinder	907.71	1063.25	1063.25	0.0	0.0

^ : For the period October 1-12, 2022.

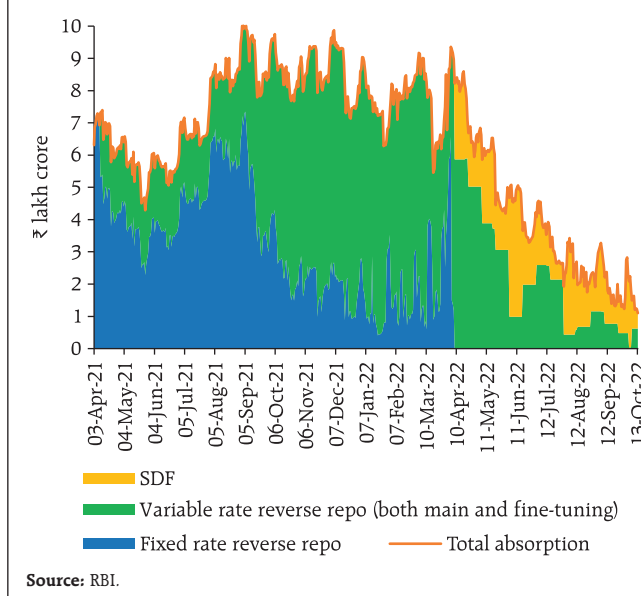
Note: Other than kerosene, prices represent the average Indian Oil Corporation Limited (IOCL) prices in four major metros (Delhi, Kolkata, Mumbai and Chennai). For kerosene, prices denote the average of the subsidised prices in Kolkata, Mumbai and Chennai.

Sources: IOCL; Petroleum Planning and Analysis Cell (PPAC); and RBI staff estimates.

Input cost pressures increased in September 2022 across manufacturing and services, *albeit* at a slower pace, as reflected in the PMIs. Selling prices also edged up across manufacturing and services, with the services sector registering price increases higher than the long-term average.

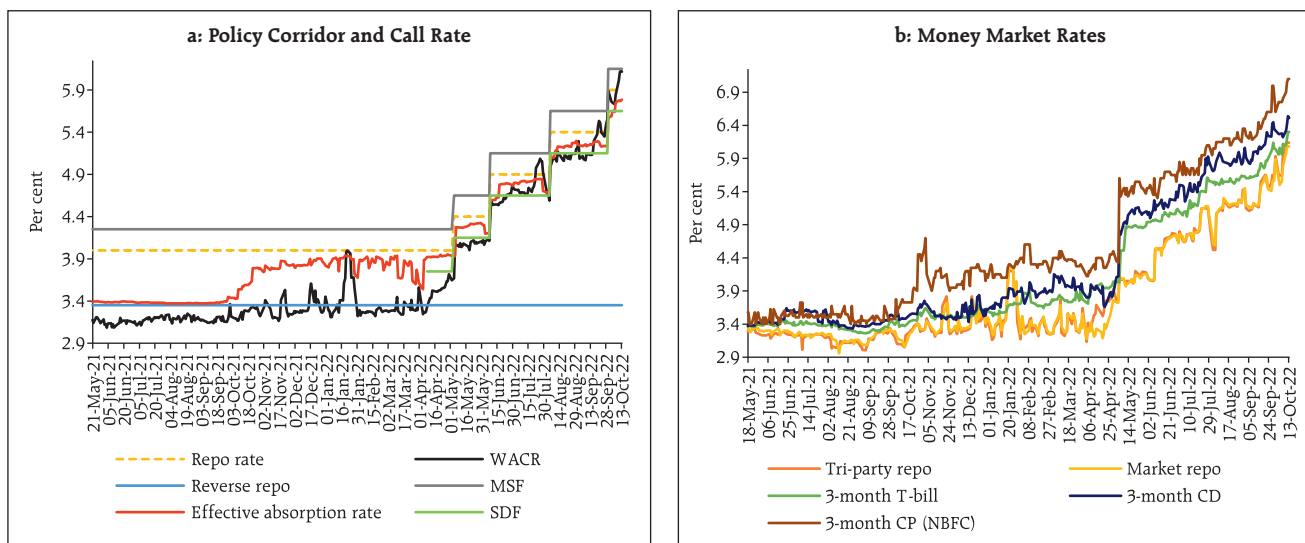
IV. Financial Conditions

The outflow of advance tax receipts, coupled with forex outflows, moderated surplus liquidity conditions in September. The pick up in government spending in the beginning of October augmented liquidity somewhat. Accordingly, the average daily absorptions under the liquidity adjustment facility (LAF) moderated to ₹1.6 lakh crore during the second half of September through October 13, 2022 from ₹2.6 lakh crore during August 15 to September 14, 2022 (Chart 38). ₹1.1 lakh crore was absorbed through the overnight standing deposit facility (SDF), while the remaining was mopped up through variable rate reverse repo (VRRR) auctions (both main and fine-tuning). Tightening liquidity conditions also necessitated recourse to the marginal standing facility (MSF) window by banks intermittently of an average of ₹15,482 crore during mid-September to October 13 as against ₹2,654 during mid-August to September

Chart 38: Liquidity Conditions

14, 2022. The Reserve Bank conducted an overnight variable repo rate (VRR) auction for ₹50,000 crore on September 22, 2022 (bids received - ₹94,267 crore) at a cut-off rate of 5.58 per cent in order to ease liquidity strains. The 14-day VRRR auctions also elicited a muted response as evident in bids received of a mere ₹3,748 crore as against the notified amount of ₹2.0 lakh crore. In view of the moderation in surplus liquidity, the Reserve Bank announced merger of the 28-day VRRR with the fortnightly 14-day main auction in the monetary policy statement on September 30. At the same time, the Reserve Bank reiterated that fine-tuning operations of various maturities for absorption as well as injection of liquidity will continue as may be necessary from time to time. Furthermore, drawdown of excess cash reserve ratio (CRR) and excess statutory liquidity ratio (SLR) holdings of banks are also helping banks tiding over fund flow mismatches.

The weighted average call rate (WACR) traded 2 bps above the policy repo rate (on average) during the second half of September through October 13, 2022 indicating somewhat tightened liquidity conditions (Chart 39a). Similarly, rates in the collateralised segment surged, with triparty and market repo rates

Chart 39: Policy Corridor and Money Market Rates

Source: RBI; Bloomberg; and RBI staff estimates.

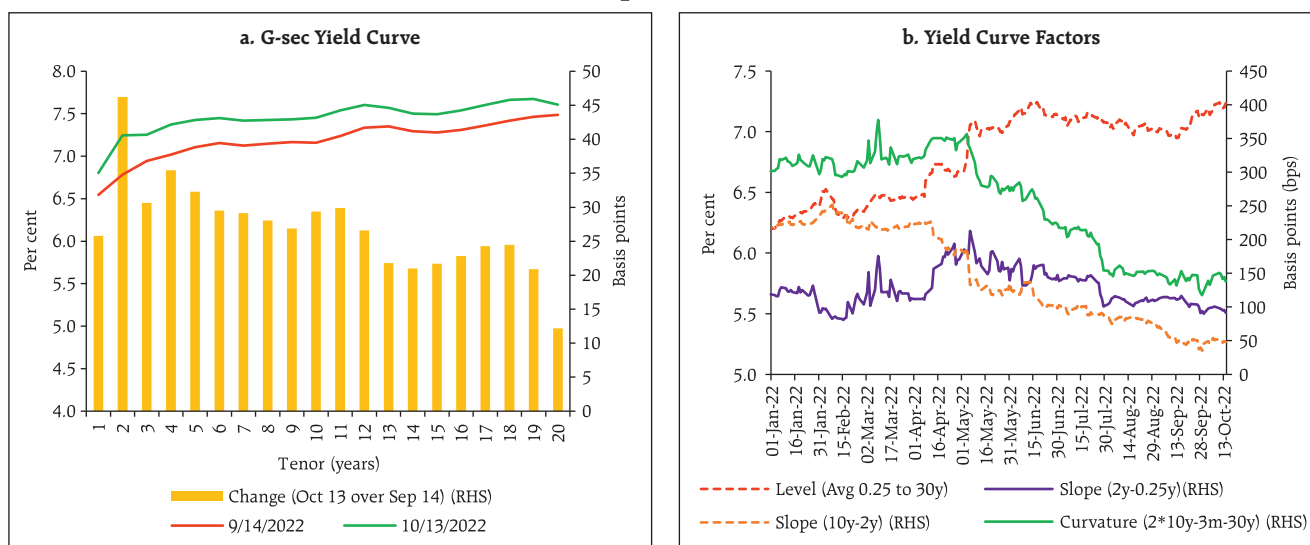
trading above the policy repo rate (Chart 39b). In the term money segment, rates on 3-month treasury bills (T-bill), 3-month certificates of deposit (CDs) and 3-month commercial paper (CPs) traded above the MSF rate by 13 bps, 41 bps and 86 bps, respectively. In the primary market, fund mobilisation through CD issuances has been robust at ₹2.96 lakh crore in H1:2022-23 (up to September 26), higher than ₹1.73 lakh crore in H2:2021-22, reflecting banks' demand for additional funds to meet the buoyant credit offtake. On the other hand, CP issuances declined to ₹7.20 lakh crore during H1:2022-23 (up to September 26) from ₹10.09 lakh crore in H2:2021-22 as appetite for bank credit improved.

In the fixed income market, bond yields hardened across the yield curve, with the yield on the new 10-year benchmark G-sec (7.26 GS 2032) closing at 7.42 per cent on October 13, 2022 – higher than 7.13 per cent on September 14 (Chart 40a). Domestic yields took cues from the sharp surge in US treasury yields following the 75 bps rate hike by the US Fed and its hawkish forward guidance. The policy repo

rate hike by the Reserve Bank also firmed up bond yields. Subsequently, the market sentiment was also dented after JP Morgan held off the inclusion of Indian government bonds in its widely tracked emerging market bond index. With the short-end of the curve exhibiting higher sensitivity to monetary policy tightening, the slope of the yield curve declined further (Chart 40b). While the upward shift in the level of the yield curve is consistent with a declining slope (as measured by the 10-year minus 2-year spread) since April, a perceptible decline in the curvature¹⁴ is evident since the May policy meeting, indicating subdued expectations of further policy tightening going ahead. Overall, the yield curve suggests an improvement in long-term growth prospects.¹⁵

¹⁴ The curvature of the yield curve describes the relationship between yields at short, medium and longer maturities. Higher curvature means higher concavity of the curve, i.e., the yield curve is steep in the short to medium tenure compared to medium to long-end yields, and therefore, shows a hump in the yield curve. The curvature is calculated as 2 times the 10-year yield minus the sum of 30-year and 3-month yields.

¹⁵ Patra, M.D., Joice, J., Kushwaha, K.M., and I. Bhattacharyya (2022). 'What is the Yield Curve telling us about the Economy?' *RBI Bulletin*, June.

Chart 40: Developments in G-sec Market

Sources: Bloomberg; CCIL; and RBI staff estimates

Corporate bond yields generally hardened in tandem with G-sec yields across tenors and the rating spectrum (Table 6). In the primary market, corporate bond issuances declined to ₹45,159 crore in August 2022 from ₹69,166 crore in the previous month and also stood lower than the issuance of ₹49,848 crore in August 2021.

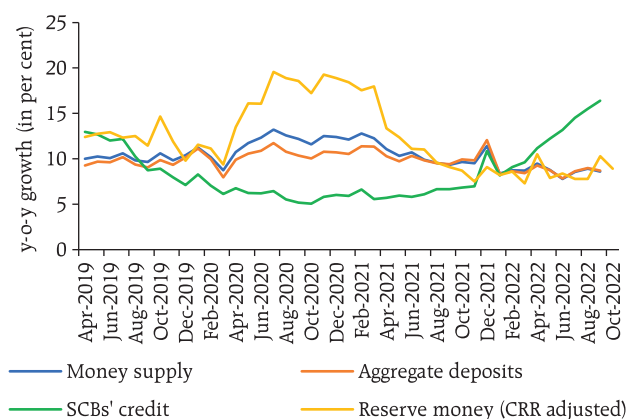
Reserve money (RM) excluding the first-round impact of change in cash reserve ratio (CRR) rose by 8.9 per cent on a y-o-y basis as on October 7, 2022 (8.7 per cent a year ago) [Chart 41]. Currency in circulation (CiC), the largest component of RM, recorded growth of 8.3 per cent (8.9 per cent a year ago). Money supply (M_3) registered growth of 8.6 per cent as on September 23, 2022 (9.3 per cent a year ago), primarily driven

Table 6: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (bps) (Over Corresponding Risk-free Rate)		
	Aug 17 - Sept 14 2022	Sept 15 -Oct 13, 2022	Variation (in bps)	Aug 17 - Sept 14 2022	Sept 15 - Oct 13, 2022	Variation (in bps)
1	2	3	(4 = 3-2)	5	6	(7 = 6-5)
Corporate Bonds						
(i) AAA (1-year)	6.89	7.01	12	43	14	-29
(ii) AAA (3-year)	7.35	7.75	40	43	47	4
(iii) AAA (5-year)	7.46	7.70	24	31	23	-8
(iv) AA (3-year)	8.09	8.50	41	116	122	6
(v) BBB-(3-year)	11.76	12.15	39	483	487	4

Note: Yields and spreads are computed as monthly averages.

Source: FIMMDA; and Bloomberg.

Chart 41: Monetary and Credit Aggregates

Note: 1. Data pertain to last reporting Friday of every month for money supply, aggregate deposits and bank credit; and last Friday of every month for reserve money.

2. Latest data for reserve money pertain to October 7, 2022; whereas for money supply as on September 23, 2022.

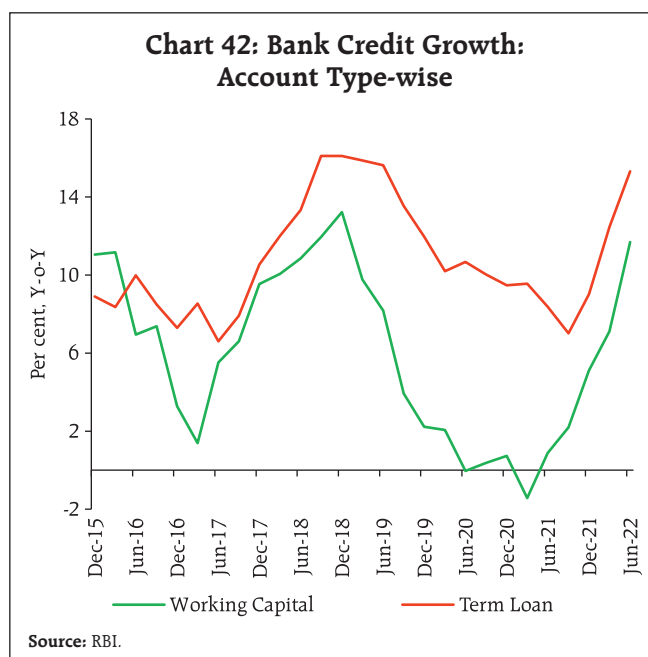
Source: RBI.

by its largest component – aggregate deposits with banks – which grew by 8.7 per cent (9.4 per cent a year ago). Scheduled commercial banks' (SCBs') credit accelerated to 16.4 per cent as on September 23, 2022 (6.7 per cent a year ago), which is the highest since October 18, 2013 (16.3 per cent).

The pick-up in bank credit growth was led by the term loans category. With economic activity gaining momentum, growth in bank credit for working capital¹⁶ has also caught up in recent months reflecting an optimistic outlook for demand conditions (Chart 42).

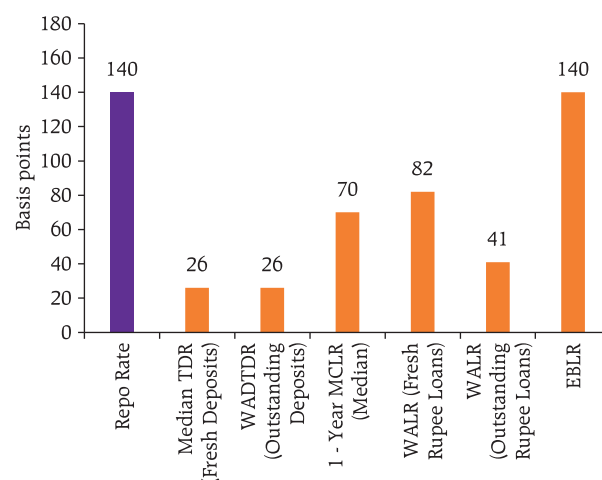
During May to September 2022, banks have increased their external benchmark based lending rates (EBLRs) by 140 bps in response to the increase in repo rate. SCBs have also increased their 1-year median marginal cost of funds-based lending rate (MCLR) by 70 bps during the same period. The upward revisions in benchmark rates for loan pricing and an increase in the share of EBLR-linked loans have improved the pace of transmission to lending rates.¹⁷ Subsequently, weighted average lending rates (WALRs) on fresh and outstanding rupee loans increased by 82 bps and 41 bps, respectively, during May-August 2022 (Chart 43). In response to the 50 bps policy rate hike in the September 30 MPC meet, banks have started adjusting their repo-linked benchmark rates upward.

Banks have been quicker in adjusting their lending rates *vis-à-vis* retail deposit rates. The median term deposit rate of SCBs, which reflects the prevailing card rates on fresh deposits, increased by 26 bps during May-September 2022. Transmission to



the median term deposit rate on fresh deposits of domestic banks has improved to 27 bps during the same period. The extent of pass-through to term

Chart 43: Transmission to Lending and Deposit Rates of Scheduled Commercial Banks (May to September 2022)



Note: 1. Latest data on WALRs and WADTDR pertain to August 2022 and hence 50 bps hike in repo rate in September is not captured in pass-through to WALRs and WADTDR.

2. Data on EBLR pertain to 31 domestic banks.

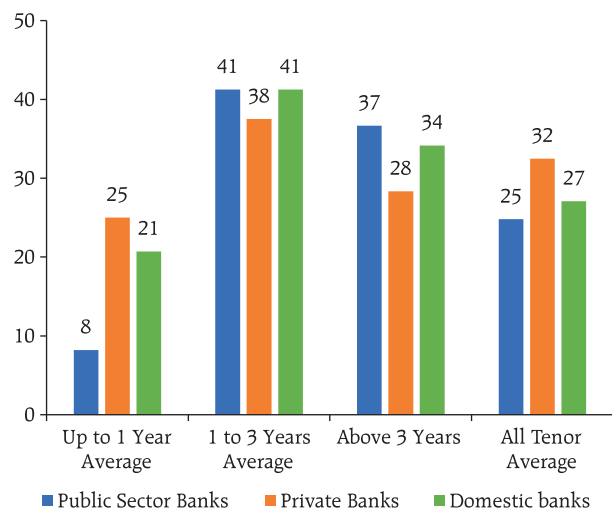
3. Acronyms: WALR: Weighted average lending rate; WADTDR: Weighted average domestic term deposit rate; MCLR: Marginal cost of funds-based lending rate; TDR: Term deposit rate; EBLR: External benchmark based lending rate.

Source: RBI staff estimates.

¹⁶ Working capital has been derived as the sum of cash credit, overdraft and demand loans.

¹⁷ The share of EBLR linked loans in total outstanding floating rate rupee loans of SCBs was 46.9 per cent at end-June 2022 while that of MCLR linked loans was 46.5 per cent. 6.6 per cent of the total outstanding floating rate rupee loans of SCBs are linked to base rate, benchmark prime lending rate and other internal benchmarks (Monetary Policy Report, September 2022, <https://rbi.org.in/Scripts/PublicationsView.aspx?id=21343>).

Chart 44: Maturity-wise Transmission to Fresh Term Retail Deposit Rates (May-September 2022)



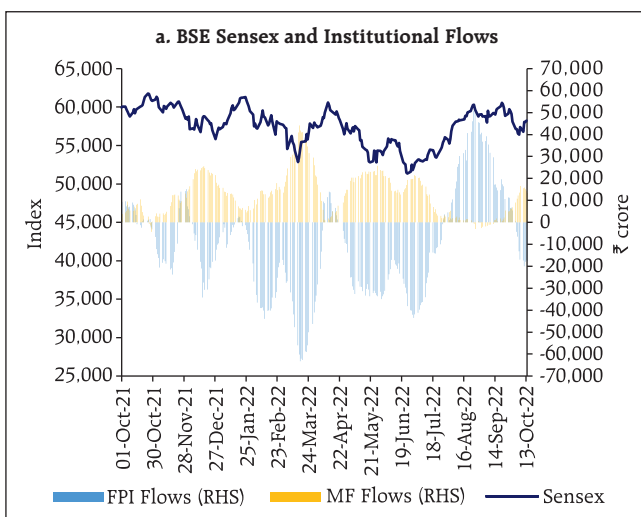
Source: RBI staff estimates.

retail deposit rates, however, has been higher for longer tenor maturities (Chart 44). The Government of India has also reviewed the rates on small savings instruments (SSIs) on September 29, 2022 and revised them upwards by 10-30 bps. The prevailing

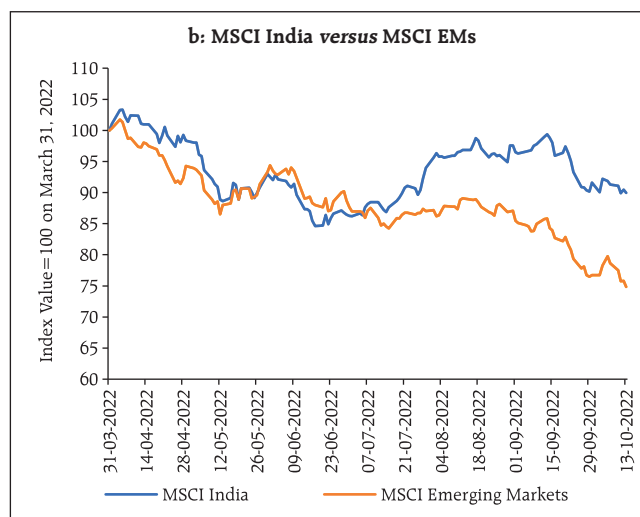
interest rates are, however, 44-77 bps below the formula-based rates for Q3:2022-23.¹⁸

The domestic equity market went through sell-off, with the BSE Sensex declining by 4.2 per cent in the second half of September 2022 as rate hikes by central banks in major AEs and concerns over global growth weighed on market sentiments (Chart 45a). Foreign portfolio investors (FPIs) turned net sellers to the tune of ₹13,406 crore in September 2022 after remaining net buyers in the previous two months. Flows from domestic institutional investors (DIIs), however, remained strong, aggregating to ₹14,120 crore in the equity segment. Despite the recent correction, the Indian equity market remains an outperformer among peer EMEs (Chart 45b).¹⁹ In October, equity markets have remained volatile so far. Markets rebounded initially as FPIs turned net buyers in the first week; however, pared the gains subsequently tracking weak global cues. Overall, the BSE Sensex has declined 0.3 per cent so far in October 2022 to close at 57,235 on October 13, 2022.

Chart 45: Equity Market Performance

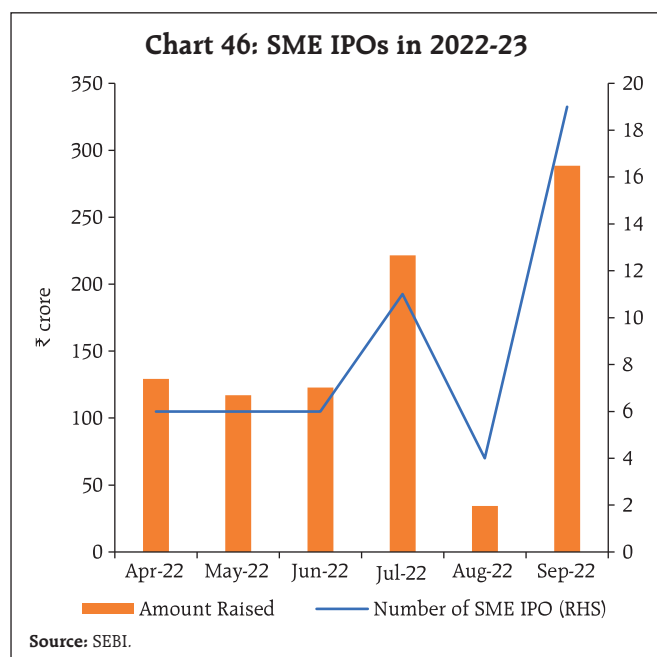


Note: FPI and MF investments are represented on a 15-day rolling-sum basis.
Sources: SEBI; Bloomberg; and NSDL.



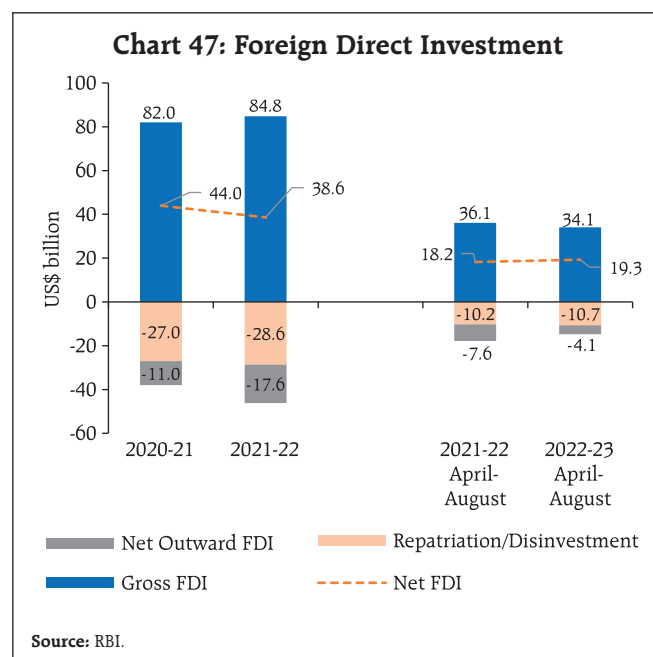
¹⁸ Monetary Policy Report, September 2022, <https://rbi.org.in/Scripts/PublicationsView.aspx?id=21343>

¹⁹ China's \$5 Trillion Rout Creates Historic Gap with Indian Stocks - Bloomberg



Fund-raising plans through equity markets remained lackluster as only 17 companies raised ₹35,847 crore via mainboard initial public offerings (IPOs) so far in 2022-23 (up to September 2022), which also includes over ₹20,000 crore raised by the Life Insurance Corporation of India. However, in sharp contrast to activity in the main board segment, the small and medium enterprises (SME) segment exhibited substantial activity in September 2022, with 19 companies (the highest number since May 2018) raising funds via IPOs²⁰ (Chart 46). Progress towards broadening the investor base, reducing the information asymmetry for investors, and adequate aftermarket liquidity in the small and medium-sized enterprises (SME) platform can act as an enabler to further boost the entrepreneurial ecosystem.²¹

Gross inward foreign direct investment (FDI) at US\$ 34.1 billion during April-August 2022 moderated from its level a year ago (Chart 47). However, net



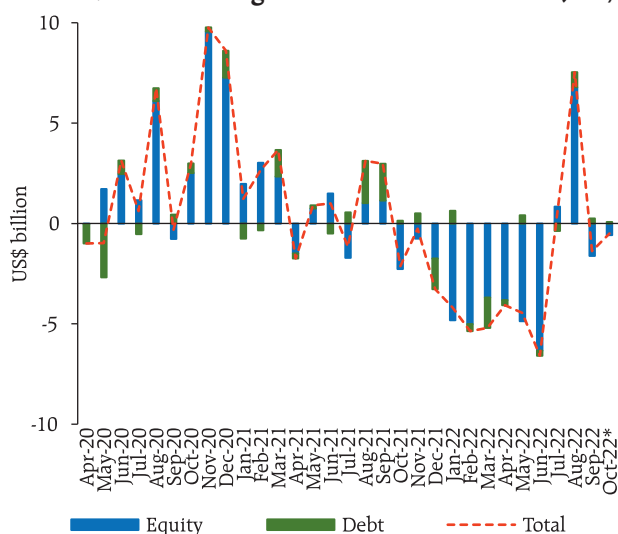
FDI increased to US\$ 19.3 billion during this period from US\$ 18.2 billion a year ago, on account of a decline in outward FDI from India. Manufacturing, communication services, computer services, retail and wholesale trade sectors and financial services received the major share of FDI equity inflows during April-August 2022.

Disinvestment by FPIs in the second half of September led to net outflows of US\$ 1.4 billion during the month (Chart 48). Volatile sentiments in global markets, fears of global recession and aggressive rate hikes by the US Fed triggered the risk-off sentiments, with major EMEs reporting net outflows in September. In October 2022 (till 12th) net sell off by FPIs were to the tune of US\$ 0.5 billion.

Gross disbursements of external commercial borrowings (ECBs) to India at US\$ 7.8 billion during April-August 2022 moderated as compared with US\$ 9.9 billion a year ago while on a net basis (*i.e.*, excluding repayments and inter-company borrowings), ECBs recorded net outflows of US\$ 2.6 billion as against net disbursement of US\$ 3.0 billion in the previous year. The weighted average maturity of ECBs registered

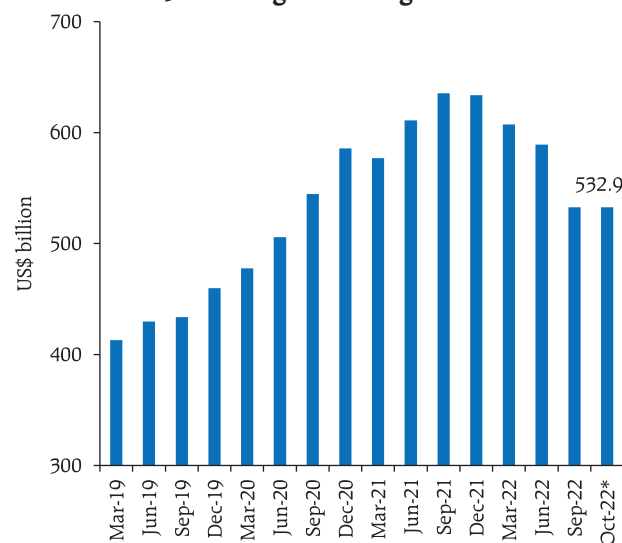
²⁰ Based on the listing date.

²¹ Ganguly, Shromona (2022), "SME Exchanges in India: Empirical Analysis of Firm Attributes and IPO Characteristics" RBI Working Paper Series No. 11.

Chart 48: Net Foreign Portfolio Investment (FPI)

*: Up to October 12, 2022.

Source: NSDL.

Chart 50: Foreign Exchange Reserves

*: As on October 7.

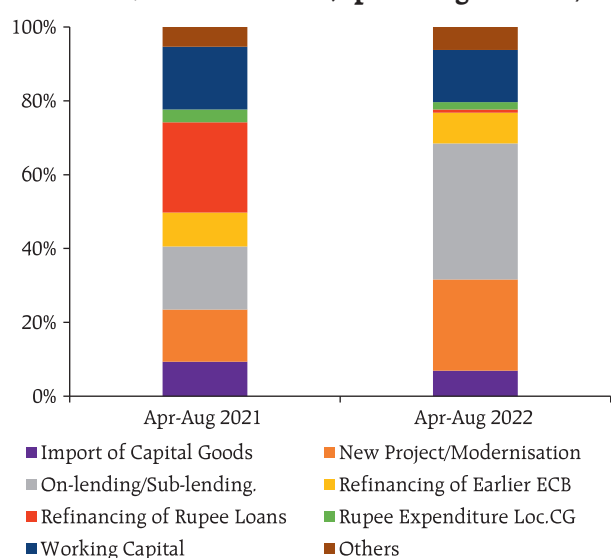
Source: RBI.

during August 2022 stood at 7.3 years (4.6 years in July 2022), with more ECB agreements related to new projects/modernisation (Chart 49).

The foreign exchange reserves at US\$ 532.9 billion as on October 7, 2022 were equivalent

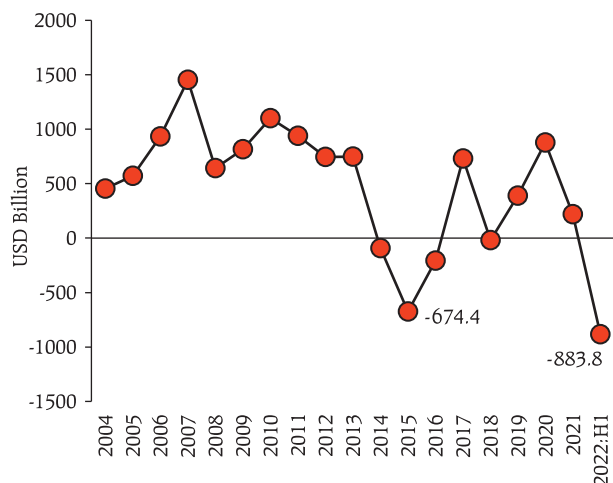
to 8.7 months of imports projected for 2022-23 (Chart 50). So far, in 2022-23, the reserves have been depleted by US\$ 74.4 billion; however, most of the depletion was on account of valuation loss due to the appreciation of the US dollar against major currencies. Globally foreign currency reserves are falling at a record pace as central banks across the globe intervene to support their currencies. According to the IMF's COFER,²² reserves have declined by around US\$ 884 billion during the first half of 2022 (Chart 51).

In the foreign exchange market, the Indian rupee (INR) depreciated by 0.8 per cent *vis-à-vis* the US dollar (m-o-m) in September 2022 on the back of FPI equity outflows and strong US dollar. As compared to major EMEs, however, the INR continues to show a modest depreciation against the US dollar (Chart 52).

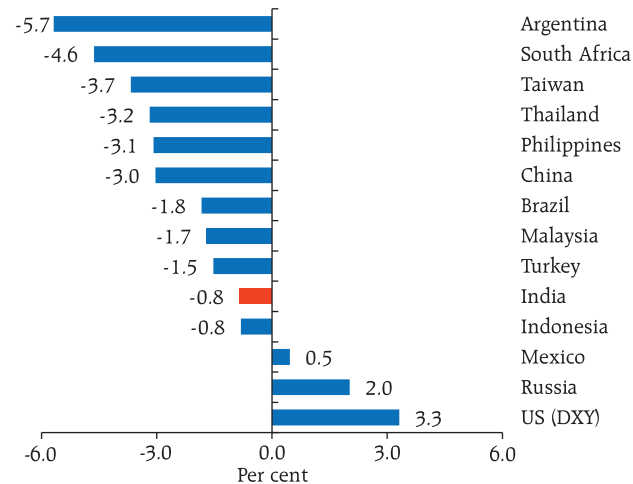
Chart 49: ECB End-use (April - August 2022)

Source: RBI.

²² Currency Composition of Official Foreign Exchange Reserves (COFER), International Financial Statistics (IFS).

Chart 51: Change in World Official Foreign Exchange Reserves

Source: Currency Composition of Official Foreign Exchange Reserves (COFER), International Financial Statistics (IFS).

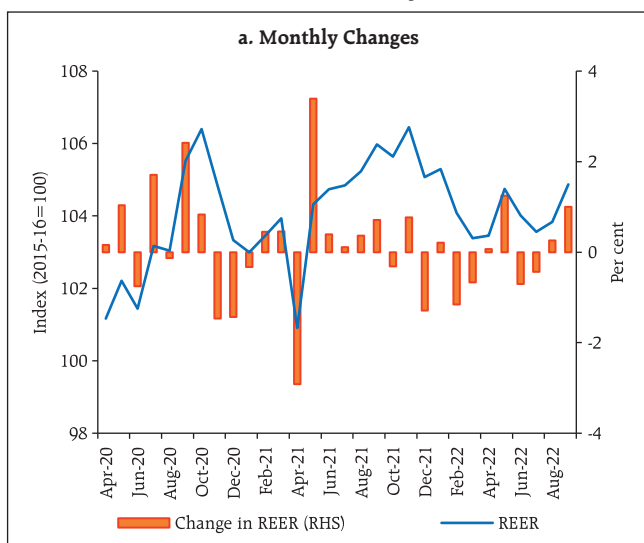
Chart 52: Movements of Indian Rupee and EME Currencies against the US Dollar (September 2022, m-o-m)

Source: FBIL; Thomson Reuters; and RBI staff calculations.

In real effective terms, the INR appreciated by 1.0 per cent (m-o-m) in September 2022, mainly due to appreciation of the INR in nominal effective terms (Chart 53).

Payment System

Digital transactions continued advancing across various payment modes in September 2022. Transactions under large-value and retail modes

Chart 53: Monthly Movements in 40-Currency Real Effective Exchange Rate

Source: RBI.

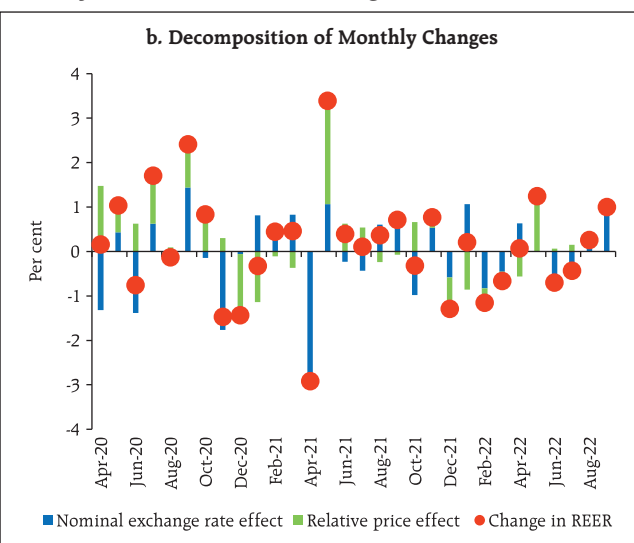


Table 7: Growth Rates in Select Payment Systems

(per cent)

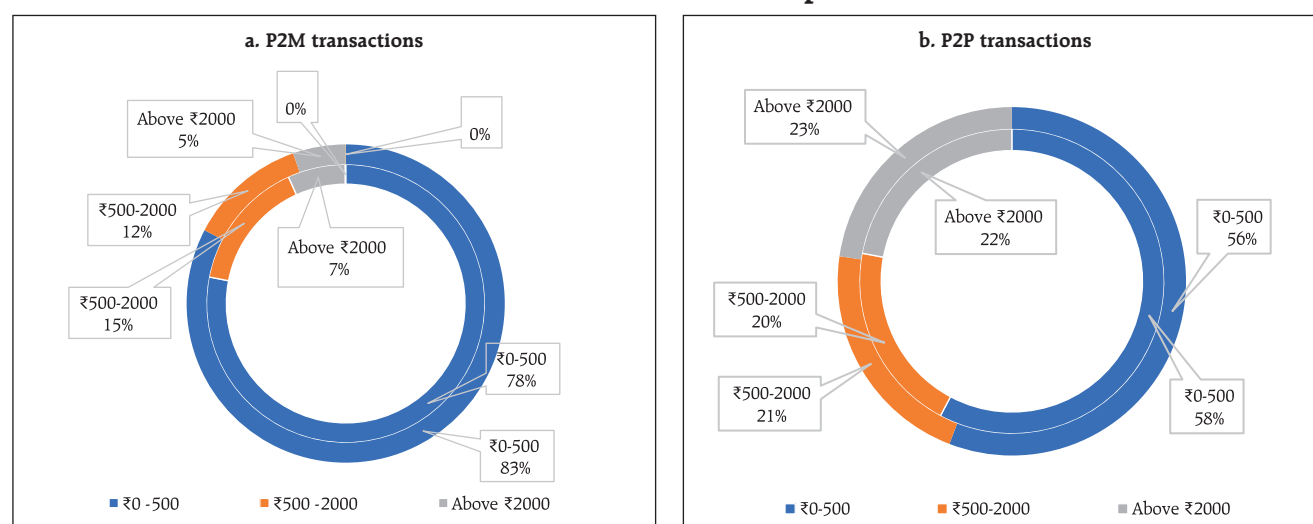
Payment System Indicators	Transaction Volume Growth (y-o-y)				Transaction Value Growth (y-o-y)			
	Aug-21	Aug-22	Sep-21	Sep-22	Aug-21	Aug-22	Sep-21	Sep-22
RTGS	42.6	12.9	34.2	13.6	39.4	14.8	16.7	24.6
NEFT	37.2	29.5	36.1	29.0	14.5	19.1	11.7	20.8
UPI	119.6	85.1	103.1	85.5	114.2	67.9	99.0	70.5
IMPS	54.3	23.0	37.7	20.1	36.2	39.3	30.3	40.2
NACH	-2.3	14.3	-8.6	38.2	21.0	24.3	19.1	28.1
NETC	107.8	35.2	75.9	33.9	79.6	38.0	55.1	41.1
BBPS	177.6	48.5	156.8	49.5	172.5	56.1	206.7	36.8

Source: RBI Circular, September 2022.

recorded double digit growth (y-o-y) on a higher base a year ago (Table 7). A recent survey report indicates that around 93 per cent of the respondents in India used at least one mode of digital payments as of April 2022.²³

Reflecting the meteoric rise in Unified Payments Interface (UPI) based payments, peer-to-merchant (P2M) payments have soared by 112 per cent (volume) and 103 per cent (value) in September 2022, as against

the growth of 63 per cent in both volume and value observed in the peer-to-peer (P2P) segment.²⁴ The bulk of the P2M and P2P volumes is in the ₹0-500 transaction band (*i.e.*, 83 per cent and 56 per cent, respectively), followed by the ₹501-2000 slab (Chart 54a and 54b). Increasing volumes in ₹0-500 slab in the P2M segment indicates growing inclusivity of UPI transactions that can further foster the access to credit for small merchants and unorganised segments

Chart 54: Transaction Size-wise Composition of UPI

Note: Inner ring: October 2021; Outer ring: September 2022.

Source: NPCI.

²³ Mastercard New Payments Index (NPI) 2022, Mastercard.

²⁴ As a result, the share of P2M in the UPI ecosystem has increased to 50 per cent (from 45 per cent in August 2021) and 22 per cent (from 19 per cent in August 2021) in volume and value terms, respectively.

through creation of online transactional trails. In the cards segment, average ticket size of credit card transactions at e-commerce outlets (₹5948) exceeded point of sale (PoS) transactions (₹3363) by 76 per cent. With the rising number of e-commerce users in tier-2 cities and rise of new e-commerce models²⁵, the usage of credit card transactions is likely to go up. The Bharat Bill Payment System (BBPS), an interoperable and accessible platform for payment of bills, grew impressively in September with significant growth in loan repayment and direct-to-home recharge sub-segments.

To bring in synergy in regulation, apart from convergence on standards of data collection and storage, the Reserve Bank has proposed to bring the offline Payment Aggregators (PAs) into the regulatory framework.²⁶ The Reserve Bank, in collaboration with the stakeholders, launched three initiatives. First is the launch of a UPI Lite feature (a pre-approved payment solution used to carry out very small value transactions using on-device wallets).²⁷ Second is a feature to link credit cards to the UPI, which is aimed at further boosting UPI usage. Third is the decision to allow inward remittances of bill payments through BBPS.²⁸

The NPCI International Payments Limited (NIPL) has partnered with international payment players, aimed at enabling active Indian UPI IDs to transact at select QR locations across the globe.³⁰ On October 7, 2022 the Reserve Bank released a Concept Note on Central Bank Digital Currency (CBDC) for India to create awareness about CBDCs in general and the

planned features of the Digital Rupee (e₹) – India's proposed CBDC – in particular. It was also indicated that the Reserve Bank will soon commence pilot launches of e₹ for specific use cases.

Conclusion

Looking ahead, India is poised to consolidate and accelerate the recovery over the rest of the year. The momentum of real GDP growth is expected to shed the drag embedded in the NSO's estimates for the first quarter of 2022-23 and move into positive territory in the remaining quarters, including on a seasonally adjusted basis. Although this may not be evident in year-on-year growth rates due to unfavourable base effects, q-o-q annualised rates will reflect the underlying recovery. Contact-intensive sectors will likely lead the rejuvenation as the restraint due to the pandemic waned. Festival-related spending is already boosting consumption demand with positive externalities for other components of domestic demand.

Headline inflation is set to ease from its September high, *albeit* stubbornly, on the back of easing momentum and favourable base effects. These positive developments are likely to be driven by the food and beverages, which has undergone repeated shocks in the first half of the year. These impulses are already evident in daily data alluded to in Section III. There has also been an appreciable decline in WPI inflation in September on a broad-based easing across its constituents. Easing in international price pressures embodied in commodity and supply chain pressures are also likely to contribute to the softening of costs and prices.

While the persistence of headline CPI inflation above the tolerance band for three consecutive quarters (up to September) will trigger mandated accountability processes, monetary policy remains focussed on re-aligning inflation with the target. This may involve two milestones – first, bringing it within the tolerance

²⁵ The Financial Express, September 9, 2022.

²⁶ RBI, 'Statement on Developmental and Regulatory Policies', September 2022.

²⁷ NPCI Press Release, September 2022.

²⁸ RBI Circular, September 2022.

²⁹ NIPL partnered with TerraPay, a global payments infrastructure group. Apart from this, it also joined forces with Worldline, a payments services provider in Europe.

³⁰ NPCI Press Release, September 2022.

band and second, lowering to around its mid-point. This trajectory will likely be gradual in view of the repeated shocks to which inflation has been subjected by both epidemiological and geopolitical causes, but the easing of inflation will inject confidence into both consumers and businesses, recharge animal spirits and investment and improve the international competitiveness of India's exports. The fight against inflation will be dogged and prolonged, given the long and variable lags with which monetary policy operates,

and fraught with uncertainties. Yet, if we succeed, we will entrench India's prospects as one of the fastest growing economies of the world enjoying a negative inflation differential with the rest of the world. This happy outcome will re-enthuse foreign investors, stabilise markets and secure financial stability on an enduring basis. As Kristalina Georgieva, Managing Director, IMF, remarked at a media briefing during the recent IMF-World Bank annual meeting: "India deserves to be called a bright spot on this otherwise dark horizon".

Estimation of Green GDP for India^{*}

by Anupam Prakash[^], Kaustav K. Sarkar[^] and Amit Kumar[^]

The adverse effects of economic growth on environmental sustainability have come into focus particularly in the post-COVID period. Considering limitations of GDP-based growth accounting in capturing the impact of climate change, the significance of Green GDP which adjusts for environmental deterioration and waning natural resources into estimates of national income accounts, has grown manifold. Using variables on sustainable development indicators and resource consumption indicators, this article attempts to provide estimates of Green GDP for India. The trajectory of Green GDP for India displays an upward movement with visible improvements since 2012.

Introduction

Climate change presents one of the greatest challenges of our times. Increasing frequency of natural disasters such as, unseasonal rain and floods, droughts, storms, cyclones, tsunami, earthquake, landslides; escalating trend in global warming, rising temperature anomalies¹ and intensifying level of pollution are some of the climate changes related phenomenon posing grave threat to lives and livelihoods. Climate change has also contributed to spread of some infectious diseases – both waterborne diseases (such as, *Vibrio parahaemolyticus* which causes vomiting and diarrhoea), and mosquito-borne diseases (such as, malaria and dengue fever). It has

been found that people who are exposed to more air pollution and reside in areas with worse air quality, are more likely to get severe lung infections due to COVID infections (Wu et al., 2020). In an analysis of 3,080 counties in the US, the study concluded that higher levels of PM_{2.5}² were associated with higher death rates from the disease of COVID-19.

It is also generally understood that adverse impact of climate change will be more significant on less affluent and underprivileged countries of the globe, i.e., the Global South. India ranked fifth in the Global Climate Risk Index 2020 – making it one of the climate vulnerable countries around the globe³ (Eckstein et al., 2019). This is mainly because of its extensive coastline, high proportion of fossil fuels in the production system, and reliance of significant size of the population on monsoon-dependent agriculture. According to a World Bank estimate⁴, “if not tamed, climate change may diminish India’s GDP by nearly 3 per cent and unfavorably disturb the living standards of nearly half the country’s population by 2050.” For an emerging market economy (EME) like India, it becomes all the more crucial that sustainable development goals alongside the total output targets for the economy are met successfully.

According to the Intergovernmental Panel on Climate Change (IPCC) Special Report, 2018: “an increase in global average surface temperature above 1.5° Celsius is predicted to cause more frequent and intense climate and weather extremes, such as floods, droughts, heat waves, along with other effects, such as sea-level rise”. By the end of UN Climate Change Conference of the Parties (COP26) Glasgow summit

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^{*} The views and opinions expressed in this article are solely of the authors and do not represent views of the Reserve Bank of India.

¹ “A temperature anomaly is the difference from an average or baseline temperature. A positive anomaly indicates the observed temperature was warmer than the baseline, while a negative anomaly indicates the observed temperature was cooler than the baseline” (https://energyeducation.ca/encyclopedia/Global_surface_temperature_anomaly).

² PM_{2.5} is defined as particulate matters (PM) that can be suspended in the air which have equivalent diameters of less than 2.5 microns.

³ “The Global Climate Risk Index analyses to what extent countries and regions have been affected by impacts of weather-related loss events (storms, floods, heat waves etc.).” For details, please see <https://www.germanwatch.org/en/crri>

⁴ World Bank. 2018. South Asia’s Hotspots: The Impact of Temperature and Precipitation Changes on Living Standards.

held in November 2021, 151 countries had submitted new climate plans (known as nationally determined contributions, or NDCs) to bring down their emissions by 2030. To keep the goal of limiting temperature rise to 1.5°C within reach by the end of this decade, the countries would need to cut global emissions by 55 per cent (UNEP, 2021)⁵. On August 4, 2022, India updated its NDCs to be communicated to the United Nations Framework Convention on Climate Change (UNFCCC) to reduce the emissions intensity of its economy by 45 per cent by 2030 and reach net-zero by 2070⁶.

In view of the NDCs, it is important that India gets into regular monitoring of its progress in management of environmental and operational costs related to natural resources. In case of India, however, there are limited studies which have attempted to provide valuation estimation for environmental accounting. Also, the environmental-economic accounting in India is limited to physical quantities. Therefore, the scope of comparison and assessment of different environmental cost gets very much limited. This article aims to fill this gap through an initial estimate of Green gross domestic product (GDP) for India, based on internationally accepted accounting framework provided by the System of Environmental and Economic Accounting (SEEA), by organising and presenting statistics on environment for India for variables like CO₂ emission, particulate damage, resource depletion, from established global data sources like, the World Bank and the BRICS. Due to unavailability of data on environmental indicators from any Indian database, this is the best first cut estimation possible at this stage. Using our estimate of Green GDP, we try to understand how India has progressed over the years in management of its growth aspirations *vis-à-vis* environmental degradation.

The paper is structured as follows. Section II briefly reviews the relation between environmental pollution and GDP of an economy – the Environmental Kuznets Curve (EKC), in particular. Section III reviews methodologies used for estimations of Green GDP and material footprint. Section IV focuses on the estimation of Green GDP for India and the trajectory in India. Using variables on sustainable development indicators and resource consumption indicators, this article attempts to provide an estimate of Green GDP for India also adding expenditure towards environmental protection. Section V concludes with future roadmap for data dissemination on environmental indicators and potential areas of research.

II. Review of the Literature

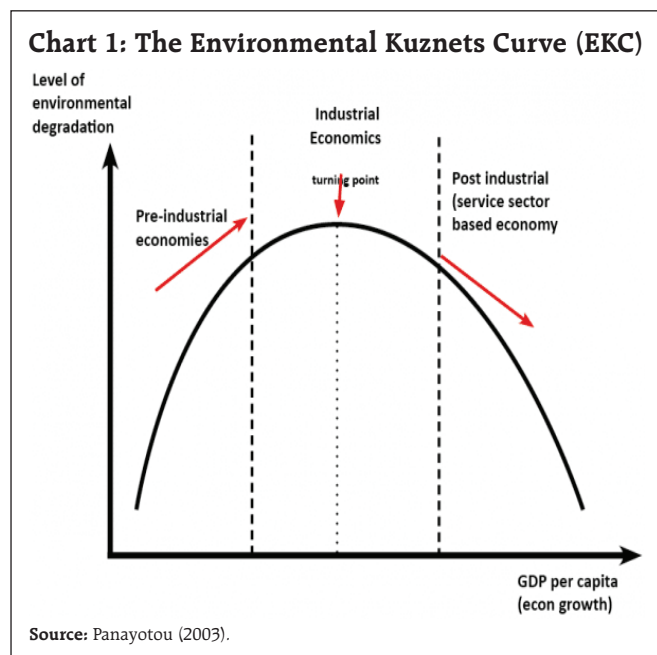
Though the economic and social challenges posed by the COVID pandemic related lockdowns and restrictions were severe, it impacted environment positively particularly in the context of air quality due to reduction in concentrations of PM, NO₂ and CO across the major cities of the globe. Post- COVID, in China, Italy, France and Spain, there were about 20-30 per cent reduction in NO₂ emission, while almost 30 per cent reduction in NO₂ emission were observed in the US (Bhat *et al.*, 2021).

Gene M. Grossman and Alan Krueger used the concept given by Simon Kuznets to postulate the concept of EKC⁷ explaining the systematic relationship between environmental degradation and economic growth. Practically, EKC reflects the trajectory of pollution witnessed in a country as part of the process of economic development (Chart 1). The EKC argues that in the initial phases of economic development, there seems to be a positive relationship between pollution level and per capita income. Beyond a certain

⁵ <https://www.unep.org/news-and-stories/story/what-you-need-know-about-cop26-un-climate-change-conference/>

⁶ <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1847812>

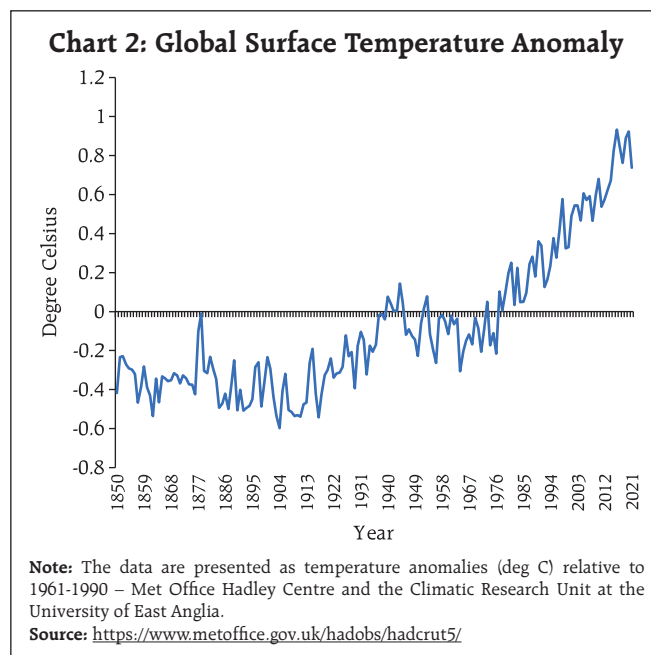
⁷ Grossman and Krueger used the values of pollution levels as a function of GDP per capita and demonstrated that many of the plots appear inverse-U-shaped. The peaks of these predicted pollution-income paths mostly come before a country reaches a per capita income of US\$ 8000 in 1985 dollars (Grossman and Krueger, 1995; pp.353).



threshold of per capita GDP, however, economic growth allows for environmental remediation, thus leading to decline in pollution (Stern, 2018). This relationship is reflected by a bell-shaped curve that relates economic growth to environmental degradation.

The findings of EKC were upheld, especially in the countries from the Global North, to justify their contribution in environmental pollution. Recent research provides evidence that environmental pollution continues to rise with economic development (Maneejuk *et al.*, 2020). It has also been found that there is no solitary EKC relationship that explains all pollutants across places and across time. The EKC relations appear most credible for local air pollutants such as sulphur dioxide, oxides of nitrogen and particulate matter. On the contrary, there is little evidence to back the EKC hypothesis for gases such as carbon dioxide – the most harmful substance for the global climate. The EKC evidence for water pollution is also mixed, and rather inconclusive (Stern, 2004).

In the backdrop of the EKC being questioned, the adverse effects of economic growth on environmental



sustainability have come into focus particularly in the post-COVID period. There is increasing consensus regarding the world getting warmer and the earth's surface temperature rising more rapidly since the industrial revolution (Chart 2). According to an analysis by National Aeronautics and Space Administration (NASA)'s Goddard Institute for Space Studies (GISS), "the mean temperature of Earth has risen by around 1° Celsius (2° Fahrenheit) since 1880. Two-thirds of the warming has happened since 1975, at a rate of around 0.15-0.20°C every decade".

Over the years, the research around environmental accounting has evolved. Considering limitations of GDP-based growth accounting in capturing the impact of climate change, the significance of Green GDP which adjusts for environmental deterioration and waning natural resources into estimates of national income accounts, has grown manifold. Further research focused on alternative measures of growth accounting to capture not only economic performance but also social and environmental performance. In 1993, the draft version of the SEEA was published by the United Nations: 'The SEEA framework is the accepted

international standard for environmental-economic accounting, providing a framework for organising and presenting statistics on the environment and its relationship with the economy'⁸. It helps to integrate economic and environmental information in the internationally settled standards.

The current economic discussions are heavily tilted towards balance between the social and economic performance and somewhat neglecting their interactions with the environmental performance. At present, the growth accounting is mainly focused on economic performance (growth rate, fiscal deficit as a percentage of GDP, government debt as a per cent of GDP, tax revenue as a per cent of GDP, etc.) and social performance (poverty, inequality, level of employment, nutrition level of population, etc.). On other hand, the focus on impact of growth on environment and ecosystem services is still not considered while accounting for growth in GDP.

Some other measures of economic well-being to estimate national income mainly use GDP as the base and then make adjustments based on specific variables. Some of these indices are – Index of Sustainable Economic Welfare, the Genuine Progress Indicator, Green GDPs, and Genuine Wealth. On the other hand, there are some indices those do not use GDP as foundation but measure environmental activities, social well-being, improvement in social-environmental and human capital formation – to arrive at some estimation of the environmental and economic well-being. Some of those indices are Ecological Footprint, Subjective Well-Being, Gross National Happiness, etc.

III. Estimating Green Growth and Material Footprint: Methodology

There is a budding debate emerging on 'green growth' – making growth processes more resource-efficient, cleaner and more resilient. Green growth,

or environmentally sustainable economic growth – is defined as "the strategy of sustaining economic growth and job creation necessary to reduce poverty in the face of worsening resource constraints and climate crisis."⁹ Green GDP takes into account estimates for environmental degradation, depletion of natural resources, and savings of resources and environment into the national income accounts. Several countries viz., Australia, Canada, China, Costa Rica, Indonesia, Japan, Mexico, Papua New Guinea, the US etc. have already started working on developing Green GDP.

Motivated by the SEEA, several researchers have undertaken studies on how to measure Green GDP and what elements should form part of Green GDP estimation (Table 1). A general idea of Green GDP calculation involves subtraction of carbon emission cost, opportunity cost of waste generated, and adjusted savings of natural resource depletion from GDP (Stjepanović, Tomic and Skare, 2017). To put it in a more general form, Green GDP estimation covers environmental pollution costs and resource depletion costs (Wang, F., Wang, R. and Wang, J, 2020). Furthermore, the Green GDP estimation was improved by including not only cost incurred on environment and resource depletion but also savings of resources and environment (Qi, Huang and Ji, 2021). In this paper, we have adapted the most comprehensive methodology of Green GDP estimation following Qi *et al.*, 2021, which includes environmental pollution cost, resource depletion cost and savings of resources and environment.

Resource use is also an important indicator to understand green growth. Lesser usage of natural resources may indicate an increase in the green growth. Based on the available data, we have tried to provide an estimate for resource use in India on fossil fuels, biomass and metal ores.

⁸ <https://seea.un.org/content/homepage>

⁹ As per the Fifth Ministerial Conference on Environment and Development (MCED) in the Asia and Pacific held in Seoul in 2005 (<https://www.unescap.org/our-work/environment-development/green-growth>).

Table 1: Select Literature on Methodology of Green GDP

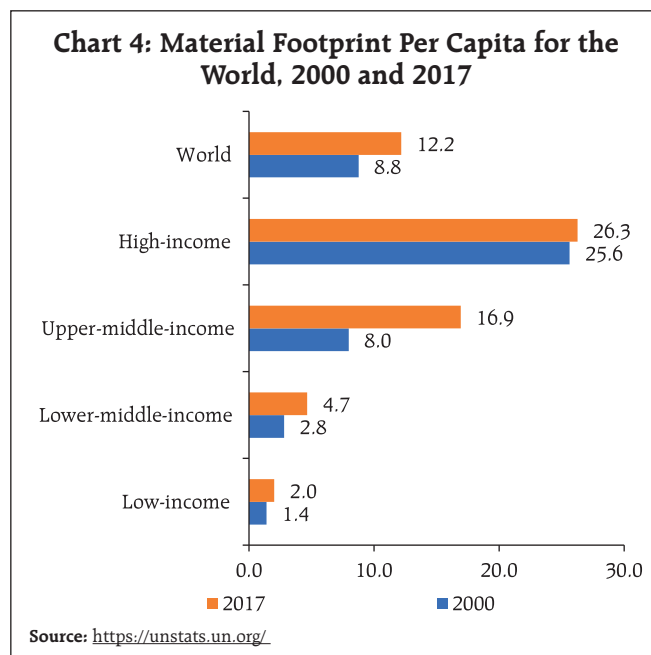
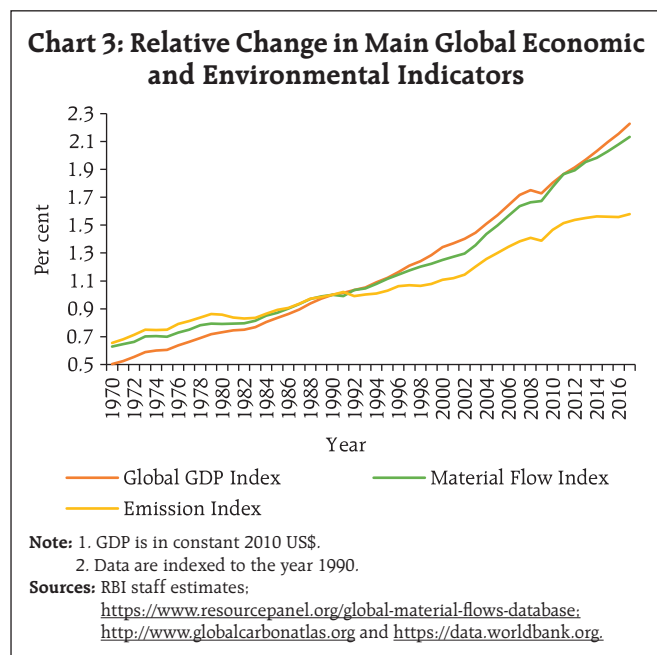
S. No.	Research Articles	Methodology Employed	Description of Variables
1.	Stjepanović, Tomic and Skare (2017)	$\text{Green GDP} = \text{GDP} - (\text{KtCO}_2 * \text{PCDM}) - (\text{Twaste} * 74 \text{ kWh} * \text{Pelect}) - ((\text{GNI}/100) * \% \text{NRD})$	<ul style="list-style-type: none"> • "GDP: Traditional GDP • KtCO_2: Carbon dioxide emissions in kilo tonnes • PCDM: The average volume-weighted price for carbon (in PPP) • Twaste: Total (commercial and industrial) waste (expressed in tonnes) • Pelect: Price for 1 kilowatt-hour is calculated as a mean of commercial and industrial price for each country. • NRD: Adjusted savings of natural resource depletion as a percentage of the GNI. • GNI: Gross National Income."
2.	Wang, F., Wang, R. and Wang, J (2020)	$\text{Green GDP} = \text{GDP} - (\text{Environmental pollution cost (EPC)} + \text{Resource depletion cost (RDC)})$ <p>EPC:</p> <ul style="list-style-type: none"> • Air Pollution • Wastewater pollution • Solid waste pollution <p>RDC:</p> <ul style="list-style-type: none"> • Fossil energy depletion • Water resource depletion 	<p>Air pollution:</p> <ul style="list-style-type: none"> • "Carbon emission pollution (amount of carbon emission*conversion factor) • SO_2 emission pollution (amount of SO_2 emission*shadow price¹⁰) • Wastewater pollution (amount of wastewater discharge*governance cost) <p>Solid waste pollution</p> <ul style="list-style-type: none"> • Pollution from solid waste discharge (amount of solid waste discharge*governance cost) • Pollution from solid waste storage (amount of solid waste storage*governance cost) <p>Fossil energy depletion (amount of fossil energy consumption*shadow price)</p> <p>Water resources depletion (amount of water consumption*unit volume price)"</p>
3	Qi, Huang and Ji (2021)	$\text{Green GDP} = \text{GDP} - \text{Cost of resources} - \text{Cost of environment} + \text{Savings of resources and environment}$	<p>Natural resource depletion cost:</p> <ul style="list-style-type: none"> • "Cultivated land depletion value • Forest resource depletion value • Water resource depletion value • Energy consumption value • Mineral resource depletion value <p>Environmental quality degradation cost:</p> <ul style="list-style-type: none"> • Air pollution • Water pollution • Solid waste pollution • Natural disaster loss <p>Resource and environment improvement benefits:</p> <ul style="list-style-type: none"> • Garden green space benefits"

The Brundtland Commission, 1987 has defined Sustainable Development as "Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs". As per this definition, resource conservation becomes basic strand of sustainable development. In this section, therefore, apart from total domestic consumption per unit of GDP (kilograms per constant

2010 US dollars), different categories of consumption such as, fossil fuels, metals, non-metallic minerals, etc. have been considered.

The global material footprint¹⁰, GDP and greenhouse gas (GHG) emissions have amplified

¹⁰ "Material footprint" refers to the total amount of raw materials extracted to meet final consumption demands.



quickly over time and remain strongly correlated (Chart 3). Thus, it may be mentioned that growth has not been dissociated from resource consumption and environmental burdens.

According to the United Nations Statistics, about 8.75 metric tons of natural resources were used to cater to an individual's needs (per capita material footprint) in 2000. In 2017, global per capita material footprint increased to 12.18 metric tons – a rise of 39 per cent. High-income countries have the dubious distinction of using the maximum material footprint per capita (approximately 26 metric tons per person in 2017), 55 per cent more than the upper-middle-income countries (17 metric tons per person in the same year) and more than 13 times the level of low-income countries (2 metric tons per person in 2017) (Chart 4). These observations (in clear contrast to what EKC postulates) called for a relook into the existing global growth process, and the necessary course correction.

IV. Estimation of Green Growth in India

Environmental Economic Accounting in India

Established in 2003, one of the earlier initiatives in India in relation to accounting of natural resources is the Green Indian States Trust (GIST). The GIST started a project - Green Accounting for Indian States & Union Territories Project (GAISP) to build a framework for environmentally adjusted national income accounts. The GAISP aimed to arrive at annual estimates of adjusted state national income. The first phase of the project produced eight reports, covering estimates for forest and forest products in India, agricultural cropland, sub-soil assets, ecotourism, freshwater resources, etc. All those reports provided comprehensive and details accounting methodology and estimation of India's natural resources.

A study attempted to value ecosystem services at the Corbett Tiger Reserve in terms of willingness

to pay for wildlife recreational services (Badola *et al.*, 2010). In similar line, another project by the Indian Institute of Forest Management (IIFM) provided economic valuation of six major tiger reserves in India: Corbett, Kanha, Kaziranga, Periyar, Ranthambore and Sundarbans. The report calculated the benefits from ecosystem services (in terms of area) at a range of ₹50,000 to ₹1,90,000 per hectare in a year. It was also observed that a large segment of the benefits of these reserves were intangibles and thus were unaccounted for (Verma *et al.*, 2015).

In the recent years, the Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) project was launched in 2017 by the United Nations (UN) and the European Union to enhance knowledge and accounting process for ecosystem accounting as per the SEEA framework. The project initially started in five countries - Brazil, China, India, Mexico and South Africa. The countries were chosen on account of the importance of the natural capital in these countries, the presence of diversity of ecology and biodiversity and the commitments of these countries to the Convention on Biological Diversity (CBD).

The Ministry of Statistics and Programme Implementation (MOSPI) initiated the compilation of environmental accounting under the NCAVES. The primary aim was to provide an estimation of India's stock and flow of natural assets, as per the SEEA. The accounting estimations include an estimation for land, forest, wetlands, and also the quality of land, soil, water, crop diversity and forest cover. There are data sources and detailed valuation methodologies for ecosystem services *viz.* crop provisioning, provisioning of timber and non-timber forest products, carbon retention (from forests), nature-based tourism and soil erosion prevention services, being provided by the MOSPI. All these accounting valuations were attempted for some specific years – 2005-06, 2011-12 and 2014-15 (GoI, 2021a).

A similar project was carried out by the Directorate of Economics and Statistics (DES), Government of Uttarakhand with collaboration of the Indian Institute of Forest Management (IIFM) in 2018. The project tried to provide a framework for green accounting of land, water, minerals, forests for the state of Uttarakhand to arrive at an estimate of the economic value of the state's forest resources and its contribution to GDP. The study also provided an outline for Gross Environmental Product (GEP) in line with the international system for collecting relevant data on natural resources and capital of the state (Verma *et al.*, 2018).

The accounting framework and methodology prepared by different institutions and committees have been useful in providing a better understanding of the valuation of natural resources, forest and water bodies in India. However, due to the mammoth size of such accounting exercises for a huge country like India, preparation of a macroeconomic data series on valuation of natural capital for India perhaps is yet to materialise. As a result, to get macroeconomic data for India for a longer time period, one has to take recourse to data provided by international institutions like the World Bank, BRICS and Organisation for Economic Co-operation and Development (OECD).

As per the World Bank, environmental deterioration in India equals to about US\$ 80 billion per year – around 5.7 per cent of GDP (World Bank, 2013). On the basis of existing data, we attempt to understand the trend and trajectory of green growth in India. Currently, the environmental-economic accounting in India is limited to physical quantities (*i.e.*, soil quality change represented in change in production level, wetland loss shown in change in wetland area *etc.*) and these environmental variables are not converted into economic terms. Therefore, the scope of comparison and assessment of different environmental cost is very much limited. This article aims to fill this gap by giving a comprehensive

estimate of Green GDP in the context of India, by valuing different environmental costs.

Data and Methodology

In order to arrive at Green GDP measurement for India, apart from sustainable development indicators and resource consumption indicators, we have also included expenditure by the government on environment protection. The sustainable development indicators include carbon dioxide damage and particulate emission damage – both as per cent of GNI. The resource consumption indicators include opportunity cost of energy depletion, mineral depletion, and net forest depletion – as a per cent of GNI (constant US\$ 2015). We have then converted the values as percentage of GNI into absolute number at constant US\$ 2015 prices. These converted values have then been used to arrive at environmental economic accounting of Green GDP.

Thus, our general outline of estimation may be given as below:

Green GDP = GDP – (Carbon dioxide damage + particulate emission damage) – (Opportunity cost of energy depletion + mineral depletion + net forest depletion) + Expenditure on environmental protection

"The Carbon dioxide damage is estimated to be US\$ 20 per ton of carbon times the number of tons of carbon emitted¹¹. The particulate emission damage is the damage due to exposure of a country's population to ambient concentrations of particulates measuring less than 2.5 microns in diameter (PM2.5), ambient ozone pollution, and indoor concentrations of PM2.5 in households cooking with solid fuels. Damages are calculated as foregone labor, income due to premature death¹². The net forest depletion is calculated as the product of unit resource rents and the excess of

harvest over natural growth¹³. The energy depletion is the ratio of the value of the stock of energy resources to the remaining reserve lifetime (capped at 25 years)¹⁴. It covers coal, crude oil, and natural gas. The mineral depletion is the ratio of the value of the stock of mineral resources to the remaining reserve lifetime (capped at 25 years). It covers tin, gold, lead, zinc, iron, copper, nickel, silver, bauxite, and phosphate."¹⁵ The data for particulate emission damage is available only after 1990 and the data for expenditure on environmental protection data is available for 2007-2020 period. Data for India for all these indicators except, expenditure on environmental protection, have been compiled from the World Development Indicator (WDI) database of the World Bank. Data for expenditure on environmental protection have been collected from the BRICS Joint Statistical Publication series. Finally, Green GDP has been estimated for the period – 1971 to 2019 at constant 2015 price.

We compute three measures of Green GDPs- *G1*, *G2* and *G3* depending on the availability of data at different point of time. These measures are defined as below:

1. ***G1*** = GDP - (Carbon dioxide damage) - (Opportunity cost of energy depletion + mineral depletion + net forest depletion);
Data availability: 1971-2019.
2. ***G2*** = ***G1*** - particulate emission damage; *Data availability: 1990-2019.*
3. ***G3*** = ***G2*** + Expenditure on environmental protection; *Data availability: 2006-2019.*

Green GDP *G3* is the most comprehensive measure at this stage and includes all available information whereas *G1* is the least comprehensive. Furthermore, we have computed green GDP ratios ***GR1***, ***GR2*** and ***GR3*** by dividing *G1*, *G2* and *G3* by GDP. These ratios will help us analyse the trajectory

¹¹ Long definition of carbon dioxide damage as per WDI, World Bank.

¹² Long definition of particulate emission damage as per WDI, World Bank.

¹³ Long definition of net forest depletion as per WDI, World Bank.

¹⁴ Long definition of energy depletion as per WDI, World Bank.

¹⁵ Long definition of mineral depletion as per WDI, World Bank.

of green GDP with respect to traditional measure of economic activities *i.e.*, GDP.

Result and Discussion

Green GDPs based on $G1$, $G2$ and $G3$ follow a rising trend. Green GDP $G1$ increased from ₹13.2 lakh crore in 1971 to ₹167.7 lakh crore in 2019, Green GDP $G2$ increased from ₹28.1 lakh crore in 1990 to ₹165.8 lakh crore in 2019, and Green GDP $G3$ increased from ₹72.1 lakh crore in 2006 to ₹165.9 lakh crore in 2019 (Annex Table 1).

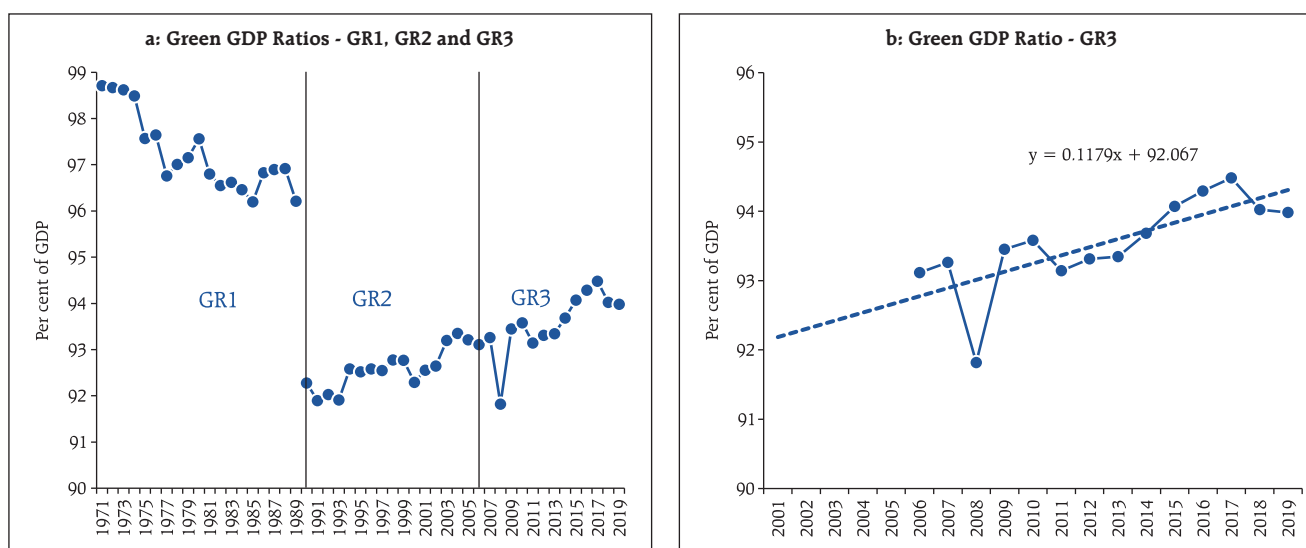
Using the envelope approach, Green GDP ratio $GR1$ for period 1971 to 1989, $GR2$ for 1990 to 2005, and $GR3$ for 2006 to 2019, is plotted [Chart 5(a)]. We identify three broad phases based on the trajectory of Green GDP ratio. In first phase of the period 1971-1989, the GR follows mostly a downward trend with occasional improvements in the years 1976, 1977-1980, and 1986 indicating that the growth during this phase entailed an environmental cost. During this period, the focus was more on higher economic

growth than on environmental cost in terms of deforestation, resource depletion and damages due to carbon emission. The sudden fall noticed in the years 1989 and 1990 resulted from incorporation of particulate emission damage data.

During the second phase (1990-2006) which witnessed the 1992 Earth Summit and Kyoto Protocol¹⁶, the Green GDP ratio generally followed an upward trajectory, as India focused on balancing between the objectives of higher economic growth and environmental sustainability, the downward trend witnessed in earlier phase got transformed into a slightly upward trajectory.

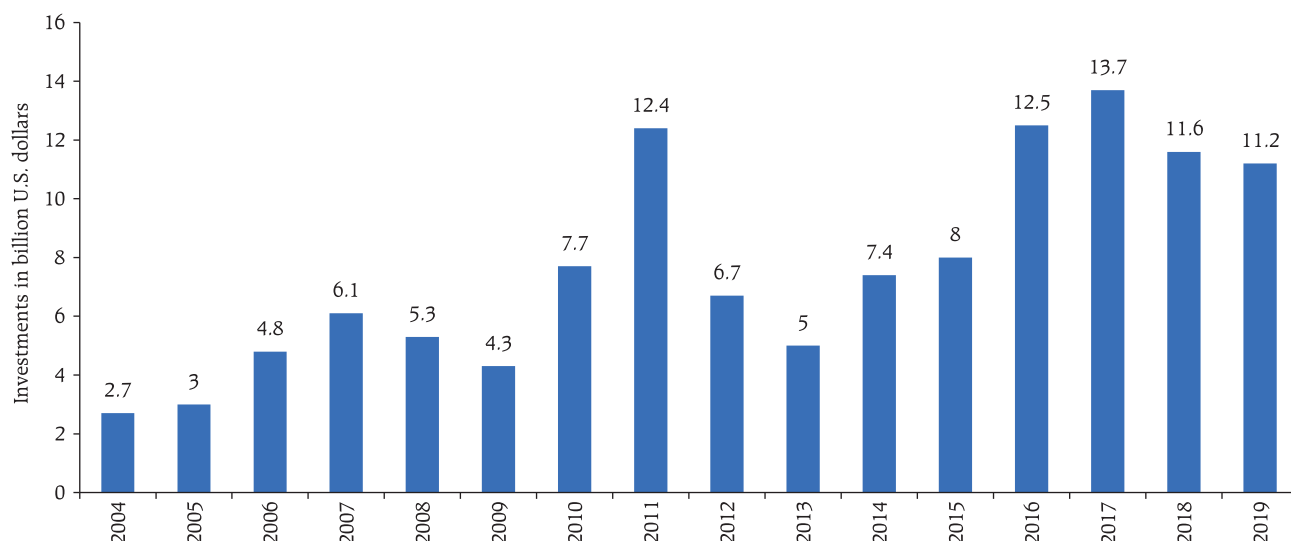
The third phase (2006-2019) shows the trajectory of Green GDP with all available information. The sharp downturn in year 2007 and subsequent improvement in year 2008 emanate from parallel damages¹⁷ from energy and mineral depletions. Thereafter, this phase has seen upward movement with steeper trend than earlier phase.

Chart 5: Green GDP Ratios for India



¹⁶ Please see section on green initiatives in India for details.

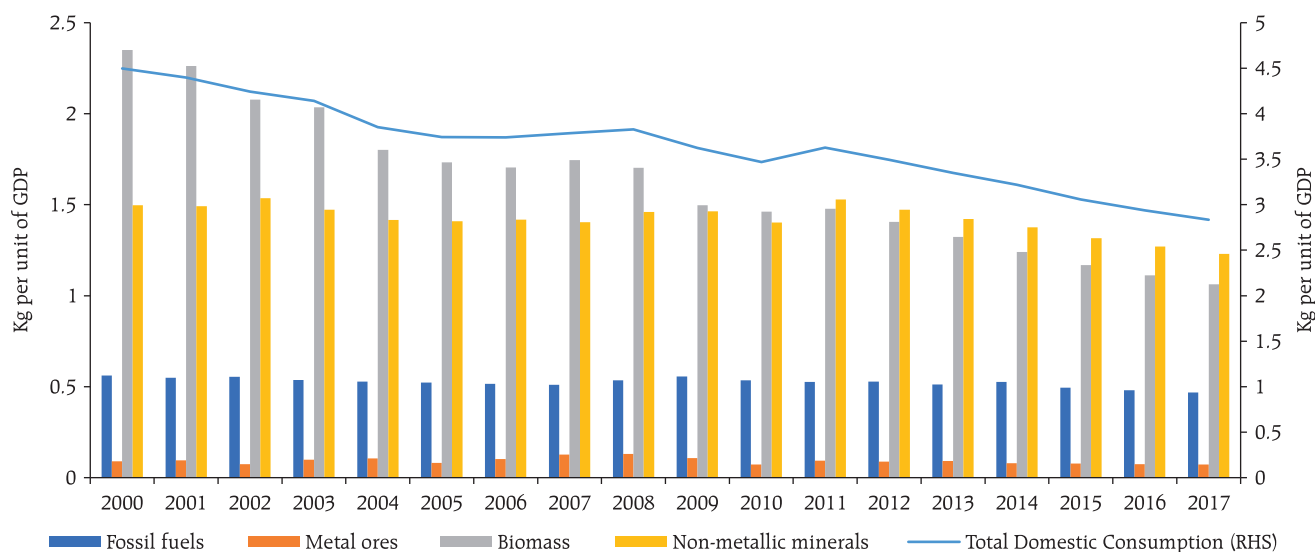
¹⁷ From year 2007 to 2008, the damages due to mineral depletion increased from ₹1.28 lakh crore to ₹1.73 lakh crore and then reduced to ₹0.78 lakh crore in 2009. The damages due to energy depletion from 2007 to 2008 increased from ₹1.37 lakh crore to ₹2.18 lakh crore and then reduced to ₹1.12 lakh crore in 2009.

Chart 6: New Investment in Renewable Energy in India

Source: Frankfurt School-UNEP Centre

As per the data available from Frankfurt School - UNEP Centre (2020), new investment in renewable energy in India has increased significantly since 2012. The yearly average investment for the period 2012- 2019 has increased to US\$ 9.51 billion from US\$ 5.78 billion in the period before that (2004-2011) (Chart 6).

Resource use (per unit of GDP) has decreased over the years indicating improvement in the resource use efficiency of the Indian economy (Chart 7). Data for resource use indicators have been collected from the UN statistics SDG Country profiles. The data set includes consumption data for fossil fuels, metal ores, crops, crop residue, coal, biomass, non-

Chart 7: Material Footprint of India

Source: <https://country-profiles.unstatshub.org/ind#goal-12>

metallic minerals, and total resource extraction. The data set covers the period from 2000 to 2017 and is denominated in physical quantity.

India used lesser amount of resources to produce an additional unit of GDP with passing of each year. The decrease in resource use (from 4.49 kg per unit of GDP in 2000 to 2.83 kg per unit of GDP in 2017) is primarily driven by a decrease in biomass use (grazed biomass, crop and crop residue) and non-metallic minerals. In 2000, the biomass use and non-metallic minerals, which were 2.35 kg per unit of GDP and 1.49 kg per unit of GDP, respectively, have been reduced to 1.06 kg per unit of GDP and 1.23 kg per unit of GDP, respectively, in 2017.

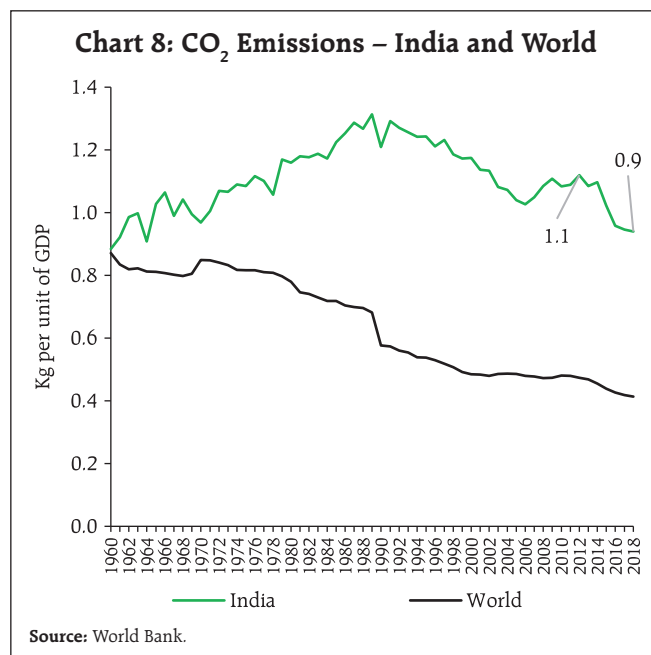
This improvement may be attributed to the increased efforts of the policymakers in recycling waste generated from various sources, implementation of property rights to eliminate negative externalities, energy efficiency standards, and technological advances to reduce generation of waste material in production systems across economy. All these steps have not only reduced wastage of resources but also helped recycle resources in one way or the other.

Furthermore, India in the recent period, has displayed significant progress in reducing CO₂ emission. The CO₂ emission decreased to 0.93 kg per unit of GDP in 2018 (US\$ at 2015) from 1.12 kg per unit of GDP in 2012 (Chart 8). This trend is expected to continue during the pandemic phase when economic activity slowed down.

We believe that progress made in the recent years in terms of green growth in India has been facilitated by several initiatives and effective policies by the government.

Green Initiatives- India

Till the 1980s, prevention of pollution of natural resources and the environment was mainly done *via* acts and laws. The "Water (Prevention and Control of Pollution) Act of 1974", "Air (Prevention and Control



of Pollution) Act of 1981", "National Environmental Tribunal Act of 1995" were the most significant acts in this regard.

Apart from formulation of national policies, standards and regulations, the Ministry of Environment and Forests (MOEF), established in 1985, was entrusted with the responsibility of planning, promotion and coordination of all environmental activities. In 1992, the National Policy on Pollution Abatement and the National Conservation Strategy and Policy Statement on Environment and Development were introduced with a view to providing guiding values to the central and state governments.

India became a signatory to the "United Nations Convention on Biological Diversity, 1992" in May 1994, and the "Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization 2010" in October 2014. India adopted the "Biological Diversity Act 2002" (BD Act) to enforce steps to protect biodiversity as per the international standards. Furthermore, the Clean Development Mechanism (CDM) initiated in the Kyoto Protocol helped India position better towards

climate change. India provided positive indication on accepting the CDM. There was progress in building institutional infrastructure for the CDM – paving ways for substantial number of CDM projects in India (Chopra, 2017).

In September 2015, 193 countries including India committed to the Sustainable Development Goals (SDGs) as provided by the UN resolution. India has always demonstrated responsible behaviour as far as climate related international agreement and policies are concerned. At CoP 26 in 2021, it pledged to increase targets for renewable energy deployment and reduction in carbon emissions.

Some of the government initiatives like *Swachh Bharat Abhiyan* (to create mass awareness on cleanliness and environmental pollution, to eliminate open defecation and improve solid waste management) and *Namami Gange* (significant reduction of pollution, conservation and resuscitation of the river Ganga) are worth mentioning here. During this phase the effective policy initiatives have started providing fruitful results. The total forest cover of India increased to 7,13,789 sq. km. (21.71 per cent of the total geographic area of the country) in 2021 from 6,97,898 sq. km. (21.23 per cent of the total geographic area of the country) in 2013 (GoI, 2021b). The private entities have also started contributing towards environmental sustainability – through initiatives with regard to low carbon emission and promotion of green energy. Green initiatives, less usage of harmful resources (like mercury, lead, etc.) for the production of goods and resource efficiency have become a major part of the corporate social responsibility (CSR). The recent initiatives taken by the government and the simultaneous increasing display of responsibility by the corporate sector is getting reflected in the increase in investment in renewable energy in India.

India is progressing well towards attaining the target of 50 per cent non-fossil power generation

capacity by 2030, including the build-out of 500 GW of non-fossil sources. Apart from higher share of renewable energy sources, India is also targeting improved energy efficiency through measures like sale of light emitting diodes (LEDs) and compulsory audits for energy intensive firms. India is playing a leadership role through initiatives such as the International Solar Alliance and the Lifestyle for Environment campaign. India has the world's first fully solar power operated airport (Cochin International Airport) and India's huge railway system will become net zero in this decade. It is the second largest market in Asia for new solar PV capacity and has allotted US\$ 24.3 billion for its solar energy schemes which provide incentives to domestic and international companies to set up battery manufacturing plants. Moreover, as one of the leading oil importers and consumers, India has expedited efforts to double ethanol blending with gasoline to 20 per cent from the current 10 per cent across the country from 2025-26. Furthermore, as a part of the green energy initiative, India has started working towards producing hydrogen fuel and is committed to achieve 5 million tons of green hydrogen per annum by the year 2030 (Reuters, 2022).

V. Concluding Observations

Given the paucity of relevant data, estimation of Green GDP for India in this paper relies on available global database and provides the starting point for future research in this area of environmental and economic accounting. The trajectory of Green GDP for India displays an upward movement with visible improvements particularly, since 2012. Furthermore, resource depletion, CO₂ emission and material footprint, especially in the case of biomass and non-metallic minerals, are showing signs of considerable improvements which further support our findings. Thus, based on the broad observations from our estimation, we can say that India is progressing well so far as green growth is concerned, which if continued

should contribute to improvements in general well-being of its population.

The unavailability of data related to environmental indicators in case of India is posing a major challenge for engaging in research work in the area and though India has a dedicated Open Government Data (OGD) platform for data dissemination¹⁸, but it needs revamping to smoothen its use. In this context, the OECD¹⁹ and the Eurostat²⁰ platform can be viewed for further improvements. Further, a dedicated in-house group in the Ministry of Environment, Forest and Climate Change may be formed for (i) providing time-series database required for estimation of Green GDP; (ii) release estimates of Green GDP for India periodically on a regular basis and (iii) user-friendly data dissemination platform on the lines of the OECD and the Eurostat.

Despite the recent initiatives and achievements, a lot remains to be done at the ground level going ahead. Better coordination of the flow of power between the state-owned power distribution companies, and the roll out of nationwide charging infrastructure for electric vehicles (EVs) to name a few. The transition to a low carbon and climate friendly economy would require a revamp of financial policy and regulation to ensure adequate finance. Given the importance and urgency of the challenge of climate change, financial policy and regulation need to be redefined to play its required role in the transition to a low-carbon economy (Demekas and Grippa, 2021). In this context, there is an increasing need for the financial system to move towards green financing, keeping in mind the social and development objectives of India (RBI, 2022).

¹⁸ <https://data.gov.in/>

¹⁹ <https://stats.oecd.org/>

²⁰ <https://ec.europa.eu/eurostat/web/main/home>

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Annex Table 1: Estimates of Green GDP for India

(in ₹ lakh crore)

Year	G1	G2	G3
2019	167.752	165.839	165.860
2018	161.347	159.466	159.489
2017	152.176	150.410	150.434
2016	142.312	140.573	140.578
2015	131.275	129.547	129.555
2014	121.131	119.460	119.465
2013	112.477	110.819	110.823
2012	105.719	104.130	104.134
2011	100.049	98.563	98.568
2010	95.477	94.093	94.099
2009	87.909	86.605	86.609
2008	80.131	78.890	78.893
2007	78.918	77.731	77.735
2006	73.228	72.083	72.087
2005	67.916	66.783	
2004	63.094	61.972	
2003	58.467	57.328	
2002	53.981	52.835	
2001	51.999	50.847	
2000	49.521	48.372	
1999	47.965	46.821	
1998	44.153	43.022	
1997	41.536	40.417	
1996	39.947	38.858	
1995	37.179	36.104	
1994	34.658	33.584	
1993	32.336	31.259	
1992	30.964	29.880	
1991	29.378	28.286	
1990	29.216	28.107	
1989	27.769		
1988	26.403		
1987	24.078		
1986	23.143		
1985	21.944		
1984	20.907		
1983	20.171		
1982	18.786		
1981	18.203		
1980	17.306		
1979	16.146		
1978	17.013		
1977	16.053		
1976	15.103		
1975	14.845		
1974	13.729		
1973	13.586		
1972	13.159		
1971	13.238		

Note: Both the GDP and GNI figures are given in constant 2015 US dollar. Green GDPs for India in Rupees is derived by using average USD/INR exchange rate during FY 2015-16.

Source: RBI staff estimates based on World Bank database and BRICS publications.

'Bigtechs' in the Financial Domain: Balancing Competition and Stability*

by Vijay Singh Shekhawat[^], Ardhesh Kumar Shukla[^], ACV Subrahmanyam[^] and Abhishek Singh[^]

Bigtechs are uniquely positioned to alter the financial services landscape with their technological advantages, large user base, wide-spread use by the financial institutions and network-effects. This article presents a survey of the global regulatory practices in this domain which points to development of a framework that aligns both entity and activity-based regulations. However, with the increasing complex interlinkages between financial institutions and tech-companies, the regulatory frameworks need to keep up the pace with innovations to contain the vulnerabilities that may arise from the new risk propagation channels.

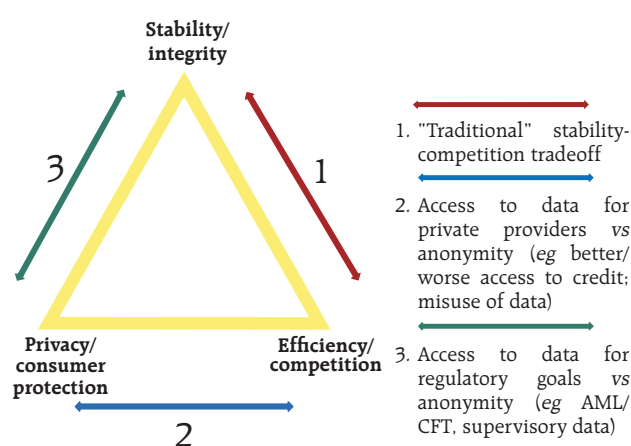
Introduction

The last two decades witnessed the meteoric rise of technology-centric companies both in the financial and non-financial domains. In the financial domain, the fintechs with their innovations have disrupted the traditional channels of financial intermediation, increased competition, and have altered the scope and scale for delivering financial services. They often collaborate with the existing players like banks/ insurance companies, leading to greater financial inclusion, improved process efficiency, lower transaction and operational costs. In the non-financial domain, the technology firms such as Alibaba, Amazon, Facebook, Google and Tencent, commonly known as 'bigtechs' have grown exponentially over the last two decades. Building on the advantages

of the reinforcing nature of the data networks they generate, a few bigtechs have ventured into fintech space offering financial services, including payments, money management, insurance, and lending.

Globally regulators recognise the benefits of fintechs and endeavour to create a supportive ecosystem. Furthermore, they are also cognizant of the new risk elements from the entry of bigtechs into finance. Notwithstanding the benefits of improved service access and financial inclusion, the regulators are wary especially regarding the bigtechs' impact on competition and market contestability, consumers' data privacy rights, and on financial intermediation / stability (FSI 2021a).¹ They face the challenge of balancing between promoting efficiency, protecting data privacy and ensuring financial stability as illustrated below (Figure 1). Consequently, regulators are realigning their regulatory frameworks to facilitate a level playing field in the fintech space, while containing the plausible risks from the emergence of bigtechs (BIS 2021).²

Figure 1: Balancing the triple objectives – Stability- Efficiency – Privacy³



Source: Feyen et al. (2021). Adapted from Petralia et al. (2019) and Carletti et al. (2020).

[^] The authors are from the Department of Supervision (DoS).

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¹ "Bigtech regulation: what is going on?", September 2021, FSI Insights no. 36.

² "Regulating Bigtech in finance", FSI Briefs, BIS bulletin No. 45, August 2021.

³ <https://voxeu.org/article/policy-triangle-big-techs-finance>

In this context, this study analyses the benefits and the challenges posed by the entry of bigtechs in the financial domain; and the response of the regulatory and supervisory authorities across jurisdictions in balancing them.

The rest of the study is structured as follows - Section II discusses the entry of bigtechs in finance and the possible concerns they pose. Section III discusses the evolving regulatory landscape to address the financial stability, competition, operational resilience, and data privacy challenges from the emergence of bigtechs and Section IV concludes.

II. Bigtechs Entry into Financial Domain – Risks and Concerns

The activities of bigtechs in finance are a special case of broader fintech innovation. While fintech companies are set up to operate primarily in financial services, bigtech firms offer financial services as part of a much wider set of activities. Bigtechs' core businesses are in information technology and consulting (e.g., cloud computing and data analytics), which account for around 46 per cent of their revenues *vis-a-vis* financial services which represent about 11

per cent of their revenues (FSI 2019). Table 1 (a and b) illustrate the entry of select bigtechs for providing various financial services in key jurisdictions.

The three major financial services provided by bigtechs are payments, credit provisioning and banking. For bigtechs, the regulations require them to acquire licenses before offering financial services. As illustrated in Table 1b, bigtechs hold licenses for these services either through subsidiaries or joint ventures with varying levels of ownership control (Restoy 2021).

The pervasiveness of bigtechs provides them with a large client base who are entrenched in using their platforms/ products with access to multiple facets of customers' data, generating strong networks effects. The entry of bigtechs into finance also reflects strong complementarities between financial services and their core non-financial services. Given their entrenched clientele base using their non-financial services like search engine, e-commerce platforms, it is possible for bigtechs to create products and establish their footprint in the financial domain with greater ease *vis-à-vis* the

Table 1a: Financial Service Offerings by bigtech Companies

	Main Business	Banking #	Credit Provision	Payment	Crowd funding	Asset Mgmt.	Insurance
Google	Internet search/advertising			Y			
Apple	Tech/producing hardware			Y			
Facebook	Social media/advertising			Y			
Amazon	E-commerce/online retail		Y	Y	Y		Y
Alibaba (Ant Group)	E-commerce/online retail	Y	Y	Y	Y	Y	Y
Baidu	Internet search/advertising	Y	Y	Y	Y	Y	Y
JD.com	E-commerce/online retail	Y	Y	Y	Y	Y	Y
Tencent	Tech/gaming and messaging	Y	Y	Y	Y	Y	Y
NTT Docomo	Mobile communications	Y	Y	Y	Y		
Rakuten	E-commerce/online retail	Y		Y		Y	Y
Mercado Libre	E-commerce/online retail		Y	Y		Y	

Notes: 1. # The core activity of an entity engaged in banking is taking deposits, though regulations vary across countries.

2. "Y" Provision of financial service through bigtech entity and/or in partnership with financial institutions outside bigtech group in at least one jurisdiction.

Source: "Bigtechs in finance: regulatory approaches and policy options", FSI, March 2021 and news portals.

Table 1b: Licences Held by bigtech Companies in Selected Jurisdictions

Licence held	Brazil			China			EU			HongKong			UK			US		
	B	P	C	B	P	C	B	P	C	B	P	C	B	P	C	B	P	C
Amazon									✓						✓			✓
Apple																		✓
Facebook									✓						✓			✓
Google									✓						✓			✓
Ant Group			✓	✓	✓	✓			✓	✓		✓			✓			✓
Baidu				✓*	✓	✓												
JD.com					✓	✓				✓*								
Tencent				✓*	✓	✓				✓		✓						
Mercado Libre			✓															
NTT Docomo							✓		✓						✓			
Rakuten							✓		✓						✓			✓

□ Market presence in a partnership or joint venture with other FIs.

✓ Bigtech has an entity within a group that holds a financial licence.

✓ Bigtech offers financial services both through a partnership or joint venture with other FIs and has an entity within a group that holds a financial licence.

✓* Shareholding of bigtechs in these banks is below 50%.

Notes: B- banking license, P – Payments license, C- Credit license.

Source: "Bigtechs in finance: regulatory approaches and policy options" – FSI, March 2021.

nascent fintechs. This poses a serious barrier in terms of creating a level playing field to promote innovation in the fintech space. Besides the technological advantages, the bigtechs typically also have the financial muscle to withstand the competitive pressures.⁴ In this background, the key risks posed by the bigtechs can broadly be grouped under three categories.

1. Firstly, the complex governance structure of the bigtechs, limits the scope for effective oversight and design of entity-based regulations.
2. Secondly, bigtechs can impact the risk and maturity transformation functions through their direct exposure to provision of financial services. At times this may also translate or lead to shadow banking activities, undermining financial stability.

3. Thirdly, bigtechs, given their pervasive adoption as third-party service providers, generally become the underlying platform on which a host of services are offered. This uniquely positions the bigtechs to easily acquire cross-functional databases which can be exploited for generating innovative product offerings, making them dominant players in the market (Moenjak and Santiprabhob, 2021).⁵

III. Regulatory Frameworks to Address Risks from bigtechs in Finance

Regulators across the globe have increased the scrutiny of the bigtechs and their business models in the financial domain and are adjusting the policy frameworks to cope up with the risks presented by bigtechs. The global regulatory initiatives can be broadly calibrated on the following five key dimensions (FSI 2021a)⁶, viz.,

⁴ To illustrate, as more fintechs/ bigtechs enter the financial domain, the cost of business increases as competitors must spend more to acquire and retain their customers. Fintech or new digital offerings are often accompanied by various discount/reward offers leading to higher cash burn.

⁵ Regulating bigtech and non-bank financial services in the digital era - Central Banking, 12th April 2021.

⁶ For a detailed discussion on risks and benefits of bigtechs in finance see, for example, BIS (2019), Carstens (2018), Croxson et al (2021) and FSB (2019, 2020).

- a) Competition and Market contestability,
- b) Data protection and Data-sharing,
- c) Conduct of Business,
- d) Operational Resilience, and
- e) Financial Stability

III.a Ensuring Competition and Market Contestability – Limiting Dominance

With the advent of bigtechs into the financial domain, the primary concern for regulators globally has been to preserve competition and market contestability. Bigtechs with their entrenched customer base can require exclusivity of participants, discriminate across potential or existing vendors, give

preferential treatment to their own products, bundle their services, create cross-product subsidisation, or abuse their wealth of data to gain a competitive advantage (FSI 2021a). Through their data networks based business models, the bigtechs have the potential to become dominant players raising competition and data privacy issues. Hence, the regulatory authorities are introducing regulations to preserve the level playing field and competition by ensuring equitable access to data.

The competition authorities are realizing that the traditional ex-post approach may prove ineffective in the case of bigtechs and are focusing on ex-ante entity-based rules, and thus, requiring the bigtechs

Table 2: Key bigtech Competition Guidelines and Proposed Legislation in Selected Jurisdictions

Jurisdiction	Regulation	Scope	Ex-ante or ex-post?		Instruments			
			EX A	EX P	BOP	INT	TPP	PRO
China	Platform Antimonopoly Guidelines	All online platforms. Additional provisions for "essential facilities", as well as provisions to identify potential abuses by dominant platforms	✓	✓		✓	✓	✓
China	Regulation on non-bank payment service providers*	Non-bank institutions that provide payment services for natural persons, legal persons and other organisations.	✓	✓		***	***	***
EU	Digital Markets Act (DMA)*	"Gatekeepers" with a strong, entrenched, and durable economic and intermediation position.	✓	✓**		✓	✓	✓
US	Competition and Antitrust Law Enforcement Act* (CALERA)	"Dominant" firms that have >50% of total market share or "significant" market power.	✓	✓	✓			
US	Augmenting Compatibility and Competition by Enabling Service Switching Act* (ACCESS Act)	Platforms that satisfy criteria for (i) monthly active users (individual or business); (ii) market capitalisation; and (iii) critical trading partner status.	✓	✓**		✓		
US	Platform Competition and Opportunity Act*	Identical scope as the ACCESS Act.	✓		✓			
US	American Choice and Innovation Online Act*	Identical scope as the ACCESS Act.	✓	✓**		✓	✓	✓
US	Trust-Busting in the 21st Century Act*	Dominant platforms, determined by evaluating the (i) extent and durability of market power; (ii) government involvement (contracts etc), (iii) exclusivity agreements; (iv) network effects; and (v) vertical integration.	✓	✓**	✓		✓	
US	Bust up BigTech Act*	Platforms that satisfy criteria for (i) yearly active users; and (ii) total revenue.	✓		✓		✓	

Source: Bigtech regulation: what is going on? (Insights no. 36 – September 2021), Financial Stability Institute, Bank of International Settlements.

Notes: * Proposed; ** Ex post measures (eg fines) are specific to bigtechs.; *** If a non-bank payment institution meets certain conditions in terms of market share, the PBC may provide an early warning of measures it may take.

BOP = shifting of the burden of proof from the regulator to the firm engaging in a merger or acquisition; INT = interoperability with third parties; PRO = allowing business users to promote and offer products and services and conclude contracts outside the platform; TPP = equal treatment of own and third-party products or services.

to re-align their business models. Given the possible systemic risks that dominant bigtechs can pose, the focus has shifted to initiating proactive action to limit anti-competitive practices. In key jurisdictions like US, EU and China, the burden of proof that mergers would not create a dominant market position for the firm or result in loss of consumer welfare has shifted from the regulator to the firms. Further, the proposed regulations require interoperability between bigtechs and third parties, ensuring equal treatment of own and third-party apps, etc. Besides, most jurisdictions have intensified ex-post supervisory actions on bigtechs to closely monitor their market dominance.

Table 2 summarizes the provisions of key acts enacted or proposed in the US, EU and China. As major bigtechs are domiciled in these jurisdictions these regulations are likely to impact the business models of bigtechs.⁷

III.b Securing Data Protection and Data-Sharing – Ensuring Customer Protection

The EU's GDPR (The General Data Protection Regulation) is a comprehensive regulatory framework, which addresses the data protection and data sharing aspects in general. Several countries have aligned their data protection regimes close to the EU's GDPR⁸. The "purpose specificity" and "security requirements" related aspects of data protection under GDPR are particularly relevant to the bigtechs. The purpose specificity requires the user's data to be collected and utilized for the purpose consented by the respective user. This limits the bigtechs' ability to use network effects to analyse customer data collected from other platforms. Further, the security requirement specifies that the bigtechs should put in place adequate organizational measures to protect

Table 3: Data Protection and Data-sharing Approaches in the Major Economies

Data Protection	EU	US	CHINA
Collection and use of personal data			
Lawfulness, fairness, transparency	Yes	Yes	Yes
Purpose specification	Yes	*	Yes
Security	Yes	Yes	Yes
User's Data Rights			
Consent and access	Yes	*	Yes
Rectification and deletion	Yes	*	Yes
Data portability	Yes	*	Yes
Data Sharing			
Open Banking approach	Prescriptive	Market Driven	

Notes: * In the US there is no federal law at present covering these aspects, but the debate is ongoing on these issues;

Source: Bigtech regulation: what is going on? (Insights no. 36 – September 2021), Financial Stability Institute, Bank of International Settlements.

the integrity, confidentiality, and availability of users' data.⁹ The key features of the regulations surrounding the data protection and data sharing aspects in major economies are presented in Table 3.

The regulations on data portability/data sharing enable users to get their personal data back from bigtechs / fintechs for their own purpose or ask to transfer their data to a third party in a technically feasible format. This enables the customers to choose their preferred service provider without loss of historical/ personal data and therefore, limiting the dominance of bigtechs¹⁰. Regulations like Digital Services Act (DSA) in the EU, State Administration for Market Regulation (SAMR) guidelines in China aim to protect the interests of bigtech users. The overarching theme for the regulations is – (i) to gear the data portability and data sharing aspect of business models

⁷ Bigtechs are increasingly facing enforcement actions in China and EU. In US, the bigtechs are facing multiple law suits challenging their market dominance (FSI 2021a).

⁸ China's proposed framework on data protection shows a high degree of alignment with EU's GDPR.

⁹ GDPR enables easier business process automation, increased trust and credibility, a better understanding of the collected data, improved data management, protected and enhanced enterprise/ brand reputation, and helps in creating an even privacy playing field (John Edwards, Jan 2021).

¹⁰ The Bigtechs viz. Apple, Facebook, Google, Microsoft and Twitter are also working on their Data Transfer Projects with the goal of creating an "open-source, service-to-service data portability platform.

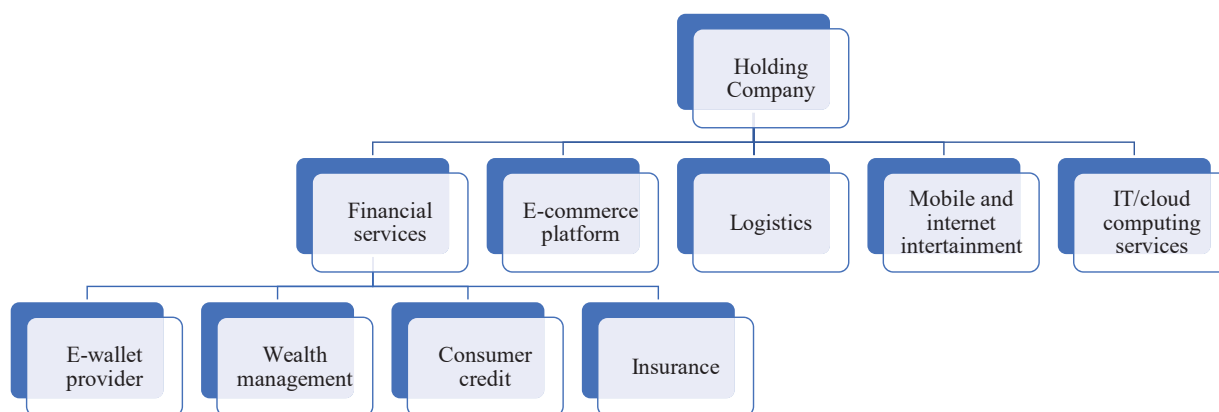
towards a more comprehensive open banking regime, and (ii) to promote fairness and transparency for business users and protect them from deceptive or misleading practices.

III.c Tracking Conduct of Business – Creating Effective Governance

Bigtechs have a complex governance structure. Often, they provide financial services through their subsidiaries operating under different licenses for different services, such as payments, consumer loans, wealth management and insurance. They have an integrated business model with a holding company or parent company (group) at the top and other verticals offering a wide range of services. Also, these bigtechs offer services across jurisdictions, at times depending on the trade agreements/ host country regulations. The parent or holding company could be outside the regulatory/ supervisory perimeter and could be far removed from the financial-service activities of the subsidiaries. This complex governance structure creates the possibility of expanding shadow banking activities, and thus, undermining the broader financial stability. An illustrative governance structure of a bigtech firm is shown below (Figure 2).

Across jurisdictions, the bigtechs are seeking licenses for providing payment, credit, and banking services either through subsidiaries or through joint ventures with varying degree of ownership control. However, the regulatory response has been to create guidelines which are generic that have a broader applicability. For example, in the case of EU, the guidelines for authorization of payment, and e-money institutions is based on the "Payment services (PSD-2) – Directive".¹¹ Further, these guidelines adopt a proportional approach based on the activity undertaken by the applicants in seeking information and specifying compliance. In case of UK, the Financial Conduct Authority (FCA) has set out its approach specifying the guidelines for granting authorization for payment institutions and e-money institutions.¹² The FCAs' approach clearly specifies the requirement to have unhindered supervisory outreach on the company (seeking license/ authorization) and requires a clear detailing on the corporate structure of the parent and subsidiary (if the company is part of conglomerate/ holding structure). In sum, the licensing/authorization approach is being guided by the 'proportionality' and 'flexibility' depending on the complexity of services offered.

Figure 2: Schematic diagram indicating the holding structure of bigtech company



Source: Moenjak and Santiprabhob (2021), "Regulating bigtech and non-bank financial services in the digital era", April, Central Banking.

¹¹ <https://www.eba.europa.eu/regulation-and-policy/payment-services-and-electronic-money/guidelines-on-authorisation-and-registration-under-psd2>

¹² <https://www.fca.org.uk/publication/finalised-guidance/fca-approach-payment-services-electronic-money-2017.pdf>

The bigtechs are being closely watched by regulators globally for their restrictive business practices in their core business areas. The antitrust regulations are being contemplated to be used against the bigtechs to protect consumer welfare. Legislations like Digital Markets Act (DMA) and Digital Services Act (DSA) enacted by the European Parliament, have the potential to change entire digital landscape. DMA would regulate activities of market gatekeepers by laying clear rules - a list of "dos" and "don'ts" - which aim to stop them from imposing unfair conditions on businesses and consumers. On the other hand, the DSA would protect fundamental rights of the users online and will make digital space safer¹³.

Also, economies like Singapore, Netherlands and Hong Kong have specified the principles focused on governance, accountability, consumer protection, etc., for use of artificial intelligence models with greater oversight by the board/ management to ensure ethical business conduct¹⁴.

III.d Monitoring Operational Resilience – Ensuring Business Continuity

The aggressive collaboration between bigtechs and financial institutions are building new linkages and dependencies in the financial eco-system. Bigtechs can expose the financial system to new operational risk challenges vide both their financial and non-financing services.

- *As financial service providers:* Bigtech firms provide payment services to their customers and any service outage may result in disruption of financing activity.
- *As Non-financial service providers:* Bigtech firms yield a greater threat to financial

stability due to operational risk emanating from their non-financing services. Only a few bigtech firms provide technology services and infrastructure (e.g., cloud computing and data analytics) to the global financial system.¹⁵ The failure of even one of these firms, or failure of a service offered by any bigtech firm could create a significant event in financial services, with a negative impact on markets, consumers, and financial stability.

The criticality of these services means that bigtechs may be already 'too-critical-to-fail'. Reckoning the same, the Central banks and regulatory agencies across jurisdictions are discussing regulations to address the operational risks and challenges emanating from the services provided by bigtech firms. A few are detailed hereunder:

- **European Union (EU):** The proposed Digital Operational Resilience Act (DORA) by EU is a comprehensive framework on digital operational resilience in the financial sector. By specifying the security requirements to be adhered, the DORA brings 'critical ICT third party providers' (CTPPs), including cloud service providers (CSPs), within the regulatory perimeter. For bigtechs, DORA is relevant in two ways. First, bigtechs as users of third-party services in their financial services operations would have to abide by technical standards on evaluating and monitoring third-party risks, including the development of minimally disruptive exit strategies, if a third-party provider is compromised. Second, bigtechs as providers of third-party services that are considered "critical" (e.g., cloud computing) will become subject to additional requirements and direct supervision.

¹³ <https://www.europarl.europa.eu/news/en/headlines/society/20211209STO19124/eu-digital-markets-act-and-digital-services-act-explained>

¹⁴ Policy responses to fintech: a cross-country overview (Insights no. 23 – January 2020), Financial Stability Institute, Bank of International Settlements

¹⁵ The Bank of England, in a 2020 survey, estimated that more than 70 per cent of banks and 80 per cent of insurers rely on just two cloud providers for IaaS (Infrastructure as a service).

- **China:** In China, Financial Holding Companies (FHC) framework strengthens operational resilience by requiring all FHCs to establish a comprehensive risk management system based on both qualitative and quantitative methods that will monitor various risks, including operational, and IT risks.
- **United States:** In the United States, federal banking agencies have oversight powers to monitor bigtechs as significant third-party service providers to banks. The Significant Service Provider Program established under the Bank Services Company Act, oversees the operational resilience of bigtech companies as service providers to banks. Further, the Federal Reserve Boards' interagency guidance on managing risks associated with third-party relationships outlines risk management principles for the different stages in the life cycle of third-party relationships and sets forth considerations concerning the management of risks arising from these relationships.
- **United Kingdom:** Bank of England in its Financial Stability Report (July 2021) called for additional regulatory measures to tackle the risks emanating from the increasing reliance of financial institutions on a small number of Cloud Service Providers (CSPs) and other critical third parties

While there are specific regulations aimed at bigtechs as providers of critical services, the general approach has been to strengthen the regulations on outsourcing activities (IT/ cloud-based services). The key guiding principles have been to ensure a well-defined outsourcing policy framework focussed on governance, risk assessment and due diligence, business continuity, data privacy and data localisation, management of expertise, etc., in line with risk appetite of the financial institution.

Further a key regulatory stipulation on outsourcing of services is that entities should ensure unhindered 'supervisory/ audit/ data' access from the services outsourced. The regulations require entities to reckon host country regulations to ensure unhindered supervisory access in case of outsourcing arrangements/ service providers in foreign jurisdictions.

III.e Reinforcing Financial Stability – Limiting the Plausible Systemic Impact

Bigtech firms can pose a systemic risk to financial stability via risk transformation of funds at their disposal, linkages of their money market fund (MMF) business with the financial system and other shadow banking activities. For example, in China, risk transformation across financial subsidiaries of a bigtech group happened in two ways.

- First, an e-wallet provider subsidiary of the bigtech group allowed its customers to automatically sweep the 'leftover balances' in their e-wallet to a MMF which was managed by another wealth management subsidiary of the bigtech. These MMFs in turn invested in interbank CDs, commercial paper, repurchase agreements, etc. and hence, establishing linkages with the financial system. The ability of e-wallet customers to have the money in their e-wallet accounts invested into the money market fund, and seamlessly redeem the money from the money market fund through their e-wallet apps constituted a risk transformation of funds with the potential to threaten financial stability.
- The second case of risk transformation by financial-service subsidiaries of bigtech firms involved the securitisation and selling of microloans by lenders associated with Chinese bigtech platforms. By using advanced analytics, subsidiaries of these bigtech

platforms offered customised microloans to individual customer risk profiles, and afterwards securitised and packaged the loans and sold them to investors including traditional banks. Through the practice of originating, packaging and selling microloans to the banks, the Chinese bigtech platforms engaged in risk transformation of funds, as banks used depositors' money to buy up the packaged loans from the bigtech firms.

Innovative financial products by bigtechs can increase their interconnectedness with the banking system, with a possibility to transmit shocks and increase vulnerability during a crisis through new channels for the propagation of risks. Recognising the same, the Central banks and policymakers across jurisdictions are discussing the potential systemic implications of bigtech financial activities and introducing regulations to maintain financial stability. Two key regulatory prescriptions are emerging to address the financial stability risks from the bigtech companies.

- The first option is to issue a digital-banking license to a bigtech firm, where the holding company of the bigtech is outside the purview of the financial regulator. This would consolidate legally separated subsidiaries of bigtech offering different financial services. The design of a digital banking license depends largely on the regulator's licensing objectives. This could range from the objectives of enhancing competition and efficiency in the banking industry (e.g., Australia, China and the UK), promoting fintech and innovation, and enhancing the customer banking experience (e.g., Hong Kong, South Korea, Singapore and the UK), to providing small and medium-sized businesses with access to capital and financial services (e.g., China).¹⁶

- The second option is to impose a holding company structure on financial-service subsidiaries of the bigtech and subject that holding company to financial regulations. By structuring the subsidiaries into a holding company structure, the governance structure could be simplified, and financial regulators could assess risk and address various concerns holistically. At present China requires non-financial conglomerates/ bigtechs that have two or more subsidiaries in the financial domain to carve out a financial holding company framework for such subsidiaries.

IV. Conclusion

Bigtechs are foraying into the financial domain bringing with them benefits of greater financial inclusion, efficient operations and lower transaction costs. However, they also pose the risk of stifling competition, operational resilience issues and financial stability.

Several regulatory initiatives have been taken recently in China, the EU and the United States to address the novel challenges presented by bigtechs, specifically in the areas of competition, data protection, conduct of business, operational resilience and financial stability. In India, efforts have been initiated towards bringing critical payment intermediaries into the formal regulated / supervised framework. The directions issued for Payment Aggregators / Payment Gateways and Framework for Outsourcing of Payment and Settlement-related Activities by Payment System Operators are a step in this direction. Initiatives are also on to up the payments acceptance infrastructure in India. India has also mandated local storage of payments data and is also in the process of legislating its own data protection law.

¹⁶ For a detailed discussion please refer the discussion paper on Digital Banking (NIIT Aayog).

Given the increasingly dominant role of bigtechs and fintechs in the financial ecosystem, the Reserve Bank of India has issued the draft guidelines on outsourcing of Information Technology (IT) and Information Technology Enabled Services (ITeS) by the regulated entities, to ensure effective management of attendant risks in outsourcing of IT activities viz. IT infrastructure, network security, cloud computing, application service providers, etc.¹⁷ The recent initiatives across the countries represent important steps in addressing the relevant risks posed by bigtechs.

Primarily, the regulators appreciate that the risks stemming from bigtech activities cannot be adequately captured/ addressed through entity-specific or activity-specific regulations alone. The regulations/ regulatory framework should also reckon the risks that are created by substantive interlinkages within bigtech groups and their role as critical service providers for financial institutions. The key paradigmatic shift in the regulatory approach towards addressing the risks from bigtechs lies in calibrating the regulatory frameworks with a mix of entity and activity-based rules. The requirements for creating holding companies involved in financial activities, the activity-specific licenses, requirements on data protection, security, equal treatment of third-party applications, data portability etc. augur well for limiting the risks posed by bigtechs. Furthermore, as the interaction of bigtechs with the financial sector evolves, close cooperation between competition (anti-trust), data, governance and financial authorities are called for to design/ update regulations to protect competition and promote financial stability.

Also, as the bigtechs operate across jurisdictions, there is already a compelling case to seek international consistency of policy developments. In this light, there have also been efforts by international standard-setting bodies to ensure that existing financial regulation (particularly in payments) properly cover the activity of new non-bank players. However, the exact calibrations on both entity and activity-based approaches will need to be further explored and tailored to country-specific conditions to ensure that regulators' concerns be addressed without stifling financial innovations.

The regulatory responses of the emerging markets and developing economies (EMDEs) so far have been to create enabling environment by developing payment infrastructure and digital identity data. EMDE financial authorities have responded by developing dedicated units (e.g., innovation hubs, sandboxes etc.) for developing policy to support innovation. Going forward, the regulations in EMDEs need to be mindful of the new interlinkages that bigtechs might create with the existing financial institutions.

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¹⁷ Reserve Bank of India : Draft Master Direction on Outsourcing of IT Services, dated June 23, 2022 (https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=4156)

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Market Returns and Flows to Debt Mutual Funds*

by Dr. Mayank Gupta[^], Satyam Kumar[^],
Subrat Kumar Seet[^] and
Abhinandan Borad[^]

The scale of debt-oriented mutual funds (MFs) in India has expanded over the years. The study examines drivers of flows to debt mutual funds. It investigates the relationship between net flows to debt MFs and return on debt MFs. We proxy debt MF returns by constructing an index using CRISIL benchmark indices. Further, the relationship between flows and returns on debt MFs is analysed in the presence of various market fundamentals. The study finds that returns cause flows but not vice-versa.

Introduction

There has been tremendous growth in the volume of debt securities in India. A significant part of the evolution of this market-led financial intermediation system has been supported by the debt-oriented MFs, which invest in debt securities. These debt-oriented MFs subscribe to short-tenor and long-tenor securities of Government and corporates, viz., T-bills, central government securities, state development loans (SDLs), commercial papers (CPs), certificates of deposit (CDs) and corporate bonds. Further, they are also active participants in Tri-party repo (TREPS) and market repo segments, predominantly on the lending side.

Although return from equity mutual funds has been generally higher in the past, debt mutual funds have created a niche for themselves as certain

investors try to avoid uncertainty and volatility in stock market. Besides, a stable and regular income motivates investors to prefer debt MFs. However, credit risk or risk of default is present as the issuer may default on interest or principal payments.

Against this background, the study has attempted to understand the relationship between net flows to debt MFs and returns on debt MFs i.e., whether flows impact returns and/or returns impact flows in India. The overall return on debt MFs is not readily available, therefore, it is arrived at by constructing an index using monthly data on CRISIL benchmark indices against which the performance of debt mutual fund schemes are tracked. Further, the study estimates this relationship in the presence of market fundamentals by incorporating information on credit spreads, output/ state of the economy, rate of return on competitive savings instrument, liquidity and inflation rate.

The rest of the article is organised as follows. Section II discusses stylised facts on debt MFs. Section III discusses determinants of flows to debt MFs. Section IV covers the analysis of relationship between net flows and return on debt MFs. Lastly, section V reports the concluding observations.

II. Stylised Facts

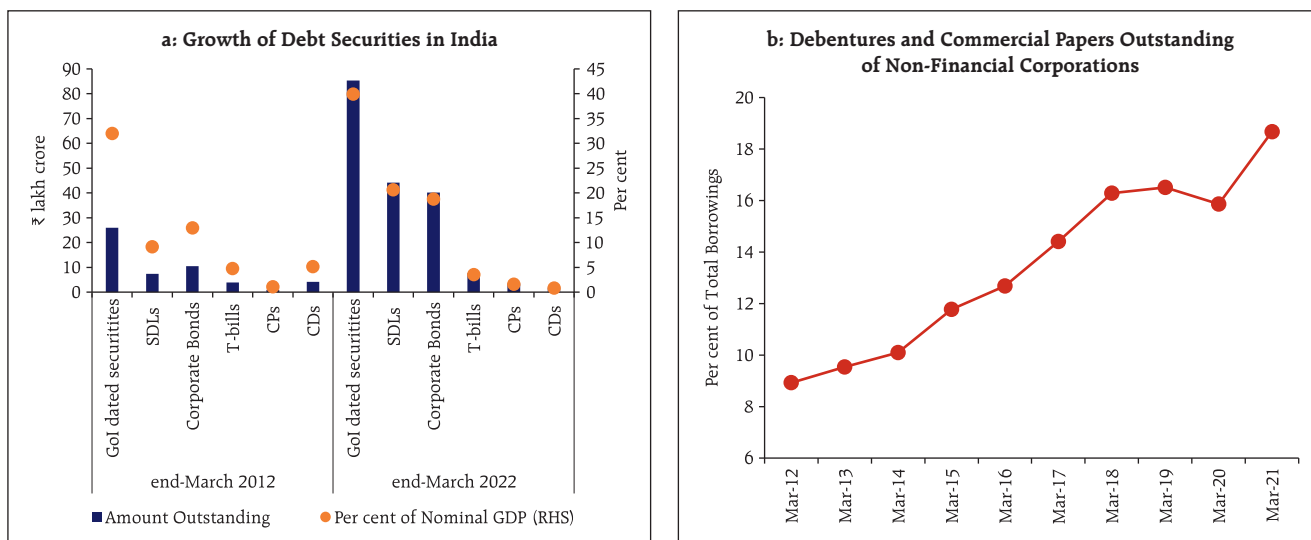
Rise of Debt Securities and Debt Mutual Fund Industry

The past decade has seen tremendous growth in the debt securities in India (Chart 1a). The share of debt securities in debt financing of corporates has also increased (Chart 1b). There are many advantages of having diversified financing mechanisms, viz., efficient distribution of risks and reduced dependence on a single source of financing.

The twin developments of rising volume of debt securities and increasing deployment of savings in debt MFs are interconnected as they tend to reinforce

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Chart 1: Rise of Debt Securities

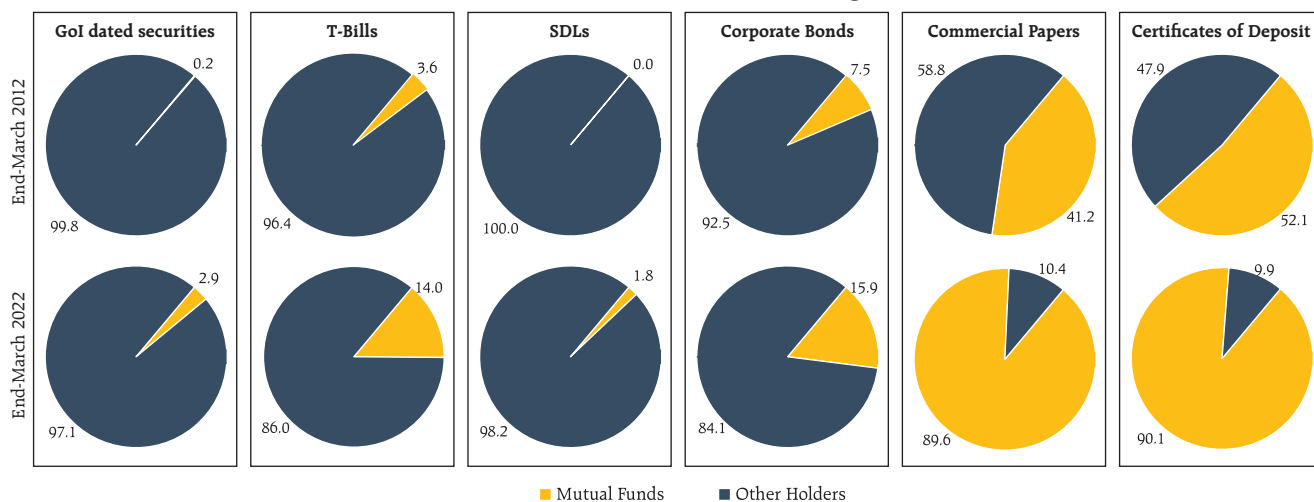
Sources: RBI; SEBI; CMIE Prowess; and RBI staff estimates.

each other's growth. Over the years, debt MFs are intermediating a sizeable amount of financing of debt securities of Government and corporates and contributing to the growth of the economy (Chart 2).

Scale and Scope of Debt Mutual Funds

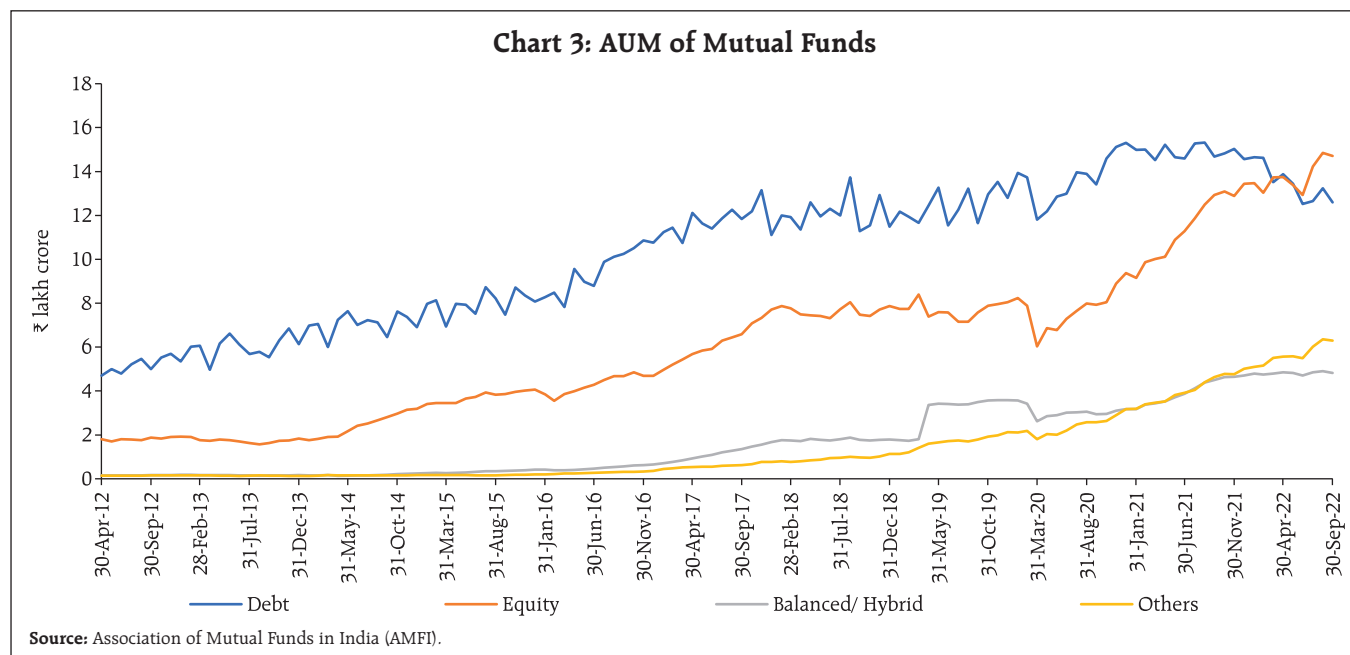
The assets under management (AUM) of debt MFs stood at ₹12.6 lakh crore at end-September 2022,

increasing from ₹3.7 lakh crore at end-March 2012, registering a compounded annual growth rate of 12.2 per cent (Chart 3). However, the share of assets managed by debt mutual funds in the overall mutual fund industry decreased to 32.8 per cent from 63.8 per cent during this period with rise in other categories of mutual funds, viz., equity, balanced, and other schemes.

Chart 2: Share of Mutual Funds in Outstanding Debt Securities

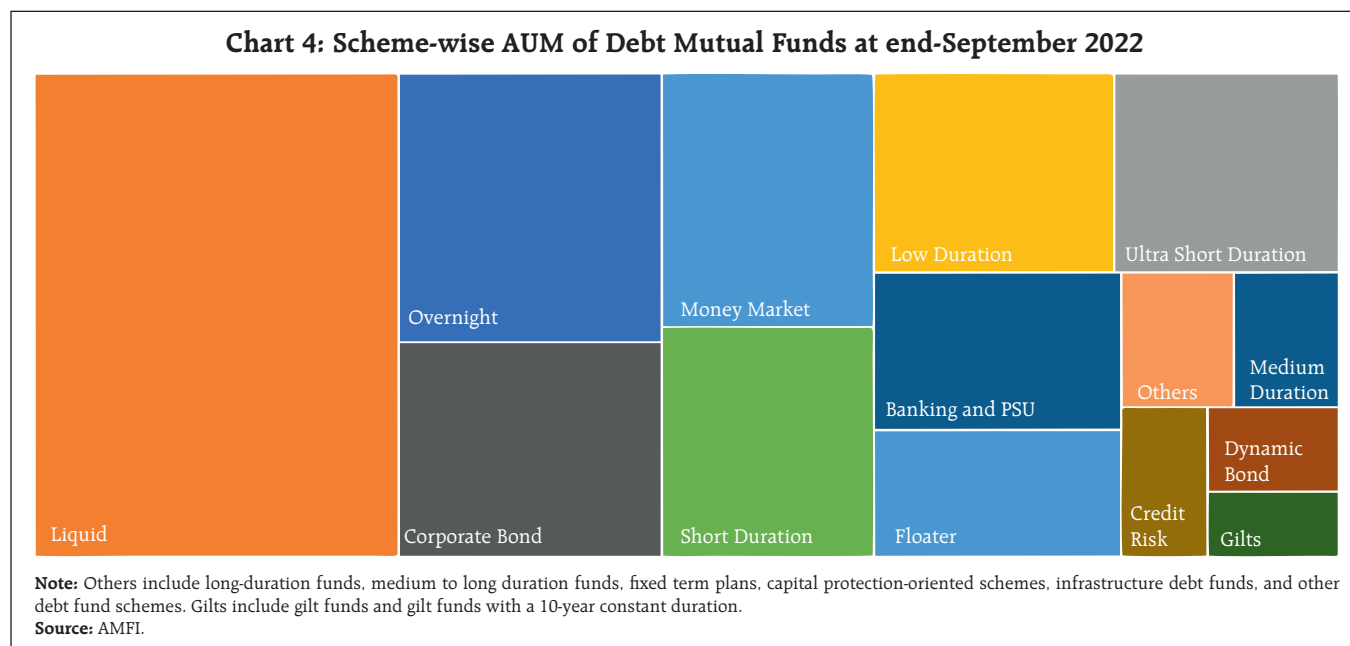
Note: (1) The computed share of MFs represent an approximate figure in certain instances.
(2) GoI dated securities includes special securities.

Sources: RBI; SEBI; and RBI staff estimates.

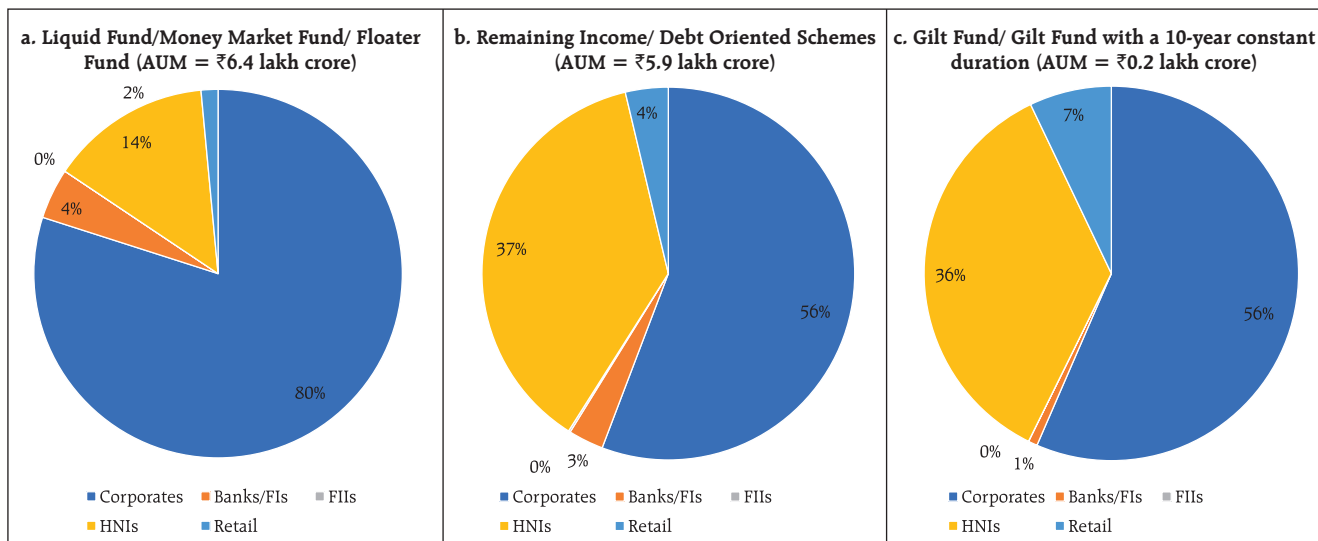


Open-ended debt schemes¹, *i.e.*, schemes available for subscription and repurchase by investors on a continuous basis, account for 98.5 per cent of the AUM held with debt MFs at end-September 2022. Among

the open-ended debt schemes category, liquid funds, *i.e.*, funds with investment in debt/money market securities with maturity of up to 91 days account for maximum share of 28.4 per cent (Chart 4 and Annex 1).



¹ These schemes do not have a fixed maturity period. Investors can conveniently buy and sell units at Net Asset Value (NAV) which is declared daily. The key feature of open-end schemes is liquidity.

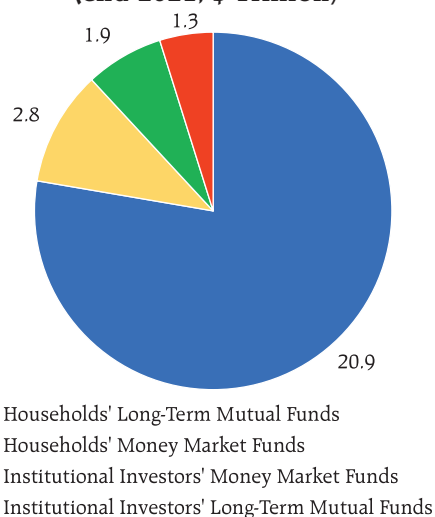
Chart 5: Investor-wise Split of Debt Mutual Funds at end-June 2022

Source: AMFI.

At end-June 2022, corporates remained the largest class of investors, contributing ₹8.5 lakh crore to the AUM of ₹12.5 lakh crore of debt MFs, typically investing in funds of shorter duration. High Net-worth Individuals (HNIs) are the second largest class of investors, accounting for ₹3.2 lakh crore of AUM and favouring funds of relatively longer duration since their investment objectives are likely to be different from those of corporates (Chart 5).

In contrast to Indian scenario, retail investors hold vast majority of MF assets (nearly 88 per cent), including substantial money market fund assets, in the US (Chart 6). Institutional investors hold a relatively small share of MF assets (nearly 12 per cent), mostly in money market funds². International experience suggests that countries with more-developed capital markets tend to have more-developed fund industries³. However, households prefer banking products over regulated funds in countries where banks have historically played a significant role in the financial ecosystem (e.g., Japan). In 2021, the annual

Investment Company Institute (ICI) survey of mutual fund ownership found that 59.0 million, or 45.4 per cent, of households in the United States owned MFs⁴. While equity assets form major share of MF assets, developed economies like US are witnessing increased flows to debt MFs due to ageing population.

Chart 6: Mutual Fund Net Assets in the US (end-2021, \$ Trillion)

Note: Long-term mutual funds include equity, bond and hybrid funds.
Source: Investment Company Institute.

² https://www.icifactbook.org/pdf/2022_factbook.pdf

³ https://www.ici.org/system/files/2021-05/2021_factbook.pdf

⁴ <https://www.ici.org/system/files/2021-10/per27-12.pdf>

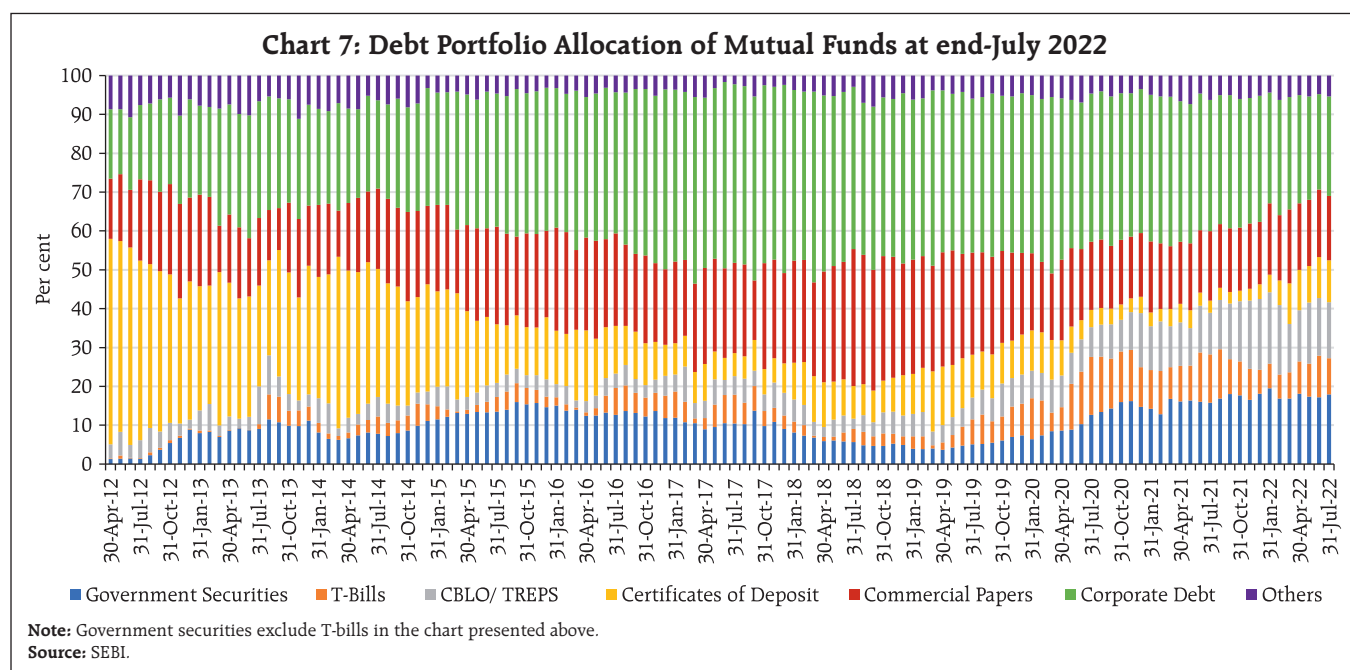
Debt Portfolio of Mutual Funds

The aggregate debt portfolio of MFs in India (including debt, balanced funds, etc.) has witnessed structural transformation over the years; CDs used to account for the maximum share of the debt portfolio but have since lost their share to other debt instruments. Presently, MFs maintain most of their debt portfolio in corporate bonds, playing an active role in meeting the financing requirements of the corporates (Chart 7). CPs also account for a sizeable share of MFs' portfolio. However, in the recent period, the combined allocation to corporate bonds and CPs has moderated to 42.2 per cent at end-July 2022 from a peak of 77 per cent at end-July 2018, amid risk aversion following the Infrastructure Leasing & Financial Services Limited (IL&FS) episode⁵ and COVID-19 pandemic. Further, credit risk funds, *i.e.*, funds with a minimum of 65 per cent of total assets in AA and below rated corporate bonds, have not generated much interest amongst investors and

have been witnessing a consistent decline in AUM since April 2019.

Meanwhile, MFs have increased their investments significantly in Government securities, T-bills, and TREPS⁶. The proportion of Government securities (including T-bills) in the debt portfolio of mutual funds has increased in the recent period, reaching 27.2 per cent at end-July 2022.

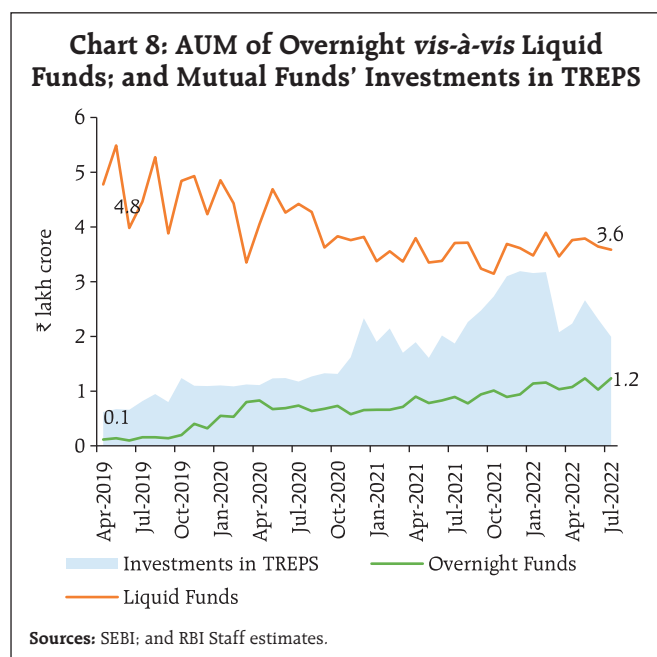
The rise in investment in TREPS to some extent, may be explained by the growing popularity of overnight funds, *i.e.*, funds that invest in overnight securities having a maturity of one day - as indicated by the co-movement in MFs' investments in TREPS and AUM of overnight funds (Chart 8). The AUM of overnight funds has grown by almost ten times between April 2019 and July 2022 amid a notable shift in preference from liquid funds to overnight funds. This shift is primarily a result of the SEBI's introduction of a graded exit load⁷ on investors who exit the liquid fund within seven days of their



⁵ During 2018, IL&FS, a systemically important non-deposit accepting core investment company (CIC-ND-SI) defaulted on repayments of CPs, non-convertible debentures (NCDs) and bank loans which resulted in subsequent rating downgrades of IL&FS and a few other NBFCs.

⁶ Erstwhile Collateralised Borrowing and Lending Obligation (CBLO).

⁷ Graded exit load means applicability of exit load based on time interval between date of subscription and date of redemption, *i.e.*, higher exit load applies if an investor exits MF within one day of subscription in comparison to an investor who exits on the sixth day of subscription.

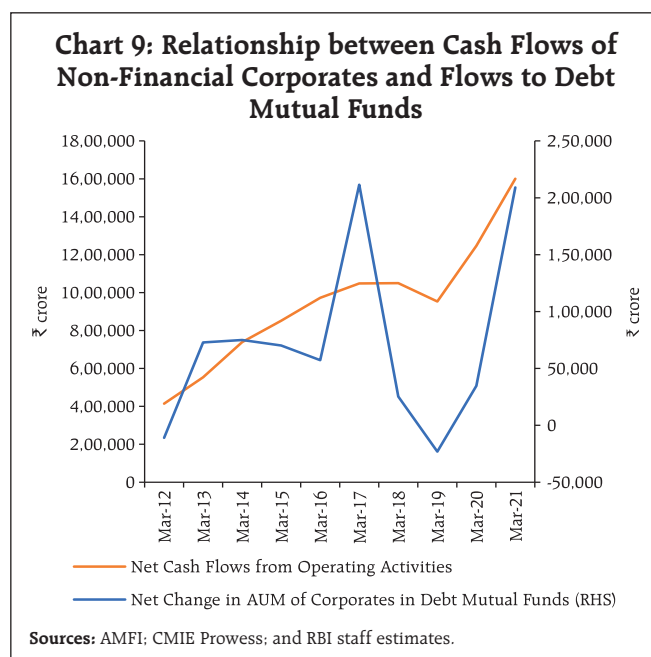


investment⁸. Further, SEBI's initiative to allow MFs to offer instant access facility⁹ in overnight schemes has increased the attractiveness of overnight funds¹⁰.

III. Determinants of Debt Fund Flows: Some Discussion

The cash flows generated by non-financial corporates has tracked the net change in AUM of corporates in debt MFs quite well in the recent period (Chart 9). Strong operational performance translates into higher cash flows and may be expected to translate into higher savings and investments by corporates in financial instruments, including the mutual funds.

Fund flows to short-term debt mutual fund schemes exhibit a high positive correlation amongst themselves, except in the case of overnight funds (Chart 10.a). There exists a high negative correlation



between monthly net flows to debt mutual funds and corporation tax payments ($r = -0.67$). Further, there has been some seasonal pattern in flows into debt MFs. During quarter ending month, with an increase in corporates' tax payments, flows into debt mutual funds exhibit a decline or turn negative due to redemption by corporates (Chart 10b).

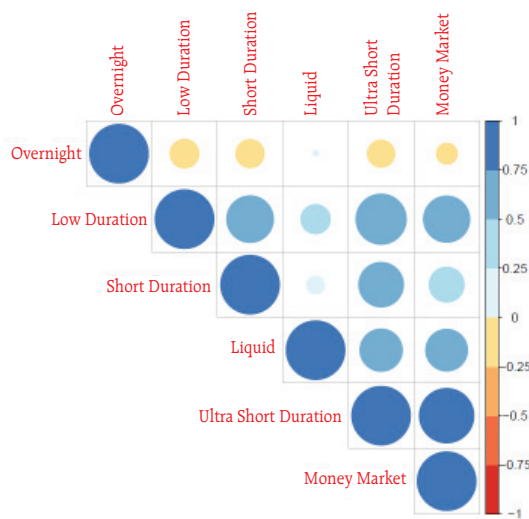
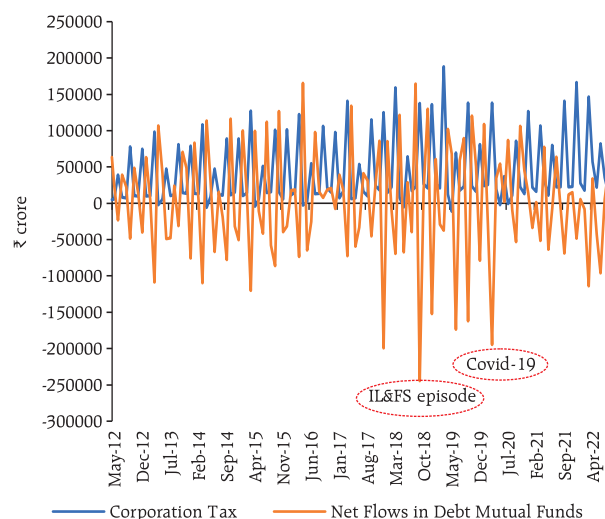
The impact of Covid-19 on debt MFs was exacerbated in March 2020 as it coincided with the tax filing month. The heightened volatility during Covid-19 led to redemption pressures and liquidity strains, accentuated by shallow corporate bond markets. It also led to the closure of some debt MF schemes, which sent chills across the domestic financial markets and created fears of similar winding-up by other debt MFs. Subsequently, to ease the liquidity pressures and safeguard financial stability, the Reserve Bank of India had stepped in with a Special Liquidity Facility for MFs (SLF-MF) amounting to ₹50,000 crore, which helped in restoring confidence in the financial markets.

In the recent period of H2: 2021-22 and H1: 2022-23, debt MFs witnessed net redemptions as investors

⁸ SEBI's circular on 'Risk management framework for liquid and overnight funds and norms governing investment in short term deposits' dated September 20, 2019.

⁹ Instant access facility is an option available to investors to get access to their funds within a short window of giving the redemption request.

¹⁰ SEBI's circular on 'Deployment of unclaimed redemption and dividend amounts and instant access facility in overnight funds' dated July 30, 2021.

Chart 10.a: Cross-Correlation between Flows to Short-Term Oriented Debt Mutual Fund Schemes**Chart 10.b: Correlation between Net Flows to Debt Mutual Funds and Corporation Tax Payments**

Note: The size of circle in Chart 10.a represents the degree of correlation, while the colour represents the sign of correlation.

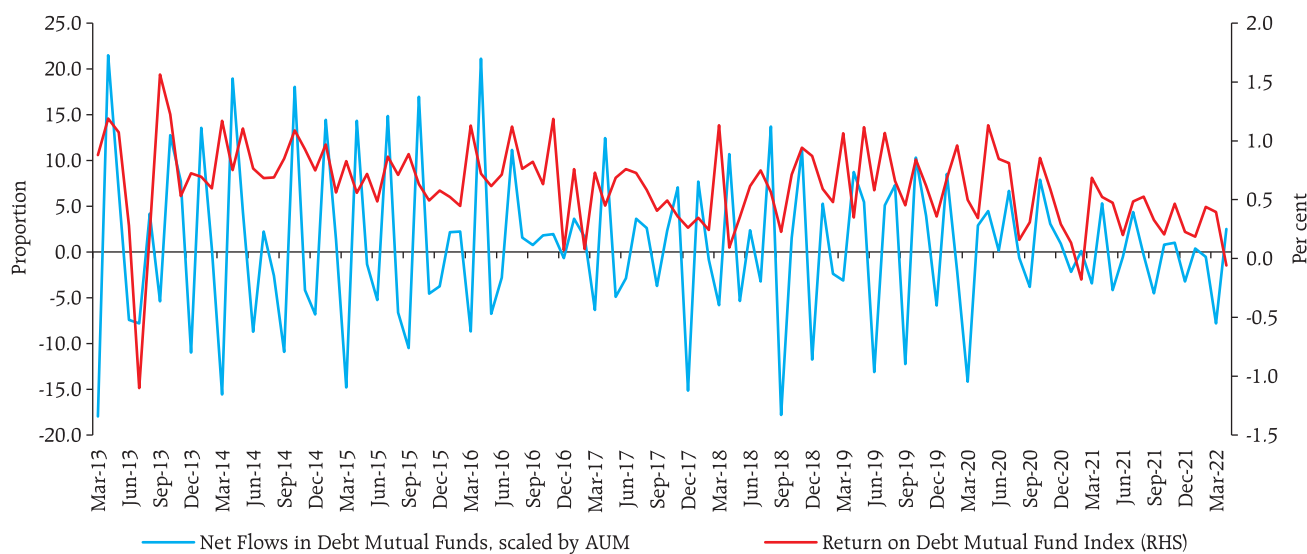
Sources: AMFI; Controller General of Accounts; and RBI staff estimates.

stayed away to avoid price risk amid hardening of bond yields.

IV. Relationship between Net Flows and Returns on Debt Mutual Funds

In recent years, debt mutual funds have gained increasing prominence in the process of financial

intermediation. Accordingly, the possibility of any spillover risks in the financial system emanating from such non-banking intermediaries has increased. Therefore, it is important to understand the behavioural pattern of investors in debt mutual funds, and linkages between flows and returns (Chart 11). The objective is to understand whether a

Chart 11: Relationship between Debt MF Flows and Returns

Sources: AMFI; CRISIL; and RBI staff estimates.

sharp drop in bond prices (or lower returns on debt MFs) can trigger a cascade of redemptions by mutual fund investors and/or whether any episode of sharp redemptions can exert significant downward pressure on bond prices (and reduce the net assets value of debt MFs).

As the debt mutual fund industry and non-bank financial intermediation grow rapidly, understanding the relationship between fund flows and returns becomes important. Although an enormous amount of literature is available for equity mutual funds, literature on determinants of flows to debt mutual funds is limited in the Indian context.

Fortune (1998) suggests that in the US (1985-1996), net new money flows into debt-type funds are predictors of returns on debt securities while equity fund flows do not predict returns on either equities or bonds. The study further finds that security returns have a contemporaneous and direct effect on fund flows.

Another study in the context of US uses data from 1992-2005 period and finds that bond fund investors chase funds that are the performance leaders on a risk-adjusted basis rather than on the basis of raw returns (Zhao, 2005). The author also finds poor long-term equity market returns tends to increase investors' investments in government security funds and finds that most bond fund investors are sensitive to expenses; they avoid funds with high operating expenses.

In the Indian context, a study identifies the presence of seasonality factors in both debt and equity fund flows (Madhumathi *et al*, 2012). It finds that market volume and volatility influence debt mutual fund flows during the period July 2005 to August 2012.

In the wake of this, an empirical exercise has been undertaken to understand the relationship between net flows and returns on debt mutual funds, *i.e.*, whether flows impact returns and/or returns impact flows in India. Further, in the second part of the

section, we explore these dynamics in the presence of various market fundamentals, which are used as exogenous variables. As per the best of our knowledge, no study has been done on the similar subject so far in India.

Data and Methodology

The monthly data on net flows are obtained from Association of Mutual Funds in India (AMFI) for the period March 2013 to March 2022. Net flows are normalised by the previous month's net AUM to control for the increasing trend in flows (Remolona *et. al*, 1997). Further, the net normalised flows have been de-seasonalised to control for seasonal variations.

To arrive at a proxy for returns on debt mutual funds, we construct a weighted average index using monthly data on CRISIL benchmark indices against which the performance of similar type of debt mutual fund schemes are tracked. While doing so, the implicit assumption is that the actual return on debt mutual funds shall track the return on their respective CRISIL benchmark indices. For this exercise, we use 15 different CRISIL benchmark indices, *viz.*, CRISIL overnight index, liquid fund index, ultra-short-term debt index, low duration index, money market index, short term bond fund index, medium-term debt index, medium to long term debt index, long term debt index, composite bond index, corporate bond composite index, short term credit risk index, banking and PSU debt index, dynamic gilt index and 10-year gilt index.¹¹ These indices, which are used as benchmarks for 15 types of open-ended debt mutual funds¹², are aggregated using average assets under management held under such mutual funds during April 2019-March 2022¹³, as weights. CRISIL liquid

¹¹ These indices seek to capture coupon and price returns of the underlying portfolio comprising of money market and debt securities.

¹² These account for around 90 per cent of total AUM held under debt mutual funds.

¹³ The AMFI's data on new categories of mutual fund schemes are available from April 2019 onwards only while CRISIL's benchmark indices data for such schemes are available for prior period also.

Table 1: Summary Statistics

Variables	N	Mean	Median	SD	Correlation Coefficient	ADF test
Flows	109	0.66	0.74	5.36	0.33***	-6.06***
Returns	109	0.62	0.62	0.35		-4.62***

Note: *p<0.1; **p<0.05; ***p<0.01.

Source: RBI staff estimates.

fund index accounts for the highest weight of around 33 per cent in the aggregate index.

Summary statistics show that the volatility of monthly flows is high as compared to returns. The correlation coefficient is positive and statistically significant suggesting that flows and returns move together. The stationarity results are shown in Table 1. Both the series are stationary.

To assess the inter-temporal relation between flows and returns, a reduced form bivariate VAR model is deployed¹⁴ as shown below:

$$y_t = A_0 + A_1 y_{t-1} + A_2 y_{t-2} + \varepsilon_t \quad \dots(1)$$

Where $y_t = \begin{bmatrix} F_t \\ R_t \end{bmatrix}$ and A_0 , A_1 and A_2 are coefficient matrices. F and R represent the flows and returns, respectively. Further, Granger causality test is performed to determine the direction of the impact, *i.e.*, whether returns contain information about the flows or *vice-versa*.

The results of the reduced-form bivariate VAR model are presented in Table 2. Lag length selection was done based on the Bayesian Information Criteria (BIC), which shows lag selection at 2. Flows are significantly influenced by one month lagged returns [Table 2(1)]. Flows exhibit strong autocorrelation up to two months lag. The R^2 for flows equation is 0.31 implying past returns do indeed contribute to current flows. However, returns are not impacted by previous months' flows [Table 2 (2)] but are impacted by one month lagged returns. Also, the R^2 for returns equation

Table 2: VAR-(2) Analysis of Flows and Returns

Variables	Dependent Variable	
	Flows	Returns
	(1)	(2)
Returns		
(-1)	4.60*** (3.43)	0.23** (2.25)
(-2)	0.47 (0.34)	-0.03 (-0.24)
Flows		
(-1)	-0.61*** (-6.26)	-0.01 (-0.76)
(-2)	-0.39*** (-4.08)	-0.01 (-1.30)
Constant	-1.80 (-1.56)	0.49*** (5.57)
Observations	107	107
R^2	0.31	0.06
Adjusted R^2	0.28	0.02
Residual Standard Error (df = 102)	4.47	0.34
F-statistics (df = 4; 102)	11.22***	1.65

Note: *p<0.1; **p<0.05; ***p<0.01. t-statistics are reported in brackets.

Source: RBI staff estimates.

is low implying that capacity of flows to explain the returns is marginal.

The results of the Granger Causality test between flows and returns are reported in Table 3. The null hypothesis that "returns do not Granger-cause flows" is rejected at a very high level of statistical significance, suggesting that past values of returns contain significant information about current flows. However, we fail to reject the null hypothesis "flows do not Granger-cause returns," implying that the past value of flows does not contain any information about current returns. Thus, one-way Granger causality is established between flows and returns, *i.e.*, past values of returns influence current flows but not *vice-versa*.

Table 3: Test of Causality Between Flows and Return

	Flows do not Granger Cause Returns	Returns do not Granger Cause Flows
F stats	0.86	6.16***

Note: *p<0.1; **p<0.05; ***p<0.01.

Source: RBI staff estimates.

¹⁴ To understand the dynamic relationship between variables as well as their interaction with one another, VAR is a natural choice.

For diagnostic checks, we apply the Portmanteau test to check for serial correlation in the residuals of the VAR-(2) model and ARCH test to check for heteroscedasticity in the residuals of the VAR-(2) model. No heteroscedasticity and serial correlation were found in the residuals of the VAR-(2) model. To test for structural break in the residuals, we apply the cumulative sum (CUSUM) test. No structural break in the residuals was noted (Annex 2). The impulse response functions are presented in Annex 3, which corroborate the findings.

As an improvement to the reduced-form bivariate VAR and the causality test, we analyse the relationship between flows and returns on debt mutual funds in the presence of market fundamentals. For doing this, we incorporate the following variables *viz.*, corporate bond spreads to measure credit/default risk, Index of Industrial Production as a proxy for the state of the economy, banks' average savings and term deposits rate to measure rate of return on competitive savings instrument, average amount outstanding under RBI's liquidity adjustment facility to measure liquidity conditions, and CPI inflation rate¹⁵ (Table 4). To understand the state of the economy variable, we use the concept of growth cycles. The growth cycle is defined as the alternate

sequence of high and low growth phases (rather than expansion and contraction in the levels of general economic activity) through deviations of the actual growth rate of the economy from the long-run trend growth rate. Contraction in the growth cycle indicates a slowdown in economic activity while an expansion indicates a surge in the economic activity. Thus, a dummy variable representing 0 (contraction) and 1 (expansion) are used. To obtain this, we first extract the cyclical component of the IIP (log) series. One of the most widely used detrending methodologies is the Hodrick- Prescott (HP) filter (Hodrick & Prescott, 1980). However, according to King and Rebelo (1993), HP filter seriously alters measures of persistence, variability, and co-movement. As a result, we use band-pass filters proposed by Baxter and King (1999) and Christiano and Fitzgerald (2003). Band pass filters retains components of the time series with periodic fluctuations between 6 quarters (18 months) and 32 quarters (96 months), while suppressing components at higher (irregular) and lower frequencies (trend). These filters approach the trend-cycle decomposition and smoothing problem in the frequency domain. In our work, we use the asymmetric Christiano-Fitzgerald filter (CF) to isolate the trend and cyclical component. The CF filter puts different weights to each observation and hence the filter is asymmetric. The cyclical component is standardised before the application of the dating algorithm. We use the Harding-Pagan algorithm (2002) to identify expansion and recession.

The selection of various macroeconomic variables has been done on the basis of existing literature [such as Kopsch et. al (2015)], and common understanding. In the presence of market fundamentals, if we obtain unidirectional causality from returns to flows as obtained earlier, then this would indeed show that it is the returns which drive the debt mutual fund flows. The debt mutual fund flows are simply responding to changes in returns. The following regression equations incorporating market fundamentals are used:

Table 4: Description of Exogenous Variables

Market Fundamentals	Measure of Each Indicator
Credit Spreads	5-Year AAA corporate bond yield net of 5-Year G-sec yields (CS)
Economic Activity	Index of industrial production (IIP); used as a dummy variable
Competitive Rate of Return	Average rate of return on banks' savings and term deposits (\bar{r})
Liquidity Conditions	Amount outstanding under net liquidity adjustment facility scaled by net demand and time liabilities (LAF)
Inflation	Y-o-Y per cent change in consumer price index (CPI)

¹⁵ In another model, we had additionally used VIX as one of the exogenous variable, however our results broadly remained similar to the earlier results.

$$\text{Flow}_t = \eta + \sum_{i=1}^m \theta * \text{Ret}_{t-i} + \sum_{i=1}^m \lambda * \text{Flow}_{t-i} + \mu * (\text{CS}) + \rho * (\bar{r}) + \omega * (\text{LAF}) + \psi * (\text{CPI}) + \varepsilon \quad \dots (2)$$

$$\text{Rett} = \alpha + \sum_{i=1}^m \beta * \text{Ret}_{t-i} + \sum_{i=1}^m \gamma * \text{Flow}_{t-i} + \delta * (\text{CS}) + \tau * (\bar{r}) + \varphi * (\text{LAF}) + \zeta * (\text{CPI}) + \varepsilon \quad \dots (3)$$

CS, \bar{r} , LAF and CPI are differenced to meet stationary requirements. The null hypothesis that returns do not granger cause debt fund flows in the presence of market fundamentals is tested by $H_0: \theta_i = 0$ for all i in (2). Similarly, the null hypothesis that debt fund flows do not granger cause returns in the presence of market fundamentals is tested by $H_0: \gamma_i = 0$ for all i in (3).

The results reporting the direction of the flows-returns relationship in the presence of market fundamentals are presented in Table 5. The results obtained are similar to earlier results.

The results reject the hypothesis that past returns do not granger cause current flows. It shows that in the presence of market fundamentals, flows exhibit autocorrelation up to two lags. Further, flows are impacted by one-month lagged returns and credit spreads. The primary objective behind saving/ investing in debt mutual funds is safety of principal and any increase in credit risk seems to be acting as deterrence of flows to debt mutual funds. Table 5(2) shows that we fail to reject the null hypothesis of past flows granger causing current returns. Returns are affected by one month lagged returns and CPI. An increase in inflation drives up the expectation of monetary policy tightening by the central bank, which may be leading to increase in bond yields and fall in bond prices (due to an inverse relationship between yields and prices). A fall in bond prices translates into a declining return on mutual fund holdings. The R^2 and adjusted R^2 have increased marginally for flows and returns as compared to Table 2 suggesting that exogenous variables do not contribute much in explaining variation in current flows and current returns.

Table 5: VAR-(2) Analysis of Flows and Returns in the Presence of Market Fundamentals

Variables	Dependent Variable	
	Flows	Returns
	(1)	(2)
Returns		
(-1)	4.41*** (3.25)	0.23** (2.13)
(-2)	0.95 (0.69)	-0.03 (-0.24)
Flows		
(-1)	-0.65*** (-6.57)	-0.01 (-0.75)
(-2)	-0.41*** (-4.17)	-0.01 (-1.27)
Market Fundamentals (Exogenous Variables)		
CS	-5.03* (-1.71)	0.21 (0.93)
IIP	0.82 (0.93)	0.001 (0.01)
\bar{r}	0.51 (1.06)	-0.02 (-0.48)
LAF	-0.68 (-0.61)	-0.004 (-0.04)
CPI	-0.30 (-0.49)	-0.09* (-1.89)
Constant	-2.35* (-1.92)	0.50*** (5.21)
Observations	107	107
R^2	0.35	0.10
Adjusted R^2	0.29	0.02
Residual Standard Error (df = 97)	4.44	0.35
F-statistics (df = 9; 97)	5.76***	1.18

Note: *p<0.1; **p<0.05; ***p<0.01. t-statistics in brackets.

Source: RBI staff estimates.

V. Conclusion

The flows into the debt MFs exhibit seasonality, witnessing redemption by corporates at every quarter-end, especially at the end of the financial year, mainly to meet tax payment obligations. The empirical exercise suggests that past returns contain information about current flows in debt MFs but not *vice-versa*. A period of dwindling returns can lead to outflows from debt MFs. This is true even in the presence of various market fundamentals. Some of these fundamental market indicators also play a role in determining flows and returns. Credit spreads are found to be inversely related to flows, and CPI inflation is found to be inversely associated with returns.

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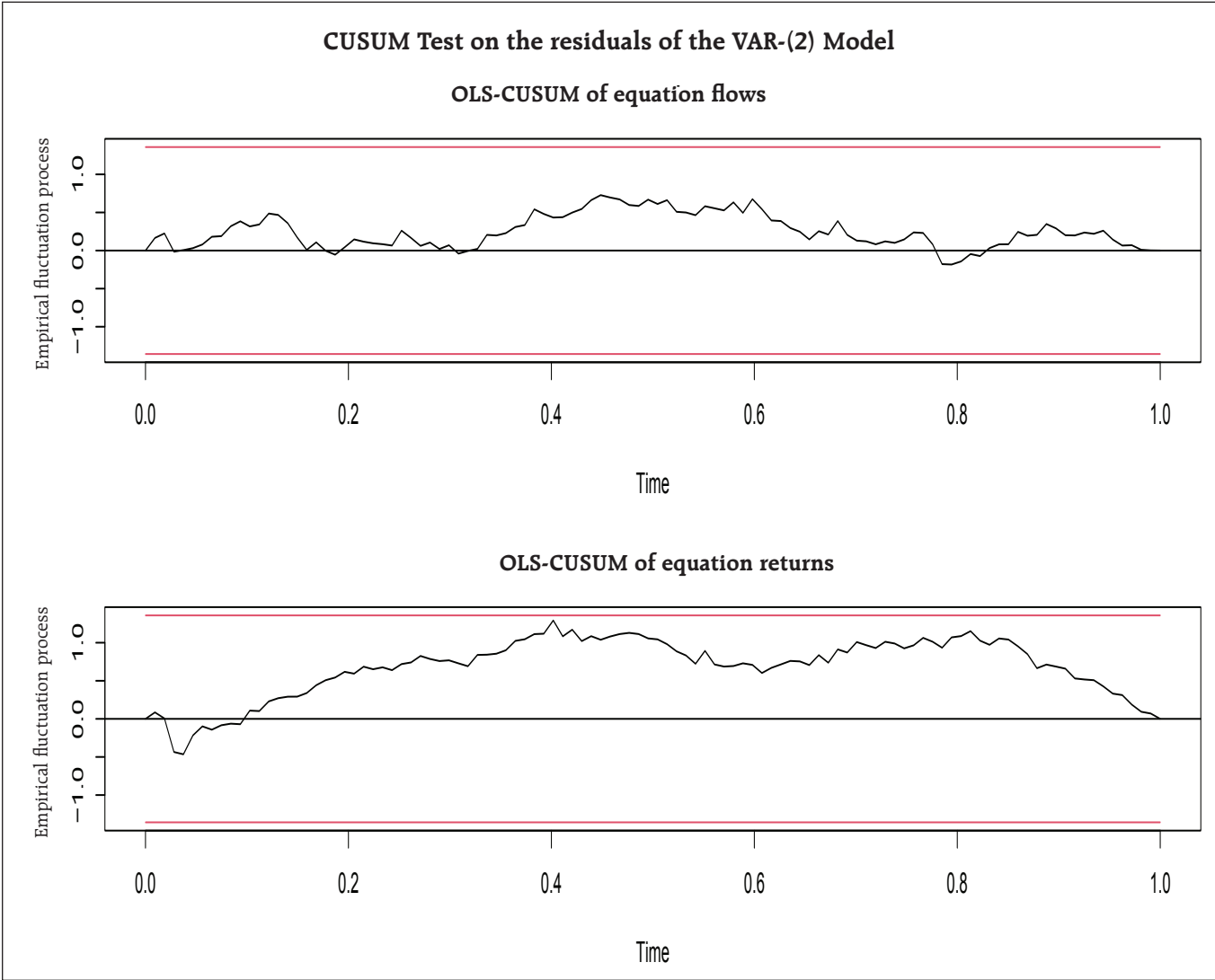
Annex 1
Classification of Debt Schemes

Category Scheme	Scheme Characteristics	AUM end-Sep. 2022 (₹ cr)
Open Ended Schemes		
Overnight Funds	Investment in overnight securities having a maturity of 1 day.	1,41,320
Liquid Funds	Investment in debt and money market securities with maturity of up to 91 days only.	3,52,213
Ultra-Short Duration Fund	Investment in Debt & Money Market instruments such that the Macaulay duration of the portfolio is between 3- 6 months.	89,481
Low Duration Fund	Investment in Debt & Money Market instruments such that the Macaulay duration of the portfolio is between 6 months- 12 months.	95,673
Money Market Fund	Investment in Money Market instruments having maturity of up to 1 year.	1,07,379
Short Duration Fund	Investment in Debt & Money Market instruments such that the Macaulay duration of the portfolio is between 1 year - 3 years	97,272
Medium Duration Fund	Investment in Debt & Money Market instruments such that the Macaulay duration of the portfolio is between 3 years - 4 years. Portfolio Macaulay's duration under anticipated adverse situations is 1 year to 4 years.	28,204
Medium to Long Duration Fund	Investment in Debt & Money Market instruments such that the Macaulay duration of the portfolio is between 4 - 7 years. Portfolio Macaulay duration under anticipated adverse situation is 1 year to 7 years.	8,927
Long Duration Fund	Investment in Debt & Money Market Instruments such that the Macaulay duration of the portfolio is greater than 7 years	2,828
Dynamic Bond	Investment across duration.	22,084
Corporate Bond Fund	Minimum investment in corporate bonds- 80% of total assets (only in AA+ and above rated corporate bonds)	1,12,783
Credit Risk Fund	Minimum investment in corporate bonds- 65% of total assets (only in AA and below rated corporate bonds)	25,821
Banking and PSU Fund	Minimum investment in Debt instruments of banks, Public Sector Undertakings, Public Financial Institutions and Municipal Bonds - 80% of total assets	77,678
Gilt Fund	Minimum investment in G-secs- 80% of total assets (across maturity)	15,700
Gilt Fund with 10-year constant duration	Minimum investment in G-secs- 80% of total assets such that the Macaulay duration of the portfolio is equal to 10 years	1,499
Floater Fund	Minimum investment in floating rate instruments (including fixed rate instruments converted to floating rate exposures using swaps/derivatives)- 65% of total assets	62,812
Close Ended Schemes		
Fixed Term Plan	Closed-ended funds which eliminate interest rate risk and lock-in a yield by investing only in securities whose maturity matches the maturity of the fund.	15,134
Capital Protection Oriented Schemes	Close-ended hybrid funds that create a portfolio of debt instruments and equity derivatives.	630
Infrastructure Debt Fund	Investment vehicles which invest in infrastructure sector.	2,068

Annex 2

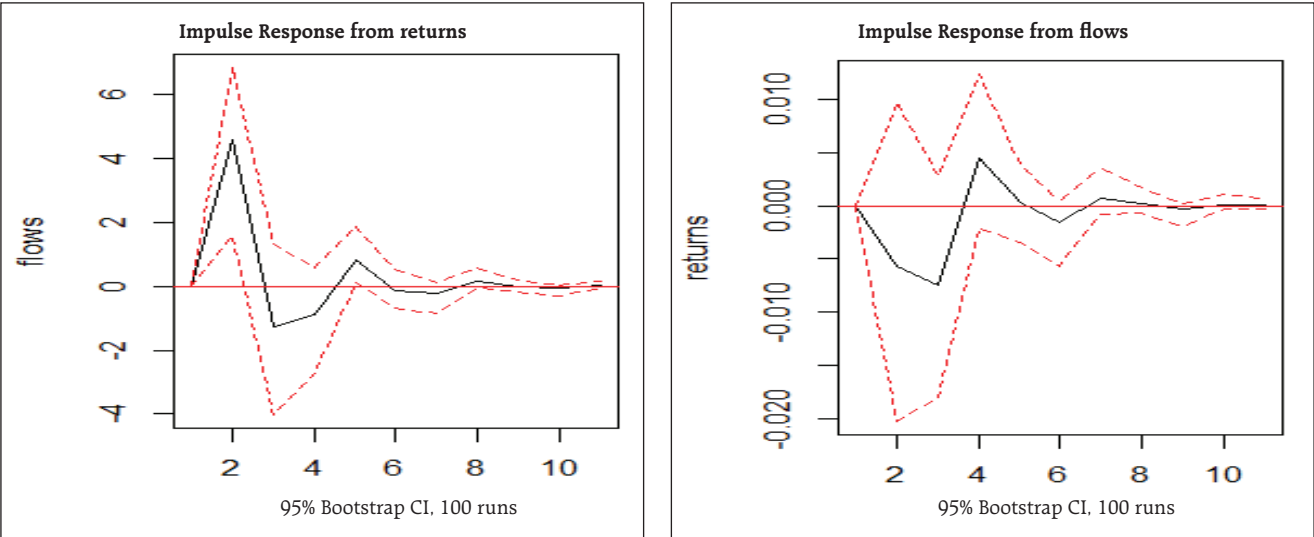
Test	Statistics	p value
Portmanteau	30.61	0.16
ARCH VAR	56.82	0.90

Note: *p<0.1; **p<0.05; ***p<0.01.

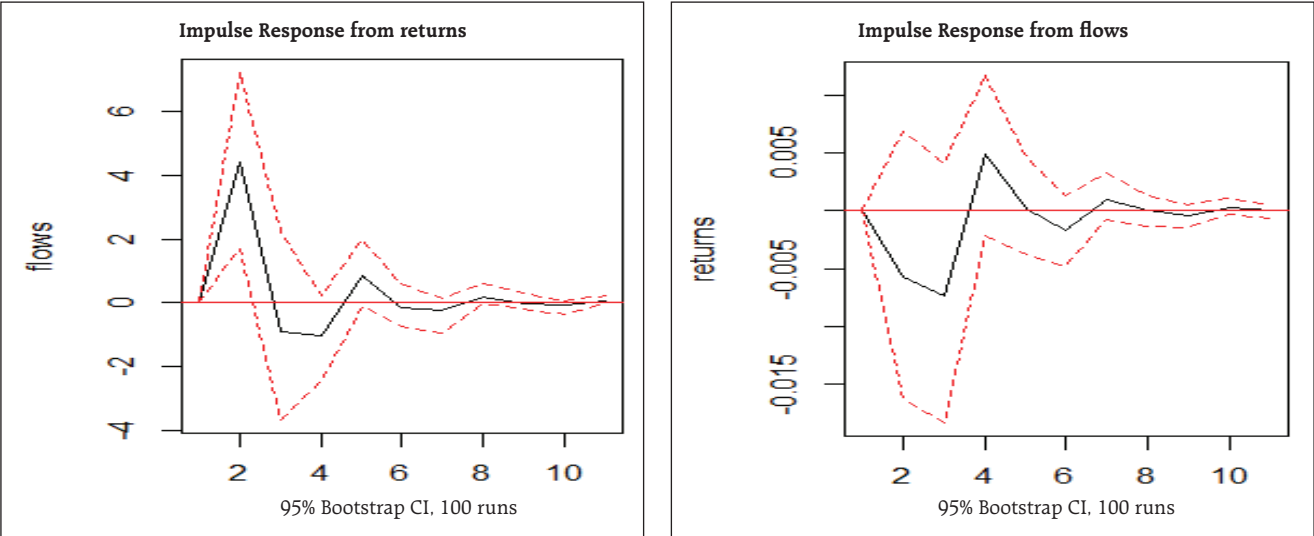


Annex 3

(a) Impulse Response Function of Flows and Returns (Equation 1)



(b) Impulse Response Function of Flows and Returns (Equations 2 and 3)



Note: Stability check indicates no root lies outside the unit circle verifying the stability conditions of VAR.

*Financial Liabilities of Household Sector in India – An Assessment**

by Richa Rawat[^], Tarun Kumar Saxena[^] and Vivek Kumar[^]

This study examines the determinants of household borrowings (measured as credit to GDP ratio) and constructs vulnerability indices to assess sustainability of household borrowings in different episodes of time including the epochs of global financial crisis and the pandemic. It is observed that the estimated vulnerability scores for India have generally been low indicating that financial liabilities of household remained within the sustainable range during the last three decades.

Introduction

Household sector plays a major role in the Indian economy as the supplier of financial resources in the form of savings. As per the National Accounts Statistics (NAS) 2022, the share of Households (HHs) in Gross Savings was 78.5 per cent and the sector contributed 43.5 per cent of Gross Value Added (GVA) at basic prices during 2020-21. While HH sector is the leading lender in the economy in the form of financial savings, it also is the foremost borrower in the form of loans taken from financial institutions. Given the development objectives, access to affordable credit for the HH sector can alleviate the liquidity constraint and enable them to smoothen their consumption and therefore borrowing by HHs play a critical role. On the other hand, excessive leverage by the HH sector in terms

of borrowings beyond sustainable levels may impact the health of the financial system adversely causing economic disruptions. This could be exacerbated by external shocks such as the global financial crisis and the COVID pandemic which could detrimentally impact HHs' income and borrowings. For example, the HH financial liabilities from institutional sources as percentage of GDP increased sharply to 39.5 per cent in Q4:2020-21 during pandemic as compared to 35.4 per cent in Q4:2019-20. In this context, it is important to assess the trend in borrowings of households in India for a relatively larger time period to assess its sustainability. The present study is an attempt to bridge this gap in the literature.

It has already been documented that the credit growth of HH sector has been steady and rapid during recent years. Commentators have pointed out that a continuous rise in HH credit growth accompanied by the alternate periods of expansion and retrenchment in initial three quarters of 2021-22 could result in household strain (SBI, 2021). Therefore, identifying determinants of credit growth will assist in designing appropriate policy response. Assessing HH sector for its financial sustainability also provides insights into the dynamics of economic growth as HH indebtedness affects the sensitivity of aggregate expenditure which matters for both macroeconomic and overall financial stability (Ramadorai, 2017). Also, the level and distribution of HH borrowings may affect the responsiveness of aggregate demand and aggregate supply to shocks in the wider economy (Zabai, 2017). Given these critical channels, this article supplements the literature by empirically identifying the factors that determine the trend in HH credit to GDP ratio in India and constructs vulnerability indices to examine sustainability of household borrowings during period of stress.

Issues related to the measurement of insolvency were explored within the domain of HH finances

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using predictive models and financial ratios by De Vaney and Lytton (1995). Leigh *et al.*, (2012) showed that housing market crashes and recessions tend to be more severe if the boom was accompanied by larger run ups in HH borrowings. Meniago *et al.* (2013) examined the factors responsible for significant increase in household borrowings in South Africa using a Vector Error Correction (VEC) model and showed that the house prices, household savings, gross domestic product, household consumption and consumer price index (CPI) were positively related to robust growth in household borrowings. Similar findings were also reported by Samad *et al.* (2020) while studying the macroeconomic determinants of the household borrowings in emerging economies. Thus, this article is placed in the broader literature related to the empirical assessment of sustainability of HH borrowings.

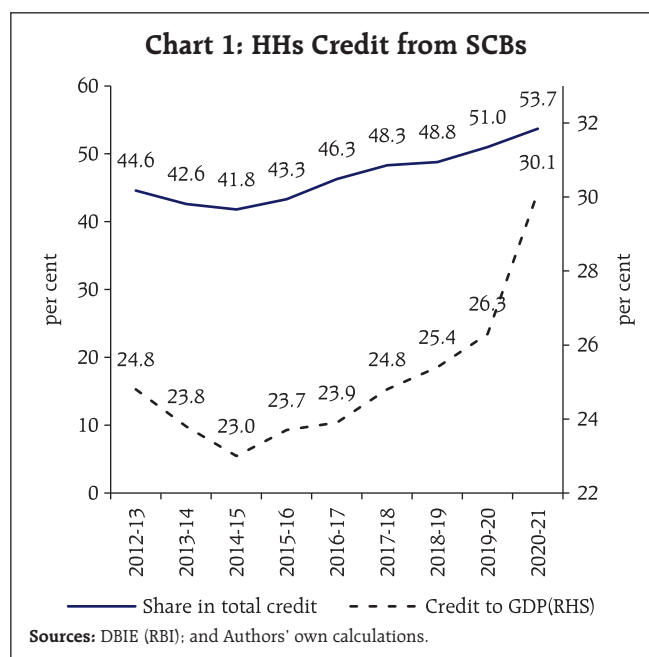
The rest of the article is organized as follows: Section 2 deals with stylised facts about indebtedness of Indian HHs and presents a cross country comparison, especially the BRICS countries. Section 3 evaluates HH borrowings sustainability by looking at a number of sustainability indicators. Section 4 empirically examines the determinants of household borrowing using Principal Component Regression analysis and compute vulnerability index for analysing sustainability of household financial liabilities. Section 5 concludes the article.

2. Some Stylised Facts

2.1 HH Indebtedness:

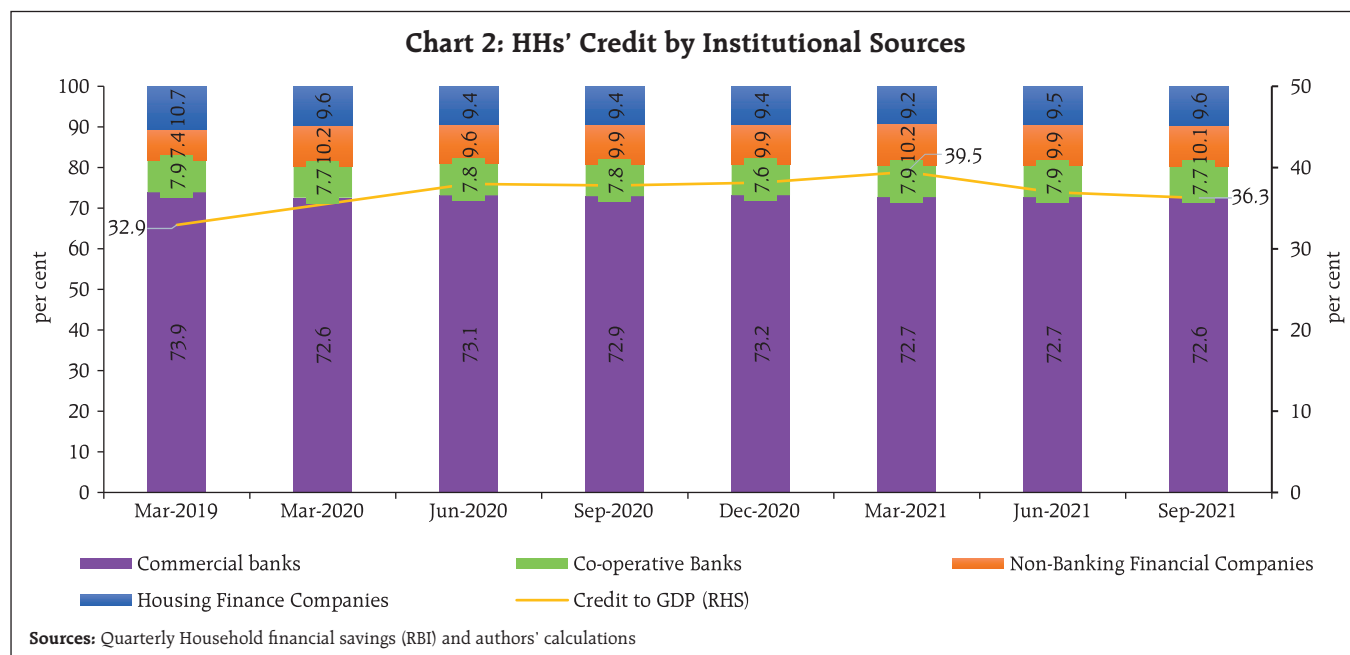
HH borrowings consist of institutional and non-institutional credit; with institutional agencies¹ working as the dominant source for HH loans. Of the total institutional credit extended to the HH sector, more than 70 per cent is extended by scheduled

¹ As per the All-India Debt and Investment Survey (AIDIS) 2019, 87.1 per cent of HH cash debt in urban areas and around 66.2 per cent of HH cash debt in rural areas is extended by institutional sources.



commercial banks (SCBs). The other institutional sources are co-operative banks, non-banking financial corporations (NBFCs) and housing finance companies (HFCs). Total borrowings of the HH sector from institutional sources has risen by 28.3 per cent from ₹ 62 lakh crores in March 2019 to ₹ 79 lakh crores in September 2021. The article focuses on HHs' credit from SCBs which constitute the single largest source of credit to HHs. The share of HH credit from SCBs in GDP increased to 30.1 per cent in March 2021 as compared to 23 per cent in March 2015 (Chart 1).

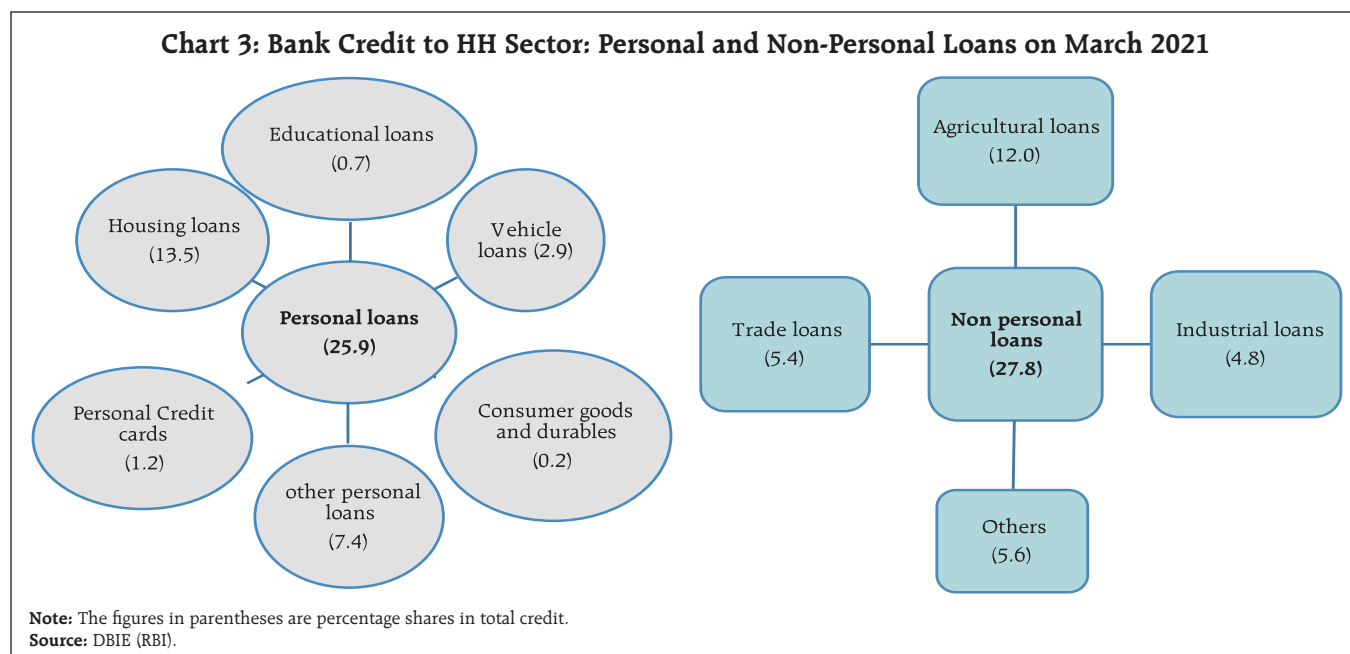
The share of non-banking credit by NBFCs, HFCs and others have grown in the recent period. The share of HH borrowings from all these institutions (SCBs, NBFCs, HFCs and Co-operatives banks) increased to 35.4 per cent of GDP in March 2020 from 32.9 per cent of GDP in March 2019. During the first phase of the pandemic-induced lockdown, households were striving hard for survival and borrowed to fulfil their basic needs due to the loss of jobs which brought up the ratio acutely to 38.5 per cent within a quarter (June 2020). The rising trend continued till March 2021 when it stood at 39.5 per cent, thereafter, the HH credit to GDP ratio started declining (Chart 2).

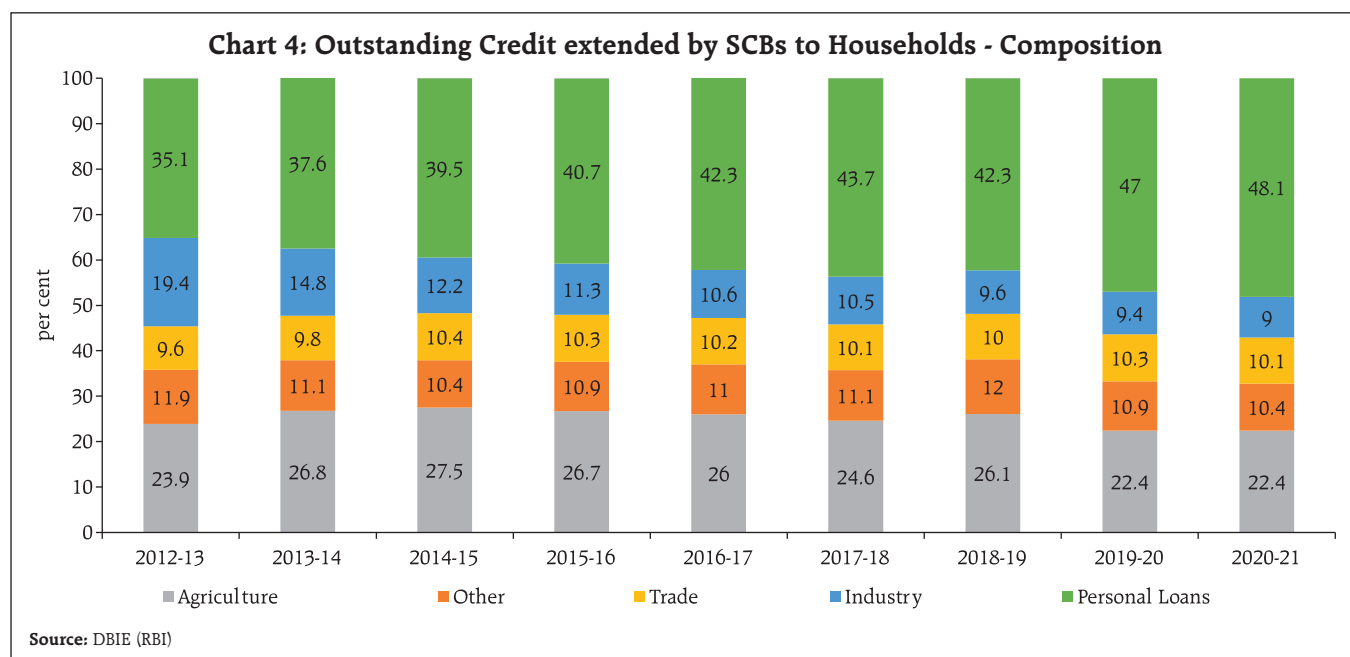


2.2 Decomposition of HHs' Credit according to activity:

Credit extended by SCBs to the HH sector consists of both personal and non-personal loans to Individuals including Hindu Undivided Family (HUF), un-incorporated enterprises such as proprietary and partnership concerns, Joint Liability Groups, NGOs,

Trusts and Groups, etc. In March 2021, the personal loans constituted 25.9 per cent of the total bank credit and included mainly housing loans, vehicle loans, credit cards and educational loans; non-personal loans to HH sector constituted 27.8 per cent of the total bank credit and comprised mainly agricultural loans, industrial loans, and trade loans (Chart 3).





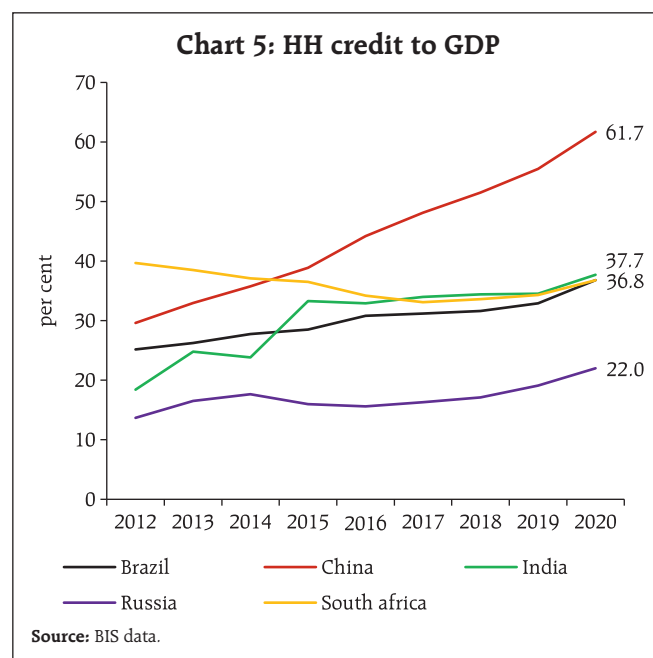
The share of personal loans in total credit to HHs has risen steadily in recent years. Personal loans in HH credit increased to 48.1 per cent in March 2021 from 42.3 per cent in March 2019 *i.e.*, the share rose remarkably by 5.7 percentage points during pandemic (Chart 4). The share of credit for agricultural activities reduced to 22.4 per cent in March 2021 as compared to 26.1 per cent during 2018-19 and trade remained around 10 per cent in total credit of HHs during the period of last 9 years.

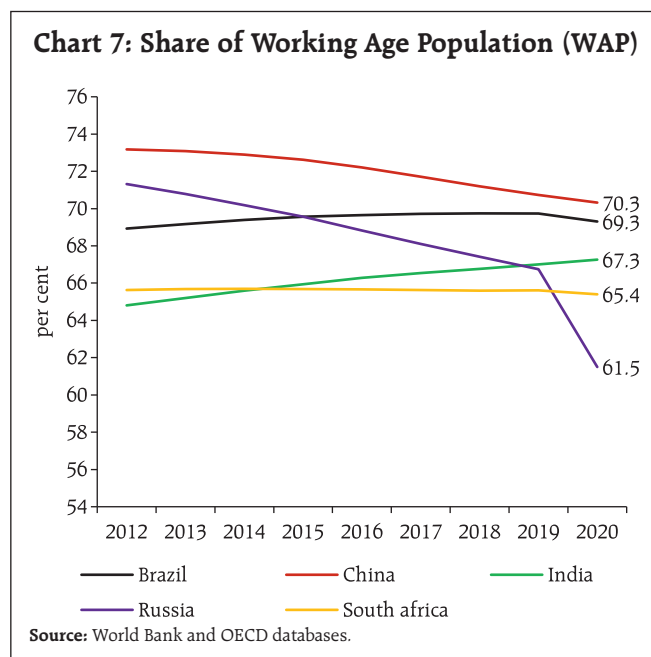
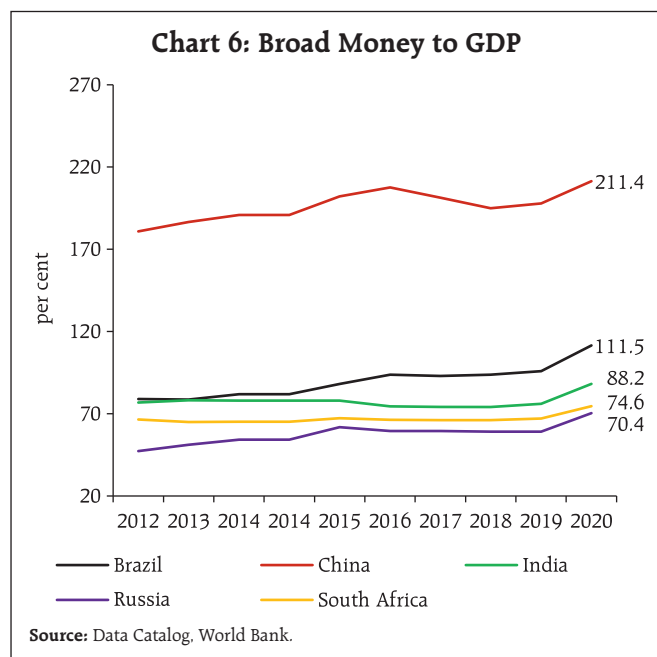
2.3 Comparison with household borrowings position in BRICS nations

India's credit to GDP ratio of HHs is catching up with its peers among the emerging economies, however, there are marked heterogeneities in the internal forces driving them *viz.*, HHs' deposits, pattern of consumption/ expenditure, disposable income, and demographic dividend. A cross-country analysis based on the available data in World Bank and BIS database for Brazil, Russia, India, China, and South Africa (BRICS nations) is carried out to assess the empirical significance of such factors.

2.3.1 HH Credits and Deposits as percentage of GDP in BRICS

The ratio of HH credit to GDP is lower in India than China but higher than the other three countries in BRICS as per BIS data (Chart 5). The ratio is relatively stable from 2015 onwards for India. Indian position appears moderate with respect to the credit to GDP





ratio at 37.7 per cent as compared to China's 61.7 per cent in 2020 but coinciding with South Africa from 2017 onwards. Recently, Brazil has also converged to India's level.

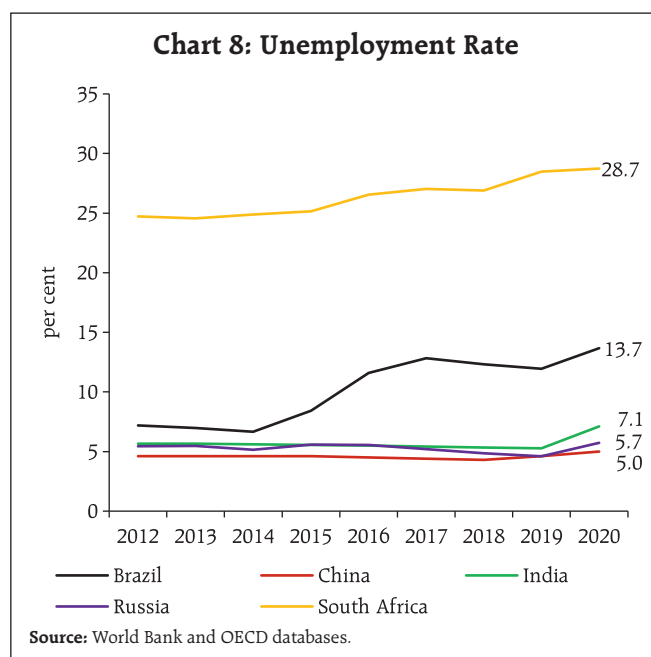
The data on HHs' deposits for other BRICS countries are not available. Hence, as a proxy measure of liquidity, the ratio of broad money² to GDP is considered. India's broad money to GDP ratio is at a modest level among BRICS nations (Chart 6). The ratio in India has been relatively stable that may be considered as stable means for HHs to repay their loans besides fulfilling basic needs.

2.3.2 Working age population and unemployment rates in BRICS

The credit demand of HHs may also depend upon demography *viz.*, the proportion of working age population³ (WAP) in total population and the

unemployment rate in the country. The comparable position across the BRICS nations is shown below in Charts 7 and 8.

The proportion of working age population (WAP) in India is increasing unlike other BRICS countries and unemployment rate in India is quite lower than that prevailing in Brazil and South Africa. In year 2012,



² As defined by the World Bank, Broad money is "the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors other than the central government; bank and traveller's cheques; and other securities such as certificates of deposit and commercial paper".

³ The working age population comprises people aged between 15-64 years (World Bank and OECD).

the Indian WAP was 64.8 per cent which gradually increased and reached at the level of 67.3 per cent in 2020.

Considering the proportion of WAP along with the unemployment rates is important to analyse the credit demand by the HH sector from the perspectives of both the eligibility for credit and the economic burden of funding the basic needs. Increase in WAP with a constant rate of employment may help HHs to meet their needs better.

2.3.3 HH expenditure (as per cent of GDP) in BRICS

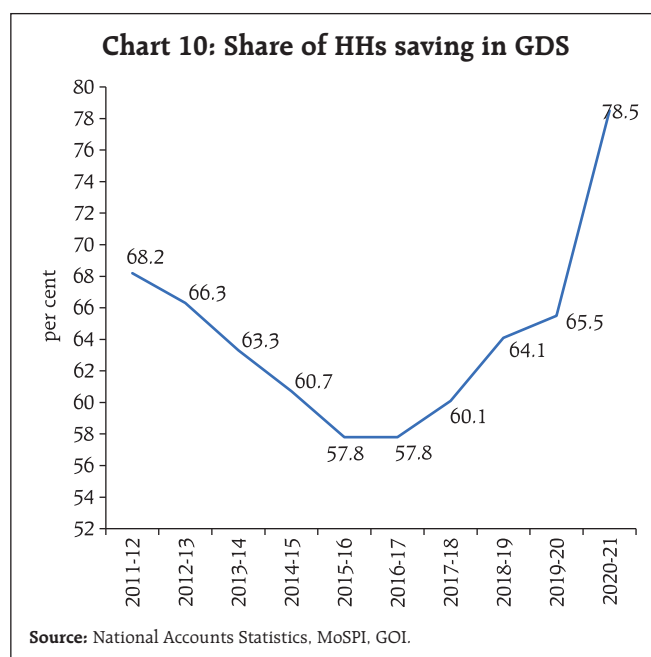
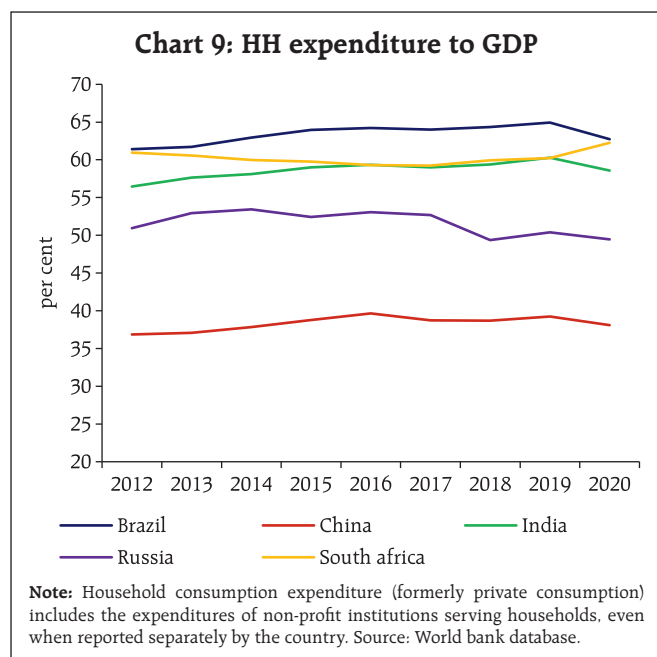
In the pre-pandemic period, HH expenditure as percentage of GDP has exhibited relatively stable trend for India (Chart 9). The share of consumption expenditure by the sector in GDP was progressively rising and reached approximately 60 per cent in 2019 from 56.5 per cent in 2012. However, it experienced a sharp decline to 58.6 per cent in 2020. Nevertheless,

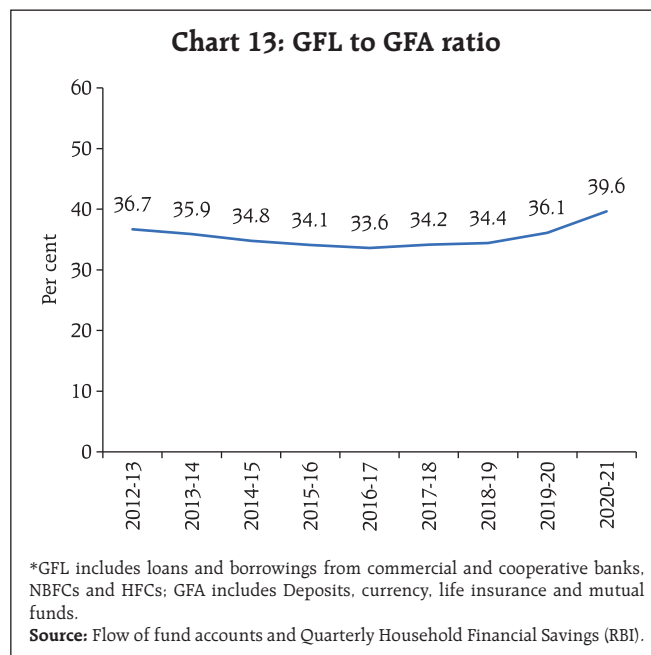
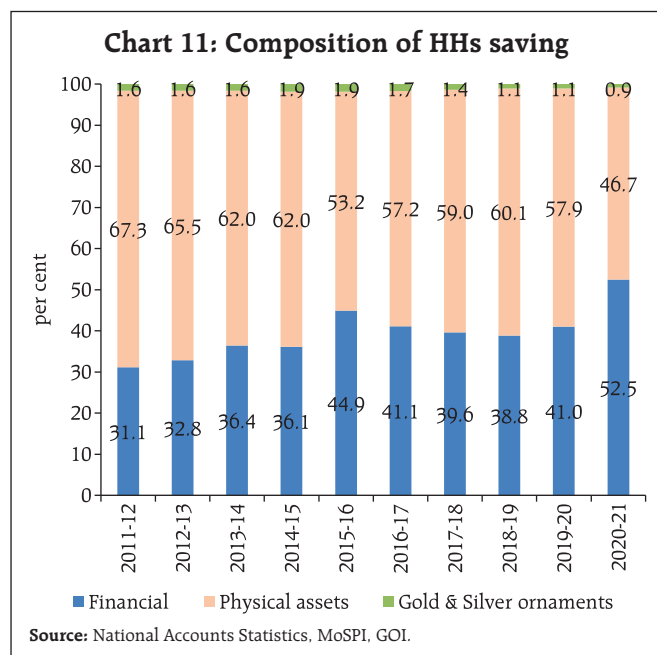
India has a higher HH expenditure to GDP ratio than China and Russia.

3. HH borrowings: Sustainability Indicators

3.1 HH share in total domestic savings:

Savings is an important indicator for assessing the sustainability of borrowings as it contributes to building up of assets which can be used for discharging future liabilities. In the recent period, liabilities of the HH sector have increased and their assets in the form of accumulated savings have also enlarged. The share of HH savings in Gross Domestic Savings (GDS) declined from 68.2 per cent in 2011-12 to 57.8 per cent in 2015-16 but increased thereafter to 78.5 per cent in 2020-21 (Chart 10). Of the total savings by the HH sector, 46.7 per cent are in the form of physical savings and 52.5 per cent in the form of financial savings in 2020-21 (Chart 11) and these have become the most preferred source of savings for the sector.



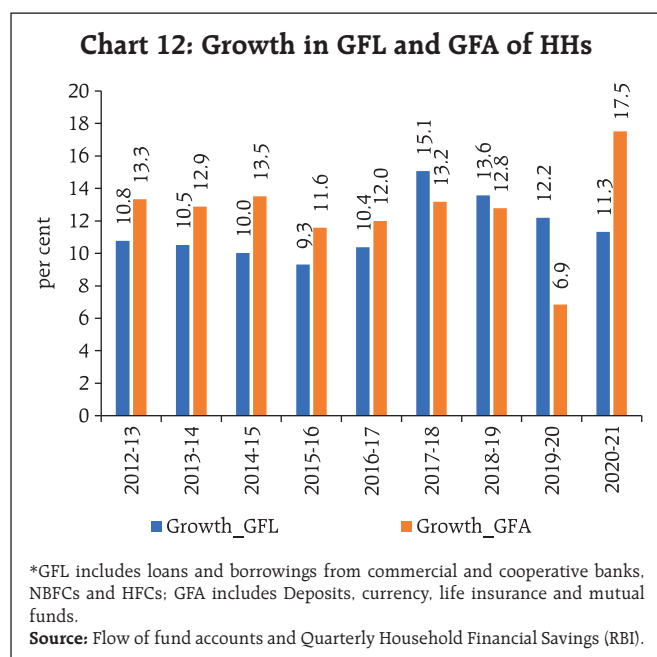


3.2 Gross financial liability (GFL) to gross financial assets (GFA) ratio:

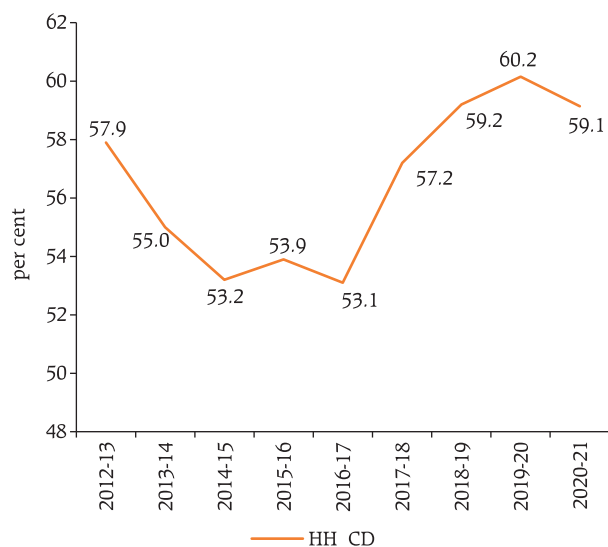
The ratio of GFL to GFA, as a proxy for leverage, measures the strength of the financial balance sheet of HHs. In 2019-20, the financial liabilities of HH sector grew faster (12.2 per cent) than their financial assets (6.9 per cent), whereas in 2020-21 financial assets (17.5 per cent) grew more than the financial liabilities

(11.3 per cent) in the sector (Chart 12). On a stock basis, gross financial liabilities remained less than 40 per cent of their gross financial assets during the last decade (Chart 13). Also, a sizable share of loans to HHs is in the form of housing loans (around 50 per cent), with the house itself working as the underlying collateral.

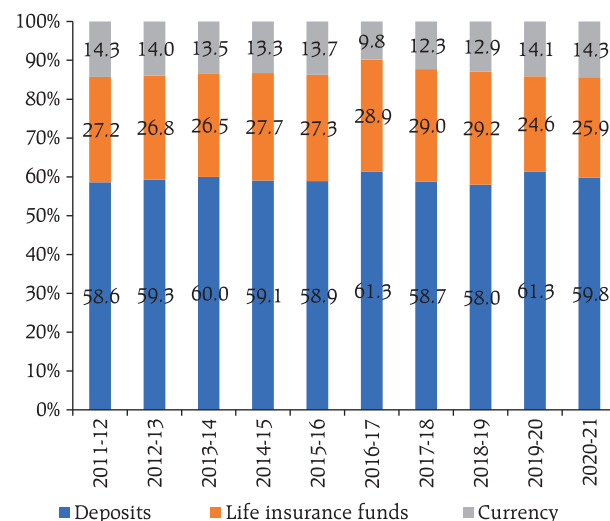
3.3 HH Credit to Deposit ratio:



HH liabilities to SCBs and their assets with them can be captured in the ratio of their bank credit to bank deposit. The ratio provides insights into imbalances between credit and deposits; availability of liquidity and reliance on credit; and shifts in liquidity preferences and demand for credit. The ratio is important to assess the impact of any financial stress arising in the HHs' balance sheet and spilling over to the banking sector. This ratio has been continually increasing in recent years and reached to 59.1 per cent in 2020-21, suggesting that the HH sector remains net lender to the banking sector despite the continuous increase in its CD ratio (Chart 14). Bank deposits remain the main form of HH savings among the major three components (Bank deposits, life

Chart 14: HH Credit to Deposit Ratio

Source: DBIE (RBI) and authors' calculations.

Chart 15: Major Components of Households' Financial Assets

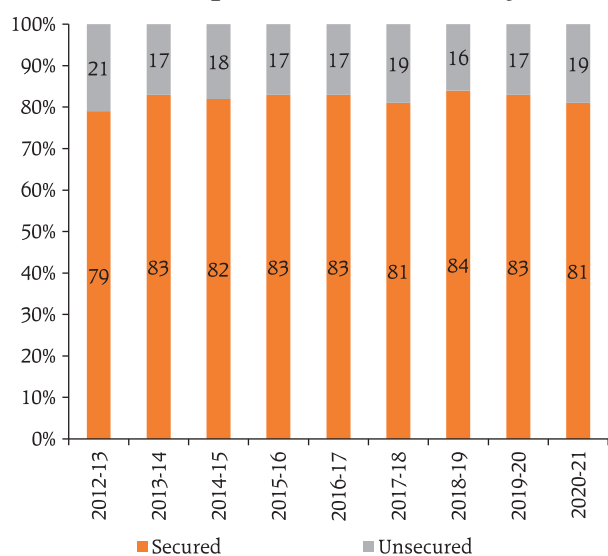
Source: Flow of Fund accounts (RBI).

insurance funds and currency) with a share of around 60 per cent (chart 15).

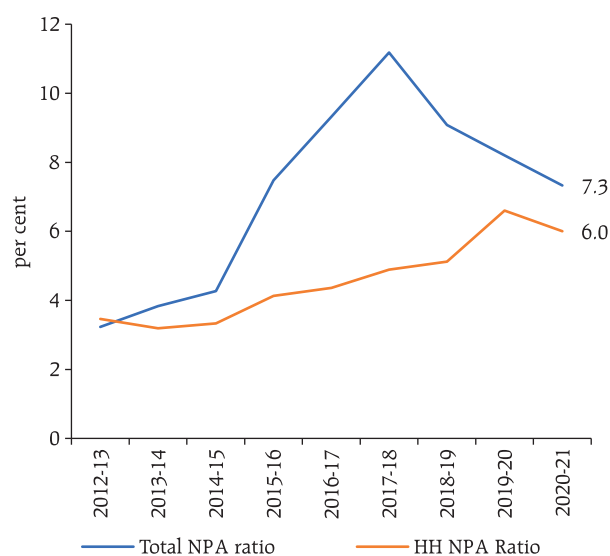
3.4 Composition of secured-unsecured loans and NPAs:

Bank credit is the major component of HH liabilities. More than four fifths of HHHs' credit is secured and collateralised. In 2012-13 the share of

secured loans in total HHHs' credit was 79 per cent which rose to 81 per cent in 2020-21 (Chart 16). NPA ratio for the sector indicates a rising trend in the recent past from 3.3 per cent in 2014-15 to 6.6 per cent in 2019-20 but reduced to 6 per cent in 2020-21 and it is falling well below the overall NPA ratio of 7.3 per cent in 2020-21 (Chart 17).

Chart 16: Composition of HH Credit by SCBs

Source: BSR1 annual survey (RBI) and author's calculation.

Chart 17: NPA ratio

Source: DBIE (RBI) and authors' calculations.

4. Data preparation, Methodology and Empirical Results

Six factors *viz.*, weighted average lending rates (WALR), change in the working age population (WAP), inflation (INF), HH deposits to GDP ratio (DEP_GDP), HH NPA ratio at first lag (HHNPA_lag1), private final consumption expenditure (PFCE) to GDP ratio as a proxy for HH expenditure to GDP ratio (HH_EXPGDP) are considered as covariates for HH credit to GDP (CR_TO_GDP), which is the HH sector borrowings indicator.

Data are sourced from RBI (DBIE) and World Bank. Annual Data for all the regressors and HH credit to GDP ratio relate to the period 2002 – 2021. The ratio of change in the flow of financial liabilities of HH sector to its financial assets (HH FL/FA ratio) has been used for a longer time - period 1990-2020. Before investigating the relationship of these factors with the HH borrowings indicator, the pairwise correlations are computed among all the variables (Table 1, Annexure 1) and the problem of multicollinearity is identified. Consequently, all the chosen macro-economic factors were difficult to put in the analysis. Besides, this problem could have caused the estimates of coefficients to have higher variance and made them unreliable too. To avoid these consequences, principal component regression (PCR) is employed in the study (first suggested by Kendall, 1957). The basic idea under the technique is to reduce the dimension of the data while introducing orthogonality among the covariates using the principal component analysis (PCA). In the present study, it is applied with a sole purpose of using all the covariates without any loss of information and avoid misleading outputs due to multicollinearity.

4.1 Principal Component Regression (PCR) Analysis

All the regressors are evaluated as correlated with HH borrowings indicator (CR_TO_GDP). PCR is

applied and found significant at 5 per cent level. The model explains more than 80 per cent variation in HH credit to GDP ratio (*i.e.*, CR_TO_GDP). Through reverse transformation, the original regression coefficients are obtained corresponding to original factors.

The empirical results show that WALR is negatively related to HHs' credit to GDP ratio as the cost of borrowing is expected to negatively affect the credit demand (H.O. *et al* ,2016). Household sector is more subtle to changes in interest rates (Debelle, 2004) and financial sector liberalisation along with increased private participation have also instilled strong competition among lenders compelling them to offer competitive interest rates on loans to attract potential borrowers (Fulwari, 2018). Change in working age population and inflation are also found inversely related to HHs' borrowings. An increase in WAP in a stable labour market is expected to reduce the burden of financing consumption in a representative HH as its income gets boosted after the addition of more wage earners in the family. Further, higher inflation may increase interest rates, thus discouraging the demand for credit, but this is a short - term criteria. So, increase in both the covariates suppresses the need for credit in the short term. Lagged NPAs are also negatively related to the dependent variable as reduction in HHs' NPA would encourage lenders (banks) to provide more credit to a wider range of HH borrowers. HH Deposits to GDP and PFCE_TO_GDP are found positively related to HHs' credit to GDP ratio. The increase in deposit (financial assets) as a share of GDP may be taken as an increase in structural liquidity for banks which creates space for more leverage and the increase in consumption expenditure creates demand for credit.

The diagnostic checking of the model is performed by plotting the standardized residuals against the predicted values of the HH borrowings indicator which is found as random indicating that the model has a best fit.

4.2 Sustainability Analysis

Vulnerabilities are defined as pre-existing conditions that make the occurrence of an economic or financial crisis/stress more likely when an adverse shock hits (Dahlhaus and Lam, 2018). This definition is consistent with other academic literature (Christensen *et al.*, 2015). Many researchers have previously analysed EMEs for assessing vulnerabilities. Their approaches are often similar, which is the Balance Sheet Approach introduced by IMF (IMF, 2002, 2004 and 2011). This article also employs the same idea but follows the approach of Pradhan (2018) which provides the simple algorithm to compute the vulnerability index on the scale of 0 to 10 and comprehensive interpretation of it. The vulnerability index (VI) has been computed for both indicators under our study - HH credit to GDP ratio and HH FL/ FA ratio during 2002-2021 and 1990–2020, respectively (Annexure 2). The latter ratio helps in assessing the flow side of imbalance in HH sector, if any. The entire period is divided suitably into different episodes. Five-year period starting with external payments crisis (1990-91 to 1994-95) and seven - year period covering 1995-96 to 2001-02. Rest of the episodes are constructed using the period prior to the Global financial crisis (GFC) (2002-03 to 2007-08), during GFC (2008-09 to 2011-12) and post GFC (2012-13 to 2019-20) for HH FL/HH FA ratio. Similarly, HH credit to GDP ratio (CR_TO_GDP) for the entire period from 2002 till 2021 is assessed for three episodes: 2002-03 to 2007-08; 2008-09 to 2011-12; and 2012-13 to 2020-21. Since the annual values were not able to completely capture the volatility in the vulnerability index due to pandemic-induced mobility restrictions, therefore, additional computation of vulnerability index is performed using quarterly data of HH borrowings indicator (CR_TO_GDP) considering two mutually exclusive time epochs taken as pre pandemic (December 2018 to March 2020) and amid pandemic (June 2020 to September 2021), each comprising of six quarters.

Table 1: Computed Vulnerability Index for HH FL/ FA ratio

Period	Vulnerability Index
1990-91 to 1994-95	5.21
1995-96 to 2001-02	3.36
2002-03 to 2007-08	4.91
2008-09 to 2011-12	4.85
2012-13 to 2019-20	4.81

Authors' calculations.

Vulnerability index may take values from 0 to 10. Index value ranging from 5 to 10 indicates higher degree of financial risk/vulnerability, whereas the value ranging from 0 to 5 specifies absence of vulnerability. Both the vulnerability indices (based on the annual data) for the latest period were lower than 5, suggesting that HH borrowings in India does not indicate any sustainability concerns. In fact, other than the period from 1990-91 to 1994-95, the vulnerability index for HH financial liabilities to financial assets has always been less than 5, suggesting that HH borrowings have generally remained sustainable (Table 1). The value of the index was the lowest during the post external payments crisis episode (1995-96 to 2001-02). During the period of GFC (2008-09 to 2011-12), the index value at 4.85 did not pose any vulnerability for the HH sector. The vulnerability index (based on the quarterly data) during pandemic stood at 4.76, thus indicating unperturbed sustainability (Table 2).

Table 2: Computed Vulnerability Index for HH credit to GDP ratio

Period	Vulnerability Index
2002-03 to 2007-08	4.89
2008-09 to 2011-12	4.86
2012-13 to 2020-21	4.66
Based on Quarterly data	
Pre-Pandemic (Dec-18 to Mar-20)	4.96
Amid Pandemic (Jun-20 to Sep-21)	4.76

Authors' calculations.

5. Conclusion

This paper looked at the trends in borrowing of the households in India in order to understand what factors determine the household borrowing as well as examined its sustainability during periods of stress due to aggregate economic shocks. Our results show that household credit to GDP ratio has increased over the years. Ratio of household deposits to GDP and private final consumption expenditure are found to be positively related to household credit to GDP ratio whereas lending rate, inflation, lagged NPAs and increase in working age population are negatively associated with the same. The sustainability index shows that borrowing of Indian households remained within sustainable levels in the last three decades including the times of stress such as the pandemic.

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Annexure 1

Pairwise Correlations are evaluated before applying the PCR and summarised in the following matrix.

Table 1 - Correlations

	CR_TO_GDP	HHNPA_LAG1	WALR	HH_EXPGDP	INF	WAP	DEP_GDP
CR_TO_GDP	1						
HHNPA_LAG1	-0.619	1					
WALR	-0.834	0.513	1				
HH_EXPGDP	0.321	0.833	0.302	1			
INF	-0.184	-0.506	0.128	-0.659	1		
WAP	-0.379	-0.119	0.497	-0.301	0.449	1	
DEP_GDP	0.874	-0.564	-0.825	-0.347	0.375	-0.267	1

Principal components Regression (PCR) – Methodology:

Let the linear regression model be given by:

$$Y = \beta X + \epsilon,$$

where Y is the vector of observations on dependent variable, X is the matrix of independent observations, β is the vector of regression coefficients and ϵ is the vector of errors.

First step is to standardize the variables, both dependent and independent variables.

To perform PCR, we transform the independent variables to their principal components.

Mathematically we write

$$X'X = PDP' = Z'Z,$$

where D is the diagonal matrix of the eigen values of $X'X$, P is the eigenvector matrix of $X'X$, and Z is a data matrix (similar in structure to X) made up of the principal components. P is orthogonal so that $P'P = I$.

We have created new variables Z as weighted averages of the original variables X. If we begin with variables X1, X2, and X3, we will end up with Z1, Z2, and Z3. Since these new variables are principal components, their correlations with each other are all zero. Severe multicollinearity will be detected by very small eigen values. To rid the data of the multicollinearity, we omit the components (the z's) associated with small eigen values. Usually, only one or two relatively small eigen values will be obtained.

For example, if only one small eigen value were detected on a problem with three independent variables, we would omit Z3 (the third principal component). When we regress Y on Z1 and Z2, multicollinearity is no longer a problem. We can then transform our results back to the X scale to obtain estimates of β . The mean squared error of these estimates is less than that for least squares.

Mathematically, the estimation formula becomes

$$\hat{\alpha} = (Z'Z)^{-1} Z'Y = D^{-1} Z'Y.$$

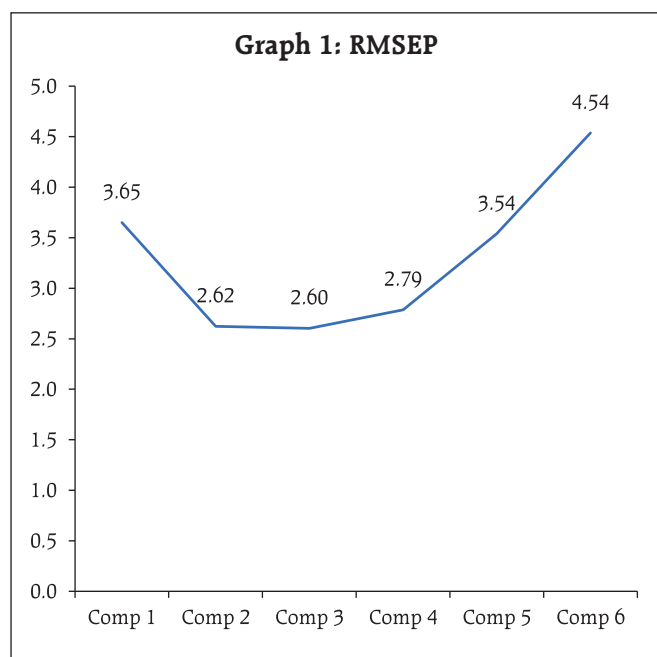
This is ordinary least squares regression applied to a different set of independent variables. The two sets of regression coefficients, α and β , are related using the formulas $\hat{\alpha} = P'\hat{\beta}$ and $\hat{\beta} = P\hat{\alpha}$. Omitting a principal component may be accomplished by setting the corresponding element of α equal to zero. Hence, the principal components regression may be outlined as follows:

Complete a principal components analysis of the X matrix and save the principal components in Z. Fit the regression of Y on Z obtaining least squares estimates of α . Set the last element of α equal to zero.

Transform back to the original coefficients using $\hat{\beta} = P\hat{\alpha}$.

Results:

Principal components analysis is run for obtaining orthogonal set of data (regressors). Three components



PC1, PC2 and PC3 together explained more than 90% variation in the data set. The choice of only three components is cross validated using the root mean squared error of prediction (RMSEP) (See the graph 1 below). RMSEP is declining till component 3 (i.e. Comp 3) and then it starts rising. Therefore, only first three components are chosen. Utilising the chosen components, the data of six covariates are transformed to the new data set with three variables that are orthogonal to each other. Linear regression is run for HH credit to GDP upon V1, V2 and V3 (the new regressors).

PCR is found to be significant at 5% level of significance. Reverse transformation is done to get regression coefficients corresponding to each original variable. And the transformed regression model can explain 80.32 per cent of variation in HH credit to GDP.

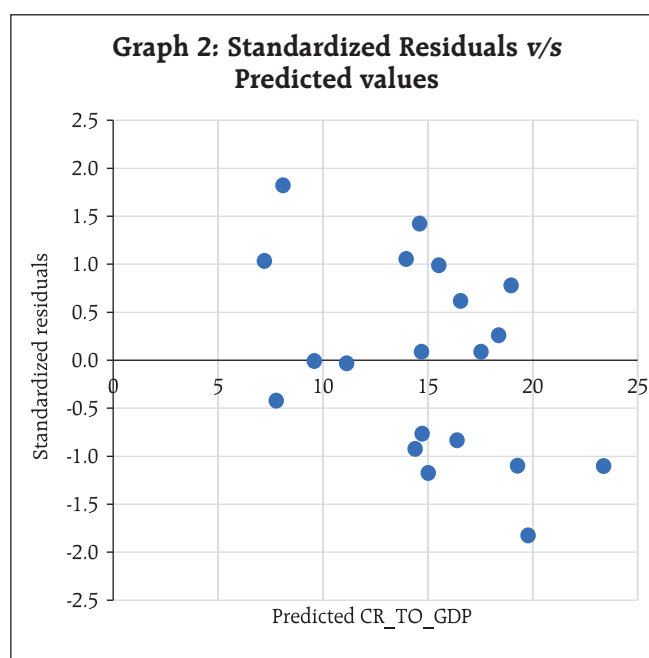
Table 2: Regression Results

Regressors	Regression Coefficients	Regression Statistics	
V1	-3.416	F (3,17)	278.36
V2	-5.264	p value	0.0355
V3	-1.057	Adjusted R-square	0.8032

Finally, the following regression model is obtained:

$$Y = -1.713 \cdot \text{WALR} - 1.097 \cdot \text{WAP} - 0.292 \cdot \text{INF} + 1.687 \cdot \text{Dep_GDP} - 0.69 \cdot \text{HHNPA_LAG1} + 0.24 \cdot \text{HHEXP_GDP}$$

Diagnostic checking of the applied PCR is also worked upon. For validation of PCR, plot of standardised residuals against Predicted Y values is utilised and found to be random which validates the PCR study.



Annexure 2

Methodology of Sustainability Analysis:

The underlying methodology for computation of VI is as follows: Divide the entire period for each indicator in to small and relevant episodes of say 5-10 years suitably. To build VI, all observations X_i 's under each indicator are standardised into new Z scores as –

$$Z_i = \frac{(X_i - \mu)}{\sigma}$$

where μ and σ are the mean and standard deviation of X during the episode. A Z-score close to zero

indicates that an indicator is close to the average. A higher positive value implies a worse performance. To derive the index for each indicator, Z scores during each episode are transformed into cumulative distribution function of Normal Distribution and is so scaled that the values may range only between 0-10 with average score of 5. Finally, VI is obtained by taking the unweighted average of these values for each episode. An index ranging from 5 towards 10 indicates presence of higher degree of financial risk/vulnerability.

CURRENT STATISTICS

Select Economic Indicators

Reserve Bank of India

Money and Banking

Prices and Production

Government Accounts and Treasury Bills

Financial Markets

External Sector

Payment and Settlement Systems

Occasional Series

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Notes: .. = Not available.

– = Nil/Negligible.

P = Preliminary/Provisional. PR = Partially Revised.

No. 1: Select Economic Indicators

Item	2021-22	2020-21	2021-22		2022-23
		Q4	Q1	Q4	Q1
	1	2	3	4	5
1 Real Sector (% Change)					
1.1 GVA at Basic Prices	8.1	5.7	18.1	3.9	12.7
1.1.1 Agriculture	3.0	2.8	2.2	4.1	4.5
1.1.2 Industry	9.8	11.6	40.4	1.0	6.0
1.1.3 Services	8.8	4.3	15.5	5.0	17.5
1.1a Final Consumption Expenditure	7.0	9.6	10.2	2.3	21.3
1.1b Gross Fixed Capital Formation	15.8	10.1	62.5	5.1	20.1
	2021-22	2021	2022		
		Jul.	Aug.	Jul.	Aug.
	1	2	3	4	5
1.2 Index of Industrial Production	11.4	11.5	13.0	2.4	-
2 Money and Banking (% Change)					
2.1 Scheduled Commercial Banks					
2.1.1 Deposits	8.9	9.8	9.5	9.2	9.5
2.1.2 Credit #	9.6	6.1	6.7	14.5	15.5
2.1.2.1 Non-food Credit #	9.7	6.2	6.7	15.1	16.0
2.1.3 Investment in Govt. Securities	6.0	8.2	5.3	8.0	10.3
2.2 Money Stock Measures					
2.2.1 Reserve Money (M0)	13.0	16.8	15.2	11.3	10.3
2.2.2 Broad Money (M3)	8.8	9.9	9.5	8.6	8.9
3 Ratios (%)					
3.1 Cash Reserve Ratio	4.00	4.00	4.00	4.50	4.50
3.2 Statutory Liquidity Ratio	18.00	18.00	18.00	18.00	18.00
3.3 Cash-Deposit Ratio	4.7	5.0	4.8	5.6	5.1
3.4 Credit-Deposit Ratio	72.2	70.2	70.2	72.9	73.3
3.5 Incremental Credit-Deposit Ratio #	77.2	-8.9	-12.9	94.3	107.3
3.6 Investment-Deposit Ratio	28.7	29.9	29.6	29.5	29.8
3.7 Incremental Investment-Deposit Ratio	19.7	41.6	32.3	56.3	64.0
4 Interest Rates (%)					
4.1 Policy Repo Rate	4.00	4.00	4.00	4.90	5.40
4.2 Fixed Reverse Repo Rate	3.35	3.35	3.35	3.35	3.35
4.3 Standing Deposit Facility (SDF) Rate *	-	-	-	4.65	5.15
4.4 Marginal Standing Facility (MSF) Rate	4.25	4.25	4.25	5.15	5.65
4.5 Bank Rate	4.25	4.25	4.25	5.15	5.65
4.6 Base Rate	7.25/8.80	7.40/8.80	7.40/8.80	7.75/8.80	7.75/8.80
4.7 MCLR (Overnight)	6.45/7.00	6.55/7.00	6.55/7.00	6.70/7.50	6.80/7.65
4.8 Term Deposit Rate >1 Year	5.00/5.60	4.90/5.50	4.90/5.50	5.30/5.75	5.30/6.10
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)	3.34	3.21	3.19	5.04	5.10
4.11 91-Day Treasury Bill (Primary) Yield	3.84	3.39	3.30	5.62	5.63
4.12 182-Day Treasury Bill (Primary) Yield	4.27	3.53	3.45	5.98	6.09
4.13 364-Day Treasury Bill (Primary) Yield	4.58	3.73	3.65	6.33	6.32
4.14 10-Year G-Sec Par Yield (FBIL)	6.86	6.22	6.27	7.32	7.17
5 Reference Rate and Forward Premia					
5.1 INR-US\$ Spot Rate (Rs. Per Foreign Currency)	76.18	74.39	74.13	79.42	79.91
5.2 INR-Euro Spot Rate (Rs. Per Foreign Currency)	84.01	88.39	87.20	81.17	79.62
5.3 Forward Premia of US\$ 1-month (%)	5.67	3.55	3.40	3.32	3.30
3-month (%)	4.46	3.82	3.56	3.35	3.20
6-month (%)	4.10	4.01	3.76	3.20	3.00
6 Inflation (%)					
6.1 All India Consumer Price Index	5.51	5.6	5.3	6.7	7.0
6.2 Consumer Price Index for Industrial Workers	5.13	5.3	4.8	5.8	5.9
6.3 Wholesale Price Index	12.97	11.6	11.6	13.9	12.4
6.3.1 Primary Articles	10.25	6.3	5.9	15.0	14.9
6.3.2 Fuel and Power	32.50	27.0	28.2	43.8	33.7
6.3.3 Manufactured Products	11.10	11.5	11.6	8.2	7.5
7 Foreign Trade (% Change)					
7.1 Imports	55.43	62.0	53.0	43.6	37.3
7.2 Exports	44.62	49.7	46.3	8.2	1.6

Note : Financial Benchmark India Pvt. Ltd. (FBIL) has commenced publication of the G-Sec benchmarks with effect from March 31, 2018 as per RBI circular FMRD.DIRD.7/14.03.025/2017-18 dated March 31, 2018. FBIL has started dissemination of reference rates w.e.f. July 10, 2018.

*: As per Press Release No. 2022-2023/41 dated April 08, 2022

#: Bank credit growth and related ratios for all fortnights since December 3, 2021 are adjusted for past reporting errors by select scheduled commercial banks (SCBs).

Reserve Bank of India

No. 2: RBI - Liabilities and Assets *

(₹ Crore)

Item	As on the Last Friday/ Friday						
	2021-22	2021	2022				
			Sep.	Sep. 2	Sep. 9	Sep. 16	Sep. 23
	1	2	3	4	5	6	7
1 Issue Department							
1.1 Liabilities							
1.1.1 Notes in Circulation	3107637	2897815	3153398	3165151	3149963	3138282	3129317
1.1.2 Notes Held in Banking Department	15	15	11	13	11	13	12
1.1/1.2 Total Liabilities (Total Notes Issued) or Assets	3107652	2897829	3153409	3165163	3149974	3138295	3129329
1.2 Assets							
1.2.1 Gold	128208	109138	115862	116586	115421	116022	115506
1.2.2 Foreign Securities	2978927	2788032	3037228	3048294	3034297	3021854	3013438
1.2.3 Rupee Coin	518	659	319	284	256	419	385
1.2.4 Government of India Rupee Securities	—	—	—	—	—	—	—
2 Banking Department							
2.1 Liabilities							
2.1.1 Deposits	1794574	2097054	1485945	1460049	1474989	1469091	1457197
2.1.1.1 Central Government	101	101	100	101	100	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	683437	638826	799726	779186	771796	767171	844913
2.1.1.5 Scheduled State Co-operative Banks	7123	7014	7716	7741	8060	7742	8247
2.1.1.6 Non-Scheduled State Co-operative Banks	4121	3431	4363	4392	4272	4242	4176
2.1.1.7 Other Banks	37589	38104	43326	42880	43341	43396	43949
2.1.1.8 Others	988819	1361253	564729	555600	580835	571142	474310
2.1.1.9 Financial Institution Outside India	73343	48283	65941	70107	66543	75256	81458
2.1.2 Other Liabilities	1359254	1317715	1261541	1262074	1220705	1230814	1296275
2.1/2.2 Total Liabilities or Assets	3153828	3414769	2747486	2722123	2695695	2699905	2753473
2.2 Assets							
2.2.1 Notes and Coins	15	15	11	13	11	12	12
2.2.2 Balances Held Abroad	1243853	1491512	915949	874477	858358	869096	859889
2.2.3 Loans and Advances							
2.2.3.1 Central Government	—	—	—	—	—	—	—
2.2.3.2 State Governments	670	7976	8776	15914	6178	6515	5611
2.2.3.3 Scheduled Commercial Banks	94299	92382	96364	96337	107717	103965	112521
2.2.3.4 Scheduled State Co-op. Banks	—	35	—	—	—	—	35
2.2.3.5 Industrial Dev. Bank of India	—	—	—	—	—	—	—
2.2.3.6 NABARD	24927	21830	4534	4534	4534	4534	4554
2.2.3.7 EXIM Bank	—	—	—	—	—	—	—
2.2.3.8 Others	8077	3757	27858	27858	31228	27575	16828
2.2.3.9 Financial Institution Outside India	72741	44669	64790	69256	65811	74479	79217
2.2.4 Bills Purchased and Discounted							
2.2.4.1 Internal	—	—	—	—	—	—	—
2.2.4.2 Government Treasury Bills	—	—	—	—	—	—	—
2.2.5 Investments	1491042	1578893	1431576	1434212	1424097	1414112	1415818
2.2.6 Other Assets	218203	173701	197628	199522	197761	199615	258988
2.2.6.1 Gold	201354	166849	189792	190978	189070	190785	190458

* 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		8	9	
Aug. 1, 2022	-	-	-	-	1079	215676	-	185	-	-214782
Aug. 2, 2022	-	-	-	-	1307	286943	-1141	675	-	-287452
Aug. 3, 2022	-	-	-	-	1695	277871	-1500	510	-	-278186
Aug. 4, 2022	-	-	-	-	1518	299271	1444	-	-	-296309
Aug. 5, 2022	-	-	-	-	1295	255858	-	1385	-	-255948
Aug. 6, 2022	-	-	-	-	3252	22648	-	-	-	-19396
Aug. 7, 2022	-	-	-	-	137	3809	-	-	-	-3672
Aug. 8, 2022	-	-	-	-	1523	175249	-7500	-	-	-181226
Aug. 9, 2022	-	-	-	-	2203	40813	-	-	-	-38610
Aug. 10, 2022	-	-	-	45530	1715	200045	-109	-	-	-243969
Aug. 11, 2022	-	-	-	-	1905	211305	-160	-	-	-209560
Aug. 12, 2022	-	-	-	22225	2786	129659	-	1115	-	-150213
Aug. 13, 2022	-	-	-	-	729	4753	-	-	-	-4024
Aug. 14, 2022	-	-	-	-	10	1159	-	-	-	-1149
Aug. 15, 2022	-	-	-	-	60	3023	-	-	-	-2963
Aug. 16, 2022	-	-	-	-	4580	50175	-	-	-	-45595
Aug. 17, 2022	-	-	-	-	2315	155566	-	905	-	-154156
Aug. 18, 2022	-	-	-	-	1595	183520	-	690	-	-182615
Aug. 19, 2022	-	-	-	-	1681	125180	7400	250	-	-116349
Aug. 20, 2022	-	-	-	-	516	39886	-	-	-	-39370
Aug. 21, 2022	-	-	-	-	12	4365	-	-	-	-4353
Aug. 22, 2022	-	-	-	-	2107	107279	-	-	-	-105172
Aug. 23, 2022	-	-	-	-	2590	135686	-	-	-	-133096
Aug. 24, 2022	-	-	-	-	2490	132406	-245	-	-	-130161
Aug. 25, 2022	-	-	-	-	1561	144918	-	555	-	-143912
Aug. 26, 2022	-	-	-	70331	4034	112050	-	-	-	-178347
Aug. 27, 2022	-	-	-	-	45	5626	-	-	-	-5581
Aug. 28, 2022	-	-	-	-	11	3329	-	-	-	-3318
Aug. 29, 2022	-	-	-	-	3113	112464	-5000	465	-	-114816
Aug. 30, 2022	-	-	-	-	2176	74466	-	-	-	-72290
Aug. 31, 2022	-	-	-	-	2678	50988	-	-	-	-48310

SDF: Standing Deposit Facility; MSF: Marginal Standing Facility.

No. 4: Sale/ Purchase of U.S. Dollar by the RBI

i) Operations in onshore / offshore OTC segment

Item	2021-22	2021	2022	
		Aug.	Jul.	Aug.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US \$ Million) (1.1–1.2)	17312	3747	-19049	-4254
1.1 Purchase (+)	113991	10887	19721	18858
1.2 Sale (–)	96679	7140	38770	23112
2 ₹ equivalent at contract rate (₹ Crores)	134629	28895	-152265	-35606
3 Cumulative (over end-March) (US \$ Million)	17312	39639	-18802	-23056
(₹ Crores)	134629	297464	-152816	-188422
4 Outstanding Net Forward Sales (–)/ Purchase (+) at the end of month (US \$ Million)	65791	49606	22019	20164

ii) Operations in currency futures segment

Item	2021-22	2021	2022	
		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 (+)	2370	560	1695	650
1.2 Sale (–)	2370	560	1695	650
2 Outstanding Net Currency Futures Sales (–)/ Purchase (+) at the end of month (US \$ Million)	0	0	0	-150

**No. 4 A : Maturity Breakdown (by Residual Maturity) of Outstanding
Forwards of RBI (US \$ Million)**

Item	As on August 31, 2022		
	Long (+)	Short (-)	Net (1-2)
	1	2	3
1. Upto 1 month	7365	15599	-8234
2. More than 1 month and upto 3 months	12311	2774	9537
3. More than 3 months and upto 1 year	8726	0	8726
4. More than 1 year	10135	0	10135
Total (1+2+3+4)	38537	18373	20164

No. 5: RBI's Standing Facilities

(₹ Crore)

Item	As on the Last Reporting Friday							
	2021-22	2021	2022					
		Sep. 24	Apr. 22	May 20	Jun. 17	Jul. 29	Aug. 26	Sep. 23
	1	2	3	4	5	6	7	8
1 MSF	11	152	140	1009	7	139	4034	9657
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	-	0	0	0	0	1655	0	910
4 Others								
4.1 Limit	76000	76000	76000	76000	76000	76000	76000	76000
4.2 Outstanding	32401	25396	31021	35521	49364	40314	40159	31039
5 Total Outstanding (1+2.2+3.2+4.2)	32412	25548	31161	36530	49371	42108	44193	41606

Note :1.Special refinance facility to Others, i.e. to the EXIM Bank, is reopened since May 22, 2020

2.Refinance facility to Others, i.e. to the NABARD/SIDBI/NHB U/S 17(4H) of RBI ACT,1934, since, April 17, 2020.

Money and Banking

No. 6: Money Stock Measures

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2021	2022		
		Aug. 27	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	3035689	2830825	3063746	3092123	3062479
1.1 Notes in Circulation	3105703	2916737	3156104	3185355	3154428
1.2 Circulation of Rupee Coin	27270	26467	27868	27868	28048
1.3 Circulation of Small Coins	743	743	743	743	743
1.4 Cash on Hand with Banks	98028	113121	120969	121843	120740
2 Deposit Money of the Public	2271436	1972356	2240452	2173476	2221176
2.1 Demand Deposits with Banks	2212992	1926200	2183209	2116527	2163987
2.2 'Other' Deposits with Reserve Bank	58444	46156	57244	56949	57189
3 M₁ (1 + 2)	5307125	4803182	5304199	5265599	5283655
4 Post Office Saving Bank Deposits	187061	174689	187061	187061	187061
5 M₂ (3 + 4)	5494186	4977871	5491260	5452660	5470716
6 Time Deposits with Banks	15186605	14527245	15728149	15770249	15767768
7 M₃ (3 + 6)	20493729	19330427	21032348	21035847	21051423
8 Total Post Office Deposits	1008539	922935	1008539	1008539	1008539
9 M₄ (7 + 8)	21502268	20253362	22040887	22044386	22059962

No. 7: Sources of Money Stock (M₃)

(₹ Crore)

Sources	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2021	2022		
		Aug. 27	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
1 Net Bank Credit to Government	6477629	6079314	6408664	6513767	6471313
1.1 RBI's net credit to Government (1.1.1–1.1.2)	1450596	1191232	1098524	1140114	1103484
1.1.1 Claims on Government	1490991	1578932	1444172	1443640	1437305
1.1.1.1 Central Government	1489324	1575852	1438088	1437497	1432494
1.1.1.2 State Governments	1667	3080	6083	6142	4811
1.1.2 Government deposits with RBI	40394	387700	345648	303526	333820
1.1.2.1 Central Government	40352	387658	345606	303483	333778
1.1.2.2 State Governments	42	42	42	42	42
1.2 Other Banks' Credit to Government	5027033	4888082	5310141	5373653	5367829
2 Bank Credit to Commercial Sector	12616520	11610171	13116787	13165715	13206634
2.1 RBI's credit to commercial sector	16571	8616	34706	25810	32969
2.2 Other banks' credit to commercial sector	12599950	11601555	13082081	13139905	13173665
2.2.1 Bank credit by commercial banks	11891314	10897601	12369350	12425718	12458658
2.2.2 Bank credit by co-operative banks	690201	686084	695813	697652	698350
2.2.3 Investments by commercial and co-operative banks in other securities	18435	17871	16918	16535	16657
3 Net Foreign Exchange Assets of Banking Sector (3.1 + 3.2)	4854063	4857809	4805020	4799313	4735246
3.1 RBI's net foreign exchange assets (3.1.1–3.1.2)	4442479	4514459	4393436	4387729	4323662
3.1.1 Gross foreign assets	4442720	4514703	4393676	4387970	4323902
3.1.2 Foreign liabilities	241	244	240	240	240
3.2 Other banks' net foreign exchange assets	411583	343350	411583	411583	411583
4 Government's Currency Liabilities to the Public	28013	27210	28611	28611	28791
5 Banking Sector's Net Non-monetary Liabilities	3482496	3244077	3326734	3471558	3390561
5.1 Net non-monetary liabilities of RBI	1308500	1316710	1332885	1353728	1309430
5.2 Net non-monetary liabilities of other banks (residual)	2173996	1927368	1993849	2117830	2081132
M₃ (1+2+3+4–5)	20493729	19330427	21032348	21035847	21051423

No. 8: Monetary Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2021	2022		
		Aug. 27	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
Monetary Aggregates					
NM ₁ (1.1 + 1.2.1+1.3)	5307125	4803182	5304199	5265599	5283475
NM ₂ (NM ₁ + 1.2.2.1)	12081049	11274247	12322838	12302367	12318768
NM ₃ (NM ₂ + 1.2.2.2 + 1.4 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	20634885	19421406	21254776	21380171	21386969
1 Components					
1.1 Currency with the Public	3035689	2830825	3063746	3092123	3062299
1.2 Aggregate Deposits of Residents	17266157	16306345	17780186	17753788	17797971
1.2.1 Demand Deposits	2212992	1926200	2183209	2116527	2163987
1.2.2 Time Deposits of Residents	15053166	14380144	15596977	15637262	15633984
1.2.2.1 Short-term Time Deposits	6773925	6471065	7018640	7036768	7035293
1.2.2.1.1 Certificates of Deposit (CDs)	176718	64693	176718	229249	229249
1.2.2.2 Long-term Time Deposits	8279241	7909079	8578338	8600494	8598691
1.3 'Other' Deposits with RBI	58444	46156	57244	56949	57189
1.4 Call/Term Funding from Financial Institutions	274594	238080	353600	477310	469509
2 Sources					
2.1 Domestic Credit	20080599	18691441	20597841	20760283	20793478
2.1.1 Net Bank Credit to the Government	6477629	6079314	6408664	6513767	6471313
2.1.1.1 Net RBI credit to the Government	1450596	1191232	1098524	1140114	1103484
2.1.1.2 Credit to the Government by the Banking System	5027033	4888082	5310141	5373653	5367829
2.1.2 Bank Credit to the Commercial Sector	13602969	12612127	14189177	14246516	14322165
2.1.2.1 RBI Credit to the Commercial Sector	39581	25388	44374	35517	42676
2.1.2.2 Credit to the Commercial Sector by the Banking System	13563389	12586739	14144802	14210999	14279489
2.1.2.2.1 Other Investments (Non-SLR Securities)	952181	976083	1047900	1055263	1089302
2.2 Government's Currency Liabilities to the Public	28013	27210	28611	28611	28611
2.3 Net Foreign Exchange Assets of the Banking Sector	4705191	4772483	4598008	4585262	4533815
2.3.1 Net Foreign Exchange Assets of the RBI	4442479	4514459	4393436	4387729	4323662
2.3.2 Net Foreign Currency Assets of the Banking System	262711	258025	204572	197533	210153
2.4 Capital Account	3021858	2962739	3155746	3327259	3294575
2.5 Other items (net)	1157060	1106989	813938	666726	674361

No. 9: Liquidity Aggregates

(₹ Crore)

Aggregates	2021-22	2021	2022		
		Aug.	Jun.	Jul.	Aug.
	1	2	3	4	5
1 NM₃	20630753	19421406	20907432	21254776	21386969
2 Postal Deposits	594633	543748	594633	594633	594633
3 L₁ (1 + 2)	21225386	19965154	21502065	21849409	21981602
4 Liabilities of Financial Institutions	49578	25923	51690	52881	24000
4.1 Term Money Borrowings	1824	4244	2136	1924	1654
4.2 Certificates of Deposit	39170	16775	41045	43145	20143
4.3 Term Deposits	8584	4905	8509	7812	2203
5 L₂ (3 + 4)	21274964	19991078	21553755	21902290	22005602
6 Public Deposits with Non-Banking Financial Companies	66542	..	66542
7 L₃ (5 + 6)	21341506	..	21620297

Note : 1. Figures in the columns might not add up to the total due to rounding off of numbers.

No. 10: Reserve Bank of India Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2021-22	2021	2022		
		Aug. 27	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
1 Components					
1.1 Currency in Circulation	3133716	2943946	3184715	3213966	3183039
1.2 Bankers' Deposits with the RBI	876726	689090	892045	866978	819173
1.2.1 Scheduled Commercial Banks	823632	641437	834457	809848	764114
1.3 'Other' Deposits with the RBI	58444	46156	57244	56949	57189
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	4068887	3679192	4134003	4137893	4059401
2 Sources					
2.1 RBI's Domestic Credit	906895	454233	1044841	1075281	1016557
2.1.1 Net RBI credit to the Government	1450596	1191232	1098524	1140114	1103484
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)	1448972	1188194	1092483	1134014	1098716
2.1.1.1.1 Loans and Advances to the Central Government	–	–	–	–	–
2.1.1.1.2 Investments in Treasury Bills	–	–	–	–	–
2.1.1.1.3 Investments in dated Government Securities	1488816	1575132	1437624	1437097	1432149
2.1.1.1.3.1 Central Government Securities	1488816	1575132	1437624	1437097	1432149
2.1.1.1.4 Rupee Coins	508	720	465	401	345
2.1.1.1.5 Deposits of the Central Government	40352	387658	345606	303483	333778
2.1.1.2 Net RBI credit to State Governments	1624	3038	6041	6100	4768
2.1.2 RBI's Claims on Banks	-583282	-762387	-98057	-100350	-129603
2.1.2.1 Loans and Advances to Scheduled Commercial Banks	-560272	-745615	-88389	-90643	-119896
2.1.3 RBI's Credit to Commercial Sector	39581	25388	44374	35517	42676
2.1.3.1 Loans and Advances to Primary Dealers	–	–	1655	245	–
2.1.3.2 Loans and Advances to NABARD	23010	16772	9668	9707	9707
2.2 Government's Currency Liabilities to the Public	28013	27210	28611	28611	28611
2.3 Net Foreign Exchange Assets of the RBI	4442479	4514459	4393436	4387729	4323662
2.3.1 Gold	322213	275932	314274	323525	316599
2.3.2 Foreign Currency Assets	4120283	4238544	4079180	4064222	4007081
2.4 Capital Account	1254092	1212280	1387980	1422812	1390128
2.5 Other Items (net)	54408	104429	-55096	-69084	-80698

No. 11: Reserve Money - Components and Sources

(₹ Crore)

Item	2021-22	Outstanding as on March 31/ last Fridays of the month/ Fridays					
		2021	2022				
		Aug. 27	Jul. 29	Aug. 5	Aug. 12	Aug. 19	Aug. 26
	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)	4068887	3679192	4134003	4110790	4137893	4123793	4059581
1 Components							
1.1 Currency in Circulation	3133716	2943946	3184715	3194996	3213966	3197449	3183219
1.2 Bankers' Deposits with RBI	876726	689090	892045	856403	866978	869218	819173
1.3 'Other' Deposits with RBI	58444	46156	57244	59391	56949	57125	57189
2 Sources							
2.1 Net Reserve Bank Credit to Government	1450596	1191232	1098524	1193043	1140114	1120260	1103484
2.2 Reserve Bank Credit to Banks	-560272	-745615	-88389	-194163	-90643	-87273	-119896
2.3 Reserve Bank Credit to Commercial Sector	16571	8616	34706	33647	25810	33214	32969
2.4 Net Foreign Exchange Assets of RBI	4442479	4514459	4393436	4386000	4387729	4342227	4323662
2.5 Government's Currency Liabilities to the Public	28013	27210	28611	28611	28611	28611	28791
2.6 Net Non- Monetary Liabilities of RBI	1308500	1316710	1332885	1336348	1353728	1313246	1309430

No. 12: Commercial Bank Survey

(₹ Crore)

Item	Outstanding as on last reporting Fridays of the month/ reporting Fridays of the month				
	2021-22	2021	2022		
		Aug. 27	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
1 Components					
1.1 Aggregate Deposits of Residents	16331874	15369949	16841141	16815691	16860072
1.1.1 Demand Deposits	2072747	1790996	2042035	1975810	2022999
1.1.2 Time Deposits of Residents	14259128	13578953	14799106	14839881	14837072
1.1.2.1 Short-term Time Deposits	6416607	6110529	6659598	6677946	6676683
1.1.2.1.1 Certificates of Deposits (CDs)	176718	64693	176718	229249	229249
1.1.2.2 Long-term Time Deposits	7842520	7468424	8139508	8161935	8160390
1.2 Call/Term Funding from Financial Institutions	274594	238080	353600	477310	469509
2 Sources					
2.1 Domestic Credit	17575002	16467365	18437669	18560593	18623041
2.1.1 Credit to the Government	4728179	4591955	5013472	5071704	5066468
2.1.2 Credit to the Commercial Sector	12846823	11875410	13424197	13488889	13556573
2.1.2.1 Bank Credit	11891314	10897601	12369350	12425718	12458658
2.1.2.1.1 Non-food Credit	11836304	10828800	12337006	12393621	12430897
2.1.2.2 Net Credit to Primary Dealers	11522	9363	15084	16094	16785
2.1.2.3 Investments in Other Approved Securities	769	1324	825	776	790
2.1.2.4 Other Investments (in non-SLR Securities)	943218	967121	1038938	1046300	1080339
2.2 Net Foreign Currency Assets of Commercial Banks (2.2.1–2.2.2–2.2.3)	262711	258025	204572	197533	210153
2.2.1 Foreign Currency Assets	465464	459597	395107	392590	407115
2.2.2 Non-resident Foreign Currency Repatriable Fixed Deposits	133439	147101	131172	132987	133784
2.2.3 Overseas Foreign Currency Borrowings	69314	54471	59363	62071	63178
2.3 Net Bank Reserves (2.3.1+2.3.2–2.3.3)	1268887	1488773	1031308	1010071	992537
2.3.1 Balances with the RBI	683437	641437	834457	809848	764114
2.3.2 Cash in Hand	85926	101721	108463	109580	108528
2.3.3 Loans and Advances from the RBI	-499524	-745615	-88389	-90643	-119896
2.4 Capital Account	1743595	1726288	1743595	1880276	1880276
2.5 Other items (net) (2.1+2.2+2.3–2.4–1.1–1.2)	756537	879845	735213	594919	615873
2.5.1 Other Demand and Time Liabilities (net of 2.2.3)	571535	501727	601122	596129	599617
2.5.2 Net Inter-Bank Liabilities (other than to PDs)	26533	47624	11512	12761	2566

No. 13: Scheduled Commercial Banks' Investments

(₹ Crore)

Item	As on March 25, 2022	2021	2022		
		Aug. 27	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
1 SLR Securities	4728948	4593279	5014297	5072480	5067259
2 Other Government Securities (Non-SLR)	-	-	155767	155713	183971
3 Commercial Paper	55315	81561	65956	63118	63292
4 Shares issued by					
4.1 PSUs	7642	10668	9643	9548	9397
4.2 Private Corporate Sector	73814	69737	69316	69503	66885
4.3 Others	5152	5151	5039	5030	5042
5 Bonds/Debentures issued by					
5.1 PSUs	117860	115114	100216	100223	101205
5.2 Private Corporate Sector	326188	313729	321684	316982	313520
5.3 Others	148753	145079	91718	91204	92149
6 Instruments issued by					
6.1 Mutual funds	34404	51791	38111	54242	59277
6.2 Financial institutions	174090	152062	181488	180736	185602

Note: Data against column Nos. (1), (2) & (3) are Final and for column Nos. (4) & (5) data are Provisional.

'-' Data are not available.

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			
	2021-22	2021	2022		2021-22	2021	2022	
		Aug.	Jul.	Aug.		Aug.	Jul.	Aug.
	1	2	3	4	5	6	7	8
Number of Reporting Banks	212	210	213	213	136	134	137	137
1 Liabilities to the Banking System	262674	238674	277258	281986	258649	234251	273313	278245
1.1 Demand and Time Deposits from Banks	194143	170669	189750	191920	190570	166520	186516	188767
1.2 Borrowings from Banks	38369	49402	44571	45029	38317	49396	44372	44956
1.3 Other Demand and Time Liabilities	30162	18602	42937	45037	29762	18336	42425	44522
2 Liabilities to Others	17832517	16746756	18429970	18568195	17380755	16311329	17986398	18126161
2.1 Aggregate Deposits	16899634	15935780	17398112	17418302	16465313	15517050	16972313	16993855
2.1.1 Demand	2117513	1830494	2088492	2068893	2072747	1790996	2042035	2022999
2.1.2 Time	14782121	14105286	15309620	15349409	14392567	13726054	14930278	14970856
2.2 Borrowings	278985	243677	358861	474582	274594	238080	353600	469509
2.3 Other Demand and Time Liabilities	653898	567299	672997	675311	640848	556198	660484	662796
3 Borrowings from Reserve Bank	94299	91806	94387	98308	94299	91806	94387	98308
3.1 Against Usance Bills /Promissory Notes	—	—	—	—	—	—	—	—
3.2 Others	94299	91806	94387	98308	94299	91806	94387	98308
4 Cash in Hand and Balances with Reserve Bank	788725	761648	965461	894122	769363	743158	942920	872642
4.1 Cash in Hand	88732	103780	111672	111443	85926	101721	108463	108528
4.2 Balances with Reserve Bank	699993	657868	853789	782679	683437	641437	834457	764114
5 Assets with the Banking System	315282	249941	334895	349954	243637	195991	276885	292464
5.1 Balances with Other Banks	199434	176371	207109	219177	164240	141467	173373	181732
5.1.1 In Current Account	19733	26135	17015	18791	16691	23335	13871	16080
5.1.2 In Other Accounts	179701	150236	190094	200386	147549	118131	159502	165651
5.2 Money at Call and Short Notice	36905	22146	30718	29904	6982	6146	12456	13886
5.3 Advances to Banks	39340	24127	39130	42331	35802	23695	37065	41828
5.4 Other Assets	39603	27296	57938	58542	36613	24683	53991	55019
6 Investment	4874070	4734101	5158861	5213089	4728948	4593279	5014297	5067259
6.1 Government Securities	4867102	4726753	5152646	5207133	4728179	4591955	5013472	5066468
6.2 Other Approved Securities	6968	7348	6215	5955	769	1324	825	790
7 Bank Credit	12259048	11236000	12735045	12829088	11891314	10897601	12369350	12458658
7a Food Credit	90827	104619	78064	73480	55011	68801	32345	27761
7.1 Loans, Cash-credits and Overdrafts	12016486	11032004	12489370	12588634	11651337	10695671	12126412	12220997
7.2 Inland Bills-Purchased	36070	32026	34760	34233	36055	32005	34745	34216
7.3 Inland Bills-Discounted	155796	122813	161899	158994	154212	121455	159962	156972
7.4 Foreign Bills-Purchased	19537	19266	18685	17177	19157	19088	18453	16961
7.5 Foreign Bills-Discounted	31160	29890	30331	30050	30554	29383	29778	29512

Note: Data in column Nos. (4) & (8) are Provisional.

No. 15: Deployment of Gross Bank Credit by Major Sectors

(₹ Crore)

Sector	Outstanding as on				Growth (%)	
	Mar.25, 2022	2021	2022		Financial year so far	Y-o-Y
			Aug.27	Jul.29		
	1	2	3	4	2022-23	2022
					%	%
I. Gross Bank Credit (II+III)	11891314	10897601	12369224	12457877	4.8	15.5
II. Food Credit	55011	68800	32345	27761	-49.5	-59.7
III. Non-food Credit	11836304	10828801	12336880	12430116	5.0	16.0
1. Agriculture & Allied Activities	1461719	1358005	1529206	1540450	5.4	13.4
2. Industry (Micro and Small, Medium and Large)	3156067	2867842	3182010	3194889	1.2	11.4
2.1 Micro and Small ¹	532792	438790	557251	562518	5.6	28.2
2.2 Medium	213996	162360	219327	220102	2.9	35.6
2.3 Large	2409279	2266692	2405433	2412269	0.1	6.4
3. Services	3017258	2698121	3171546	3161533	4.8	17.2
3.1 Transport Operators	155352	141179	155202	154843	-0.3	9.7
3.2 Computer Software	20899	19658	20925	19697	-5.8	0.2
3.3 Tourism, Hotels & Restaurants	64378	60663	65089	64184	-0.3	5.8
3.4 Shipping	8436	7369	7306	7100	-15.8	-3.7
3.5 Aviation	23979	29408	22498	23182	-3.3	-21.2
3.6 Professional Services	116742	111643	118567	118689	1.7	6.3
3.7 Trade	696301	626210	720086	731760	5.1	16.9
3.7.1 Wholesale Trade	351213	324393	366135	381644	8.7	17.6
3.7.2 Retail Trade	345088	301817	353950	350116	1.5	16.0
3.8 Commercial Real Estate	291168	281588	294842	295212	1.4	4.8
3.9 Non-Banking Financial Companies (NBFCs) ² of which,	1078447	895624	1163637	1144622	6.1	27.8
3.9.1 Housing Finance Companies (HFCs)	278979	262110	305509	294601	5.6	12.4
3.9.2 Public Financial Institutions (PFIs)	144121	83514	157764	151675	5.2	81.6
3.10 Other Services ³	561556	524778	603395	602243	7.2	14.8
4. Personal Loans	3381699	3051522	3594016	3647906	7.9	19.5
4.1 Consumer Durables	27628	19930	32175	32919	19.2	65.2
4.2 Housing	1684424	1534090	1769249	1785713	6.0	16.4
4.3 Advances against Fixed Deposits	78730	63507	87991	92579	17.6	45.8
4.4 Advances to Individuals against share & bonds	6161	5496	6473	6555	6.4	19.3
4.5 Credit Card Outstanding	147789	131532	162706	167443	13.3	27.3
4.6 Education	82723	78787	85098	87456	5.7	11.0
4.7 Vehicle Loans	402689	372191	438973	444808	10.5	19.5
4.8 Loan against gold jewellery	75311	72162	77325	78104	3.7	8.2
4.9 Other Personal Loans	876244	773828	934025	952329	8.7	23.1
5. Priority Sector (Memo)						
5.1 Agriculture & Allied Activities ⁴	1484923	1372314	1535442	1543634	4.0	12.5
5.2 Micro & Small Enterprises ⁵	1377848	1212113	1441472	1449953	5.2	19.6
5.3 Medium Enterprises ⁶	351900	252123	367377	365946	4.0	45.1
5.4 Housing	616814	596950	606970	618053	0.2	3.5
5.5 Education Loans	58118	58772	57499	58329	0.4	-0.8
5.6 Renewable Energy	3538	2019	4239	4253	20.2	110.7
5.7 Social Infrastructure	2483	3054	2535	2388	-3.8	-21.8
5.8 Export Credit	23330	23247	17637	16220	-30.5	-30.2
5.9 Others	37159	34373	47359	47202	27.0	37.3
5.10 Weaker Sections including net PSLC- SF/MF	1180928	1029691	1244034	1268007	7.4	23.1

Note 1: Data are provisional. Gross bank 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.

Note 2: With effect from January 2021, sectoral credit data are based on revised format due to which values and growth rates of some of the existing components published earlier have undergone some changes.

Note 3: Credit data are adjusted for past reporting errors by select SCBs from December 2021 onwards.

¹ Micro & Small includes credit to micro & small industries in the manufacturing sector.

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 also include priority sector lending certificates (PSLCs).

⁵ Micro and Small Enterprises include credit to micro and small enterprises in manufacturing and services sector and also include PSLCs.

⁶ Medium Enterprises include credit to medium enterprises in the manufacturing and services sector.

No. 16: Industry-wise Deployment of Gross Bank Credit

(₹ Crore)

Industry	Outstanding as on				Growth (%)	
	Mar. 25, 2022	2021	2022		Financial year so far	Y-o-Y
		Aug. 27	Jul.29	Aug. 26	2022-23	2022
	1	2	3	4	%	%
2 Industries (2.1 to 2.19)	3156067	2867842	3182010	3194889	1.2	11.4
2.1 Mining & Quarrying (incl. Coal)	49135	48605	50525	50529	2.8	4.0
2.2 Food Processing	173246	147661	169002	161679	-6.7	9.5
2.2.1 Sugar	26307	19978	21764	20578	-21.8	3.0
2.2.2 Edible Oils & Vanaspati	18246	17067	16393	15961	-12.5	-6.5
2.2.3 Tea	5728	5459	5810	5923	3.4	8.5
2.2.4 Others	122965	105157	125034	119217	-3.0	13.4
2.3 Beverage & Tobacco	18176	16019	17098	17330	-4.7	8.2
2.4 Textiles	224026	204275	213990	212355	-5.2	4.0
2.4.1 Cotton Textiles	90384	80725	83098	82029	-9.2	1.6
2.4.2 Jute Textiles	3509	2508	3631	3583	2.1	42.9
2.4.3 Man-Made Textiles	38371	37469	38354	38537	0.4	2.8
2.4.4 Other Textiles	91761	83573	88907	88206	-3.9	5.5
2.5 Leather & Leather Products	11573	10765	11428	11408	-1.4	6.0
2.6 Wood & Wood Products	16294	15318	16951	17036	4.6	11.2
2.7 Paper & Paper Products	40565	38314	41083	41066	1.2	7.2
2.8 Petroleum, Coal Products & Nuclear Fuels	107333	81024	113550	135396	26.1	67.1
2.9 Chemicals & Chemical Products	196363	170671	210273	210782	7.3	23.5
2.9.1 Fertiliser	33160	25525	35530	35706	7.7	39.9
2.9.2 Drugs & Pharmaceuticals	61093	51793	62263	63679	4.2	22.9
2.9.3 Petro Chemicals	19622	23104	21485	20798	6.0	-10.0
2.9.4 Others	82486	70249	90995	90598	9.8	29.0
2.10 Rubber, Plastic & their Products	72013	60742	72485	73338	1.8	20.7
2.11 Glass & Glassware	5952	5970	6088	6140	3.2	2.8
2.12 Cement & Cement Products	47910	48601	49356	50184	4.7	3.3
2.13 Basic Metal & Metal Product	288531	282779	299621	298885	3.6	5.7
2.13.1 Iron & Steel	187584	193079	196997	199046	6.1	3.1
2.13.2 Other Metal & Metal Product	100946	89700	102624	99838	-1.1	11.3
2.14 All Engineering	167966	150440	165512	167379	-0.3	11.3
2.14.1 Electronics	38179	34730	39505	39017	2.2	12.3
2.14.2 Others	129787	115710	126007	128363	-1.1	10.9
2.15 Vehicles, Vehicle Parts & Transport Equipment	89896	86525	91404	90122	0.3	4.2
2.16 Gems & Jewellery	80512	72654	73652	74484	-7.5	2.5
2.17 Construction	117724	120243	116875	117765	0.0	-2.1
2.18 Infrastructure	1195027	1093405	1214513	1213626	1.6	11.0
2.18.1 Power	611410	568015	627053	621193	1.6	9.4
2.18.2 Telecommunications	130318	111954	129063	131221	0.7	17.2
2.18.3 Roads	270395	242663	279600	279752	3.5	15.3
2.18.4 Airports	6646	7483	8673	8745	31.6	16.9
2.18.5 Ports	8886	11413	8028	8474	-4.6	-25.7
2.18.6 Railways	10512	12921	11561	11746	11.7	-9.1
2.18.7 Other Infrastructure	156860	138956	150534	152493	-2.8	9.7
2.19 Other Industries	253823	213829	248604	245384	-3.3	14.8

Note : With effect from January 2021, sectoral credit data are based on revised format due to which values and growth rates of some of the existing components published earlier have undergone some changes.

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								
	2020-21	2021	2022						
		Jul, 30	May, 27	Jun, 03	Jun, 17	Jun, 24	Jul, 01	Jul, 15	Jul, 29
	1	2	3	4	5	6	7	8	9
Number of Reporting Banks	32	34	32	32	32	31	32	32	32
1 Aggregate Deposits (2.1.1.2+2.2.1.2)	125859.6	252315.7	126958.1	126099.8	126781.0	126829.8	125662.2	126226.0	126562.4
2 Demand and Time Liabilities									
2.1 Demand Liabilities	23736.9	54733.3	24062.9	24531.5	25476.7	25537.9	26231.7	24694.7	25244.6
2.1.1 Deposits									
2.1.1.1 Inter-Bank	4896.9	10392.1	5845.9	6123.1	6339.0	5984.1	6470.4	6406.5	6672.8
2.1.1.2 Others	13,899.4	31845.4	12752.4	12790.0	13391.9	13855.6	12664.9	12573.1	12841.3
2.1.2 Borrowings from Banks	0.0	2039.5	619.8	724.4	824.7	869.7	869.7	514.9	799.6
2.1.3 Other Demand Liabilities	4940.6	10456.4	4844.8	4893.9	4921.2	4828.5	6226.8	5200.3	4930.9
2.2 Time Liabilities	179957.5	333186.3	183687.5	181820.7	178448.5	176762.7	175599.2	174857.2	174258.9
2.2.1 Deposits									
2.2.1.1 Inter-Bank	65333.7	109320.2	66131.9	65089.3	61653.1	60401.5	59195.7	57851.2	57194.2
2.2.1.2 Others	111960.2	220470.2	114205.7	113309.8	113389.1	112974.1	112997.3	113652.9	113721.1
2.2.2 Borrowings from Banks	630.0	1816.0	1024.3	998.3	994.8	994.8	976.7	948.0	939.1
2.2.3 Other Time Liabilities	2033.7	1579.8	2325.6	2423.3	2411.5	2392.3	2429.5	2405.1	2404.6
3 Borrowing from Reserve Bank	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4 Borrowings from a notified bank / Government	63559.8	109436.1	61247.8	59463.5	59306.8	59486.6	59143.7	57306.1	56814.8
4.1 Demand	15691.8	21364.5	13228.8	13304.8	13449.4	13779.8	13485.2	12304.3	12659.5
4.2 Time	47868.0	88071.5	48019.0	46158.7	45857.5	45706.8	45658.5	45001.8	44155.3
5 Cash in Hand and Balances with Reserve Bank	8151.1	19148.6	10695.3	11263.7	11382.2	11058.8	11300.6	10318.6	10617.7
5.1 Cash in Hand	570.3	1221.3	798.5	907.5	982.8	1230.4	720.3	897.7	773.1
5.2 Balance with Reserve Bank	7580.8	17927.3	9896.9	10356.2	10399.4	9828.3	10580.4	9420.9	9844.6
6 Balances with Other Banks in Current Account	1148.1	2607.2	1227.5	1244.8	1372.1	1223.5	1184.0	1252.9	1282.1
7 Investments in Government Securities	64455.2	135219.6	71631.0	71747.5	70958.1	70895.2	70984.3	71053.8	71000.9
8 Money at Call and Short Notice	28835.7	38786.9	26130.0	23984.4	23731.8	23946.6	22976.4	21920.3	20905.9
9 Bank Credit (10.1+11)	114631.6	219632.8	119819.7	119486.4	118113.1	119438.2	118722.4	118465.3	118533.2
10 Advances									
10.1 Loans, Cash-Credits and Overdrafts	114612.1	219624.6	119798.9	119465.5	118092.2	119417.3	118701.5	118444.4	118512.3
10.2 Due from Banks	89429.1	171885.2	105636.7	104787.9	105785.2	104576.7	103769.3	103716.8	104735.3
11 Bills Purchased and Discounted	19.5	8.2	20.9	20.9	20.8	20.8	20.8	20.9	20.9

Prices and Production

No. 18: Consumer Price Index (Base: 2012=100)

Group/Sub group	2021-22			Rural			Urban			Combined		
	Rural	Urban	Combined	Aug.21	Jul.22	Aug.22(P)	Aug.21	Jul.22	Aug.22(P)	Aug.21	Jul.22	Aug.22(P)
	1	2	3	4	5	6	7	8	9	10	11	12
1 Food and beverages	162.8	168.7	165.0	161.8	172.5	173.9	167.6	179.4	180.4	163.9	175.0	176.3
1.1 Cereals and products	146.4	150.4	147.6	144.9	155.2	159.5	149.2	159.3	162.1	146.3	156.5	160.3
1.2 Meat and fish	200.4	206.5	202.6	202.3	210.8	204.0	208.2	217.1	210.8	204.4	213.0	206.4
1.3 Egg	173.3	176.0	174.4	176.5	174.3	168.3	178.5	176.6	170.6	177.3	175.2	169.2
1.4 Milk and products	158.3	159.0	158.6	157.5	166.3	168.0	158.8	167.1	168.4	158.0	166.6	168.1
1.5 Oils and fats	192.2	172.4	184.9	190.9	202.2	198.1	171.9	184.8	182.5	183.9	195.8	192.4
1.6 Fruits	155.3	163.5	159.2	155.7	169.6	169.2	167.1	179.5	177.1	161.0	174.2	172.9
1.7 Vegetables	156.1	192.8	168.5	153.9	168.6	173.0	186.1	208.5	213.1	164.8	182.1	186.6
1.8 Pulses and products	164.1	164.4	164.2	162.8	164.4	167.1	163.5	164.0	167.2	163.0	164.3	167.1
1.9 Sugar and confectionery	117.4	119.1	118.0	115.2	119.2	120.2	116.8	121.5	122.2	115.7	120.0	120.9
1.10 Spices	171.2	167.5	170.0	169.8	191.8	195.6	165.8	186.3	189.7	168.5	190.0	193.6
1.11 Non-alcoholic beverages	167.8	154.7	162.3	167.6	174.5	174.8	154.0	159.8	160.5	161.9	168.4	168.8
1.12 Prepared meals, snacks, sweets	173.0	175.8	174.3	171.9	183.1	184.1	174.1	187.7	188.9	172.9	185.2	186.3
2 Pan, tobacco and intoxicants	190.3	196.5	191.9	190.2	193.2	193.7	196.1	198.6	198.7	191.8	194.6	195.0
3 Clothing and footwear	168.2	158.4	164.3	166.3	181.7	183.0	156.4	170.6	171.6	162.4	177.3	178.5
3.1 Clothing	168.8	160.9	165.7	167.0	182.0	183.2	158.9	172.7	173.7	163.8	178.3	179.5
3.2 Footwear	164.5	144.7	156.3	162.6	180.3	181.7	142.8	158.7	160.0	154.4	171.3	172.7
4 Housing	--	163.0	163.0	--	--	--	162.4	167.8	169.0	162.4	167.8	169.0
5 Fuel and light	164.0	159.8	162.4	163.1	179.6	179.1	158.5	179.5	178.4	161.4	179.6	178.8
6 Miscellaneous	164.1	156.1	160.2	163.3	171.8	172.6	155.6	164.7	165.4	159.6	168.4	169.1
6.1 Household goods and services	161.8	153.5	157.9	160.9	171.3	172.4	152.1	163.1	164.2	156.7	167.4	168.5
6.2 Health	172.0	163.3	168.6	171.1	178.8	179.4	162.1	171.7	172.6	167.7	176.1	176.8
6.3 Transport and communication	157.9	150.0	153.7	157.7	166.3	166.6	150.4	157.4	157.7	153.9	161.6	161.9
6.4 Recreation and amusement	162.7	154.8	158.2	161.1	168.6	169.3	152.2	164.6	165.1	156.1	166.3	166.9
6.5 Education	168.4	160.1	163.5	167.5	174.7	175.7	160.4	169.1	169.9	163.3	171.4	172.3
6.6 Personal care and effects	161.3	160.8	161.1	160.3	169.7	171.1	159.5	169.8	171.4	160.0	169.7	171.2
General Index (All Groups)	164.5	163.1	163.8	163.6	174.3	175.3	162.2	172.3	173.1	162.9	173.4	174.3

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	2021-22	2021	2022	
				Aug.	Jul.	Aug.
	1	2	3	4	5	6
1 Consumer Price Index for Industrial Workers	2016	2.88	123.6	123.0	129.9	130.2
2 Consumer Price Index for Agricultural Labourers	1986-87	5.89	1075	1066	1131	1140
3 Consumer Price Index for Rural Labourers	1986-87	—	1084	1074	1143	1152

Source: Labour Bureau, Ministry of Labour and Employment, Government of India.

No. 20: Monthly Average Price of Gold and Silver in Mumbai

Item	2021-22	2021	2022	
		Aug.	Jul.	Aug.
	1	2	3	4
1 Standard Gold (₹ per 10 grams)	47999	47109	50784	51639
2 Silver (₹ per kilogram)	65426	64219	55994	56831

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	2021-22	2021	2022		
			Aug.	Jun.	Jul. (P)	Aug. (P)
	1	2	3	4	5	6
1 ALL COMMODITIES	100.000	139.4	136.2	155.4	153.8	153.1
1.1 PRIMARY ARTICLES	22.618	160.7	155.4	181.5	177.5	178.6
1.1.1 FOOD ARTICLES	15.256	167.3	161.7	182.5	178.9	181.7
1.1.1.1 Food Grains (Cereals+Pulses)	3.462	163.5	161.1	170.7	172.6	177.0
1.1.1.2 Fruits & Vegetables	3.475	187.6	171.5	225.9	208.7	216.5
1.1.1.3 Milk	4.440	156.9	157.0	164.2	164.4	164.5
1.1.1.4 Eggs, Meat & Fish	2.402	164.0	158.7	175.3	173.1	171.2
1.1.1.5 Condiments & Spices	0.529	159.8	151.5	177.9	182.9	187.1
1.1.1.6 Other Food Articles	0.948	168.3	163.4	172.4	172.3	175.0
1.1.2 NON-FOOD ARTICLES	4.119	158.1	161.5	175.9	171.7	175.1
1.1.2.1 Fibres	0.839	158.4	147.1	226.3	208.6	220.7
1.1.2.2 Oil Seeds	1.115	214.4	239.6	217.5	208.1	207.3
1.1.2.3 Other non-food Articles	1.960	119.9	118.2	128.6	129.5	129.8
1.1.2.4 Floriculture	0.204	217.0	210.5	196.3	225.5	246.4
1.1.3 MINERALS	0.833	197.2	179.6	206.3	210.2	206.2
1.1.3.1 Metallic Minerals	0.648	193.3	170.5	198.7	206.0	198.7
1.1.3.2 Other Minerals	0.185	211.0	211.7	233.2	225.1	232.8
1.1.4 CRUDE PETROLEUM & NATURAL GAS	2.410	110.3	97.1	176.4	167.5	155.2
1.2 FUEL & POWER	13.152	124.6	117.9	167.1	165.6	157.6
1.2.1 COAL	2.138	129.0	127.7	130.9	130.9	130.9
1.2.1.1 Coking Coal	0.647	143.0	143.4	143.4	143.4	143.4
1.2.1.2 Non-Coking Coal	1.401	119.8	119.8	119.8	119.8	119.8
1.2.1.3 Lignite	0.090	170.5	138.1	212.6	212.6	212.7
1.2.2 MINERAL OILS	7.950	126.2	119.7	189.8	188.7	174.0
1.2.3 ELECTRICITY	3.064	117.4	106.4	133.7	130.0	133.7
1.3 MANUFACTURED PRODUCTS	64.231	135.0	133.2	143.9	143.1	143.2
1.3.1 MANUFACTURE OF FOOD PRODUCTS	9.122	157.9	157.6	169.0	167.0	166.5
1.3.1.1 Processing and Preserving of meat	0.134	142.8	142.4	147.2	147.3	143.9
1.3.1.2 Processing and Preserving of fish, Crustaceans, Molluscs and products thereof	0.204	144.1	140.2	144.8	148.6	152.4
1.3.1.3 Processing and Preserving of fruit and Vegetables	0.138	122.3	124.3	124.0	125.1	125.1
1.3.1.4 Vegetable and Animal oils and Fats	2.643	187.2	188.7	204.7	193.4	187.3
1.3.1.5 Dairy products	1.165	149.4	148.3	160.6	161.9	162.7
1.3.1.6 Grain mill products	2.010	145.6	144.0	152.6	156.5	160.4
1.3.1.7 Starches and Starch products	0.110	133.3	129.1	155.6	155.2	159.8
1.3.1.8 Bakery products	0.215	146.2	143.6	160.1	162.7	163.1
1.3.1.9 Sugar, Molasses & honey	1.163	122.9	120.9	125.9	125.9	126.4
1.3.1.10 Cocoa, Chocolate and Sugar confectionery	0.175	130.5	128.4	133.5	134.4	134.5
1.3.1.11 Macaroni, Noodles, Couscous and Similar farinaceous products	0.026	136.7	132.2	157.4	160.7	161.1
1.3.1.12 Tea & Coffee products	0.371	171.1	168.1	190.0	190.1	189.2
1.3.1.13 Processed condiments & salt	0.163	157.5	154.8	169.7	171.6	176.4
1.3.1.14 Processed ready to eat food	0.024	137.0	134.9	141.0	141.7	139.6
1.3.1.15 Health supplements	0.225	153.5	154.3	178.5	178.2	178.6
1.3.1.16 Prepared animal feeds	0.356	200.9	209.0	206.3	206.5	208.8
1.3.2 MANUFACTURE OF BEVERAGES	0.909	126.8	127.2	128.5	128.4	128.1
1.3.2.1 Wines & spirits	0.408	123.6	123.8	127.6	127.9	127.8
1.3.2.2 Malt liquors and Malt	0.225	130.5	130.2	135.4	135.6	134.8
1.3.2.3 Soft drinks; Production of mineral waters and Other bottled waters	0.275	128.6	129.9	124.3	123.2	123.0
1.3.3 MANUFACTURE OF TOBACCO PRODUCTS	0.514	160.2	160.6	164.0	164.8	164.6
1.3.3.1 Tobacco products	0.514	160.2	160.6	164.0	164.8	164.6

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2021-22	2021	2022		
			Aug.	Jun.	Jul. (P)	Aug. (P)
1.3.4 MANUFACTURE OF TEXTILES	4.881	135.2	132.6	149.3	147.2	146.4
1.3.4.1 Preparation and Spinning of textile fibres	2.582	128.2	123.6	144.6	140.1	139.0
1.3.4.2 Weaving & Finishing of textiles	1.509	146.8	147.1	159.4	160.1	159.1
1.3.4.3 Knitted and Crocheted fabrics	0.193	125.5	124.2	132.7	133.5	134.8
1.3.4.4 Made-up textile articles, Except apparel	0.299	138.7	136.5	154.4	154.6	155.5
1.3.4.5 Cordage, Rope, Twine and Netting	0.098	168.5	167.6	163.0	161.8	160.9
1.3.4.6 Other textiles	0.201	126.2	123.7	135.0	135.8	135.2
1.3.5 MANUFACTURE OF WEARING APPAREL	0.814	143.1	142.0	146.7	147.3	148.6
1.3.5.1 Manufacture of Wearing Apparel (woven), Except fur Apparel	0.593	142.0	141.3	145.2	146.1	147.2
1.3.5.2 Knitted and Crocheted apparel	0.221	145.8	143.8	150.5	150.5	152.2
1.3.6 MANUFACTURE OF LEATHER AND RELATED PRODUCTS	0.535	119.2	118.4	122.5	122.9	123.3
1.3.6.1 Tanning and Dressing of leather; Dressing and Dyeing of fur	0.142	103.4	103.0	107.3	107.5	107.1
1.3.6.2 Luggage, HandbAgs, Saddlery and Harness	0.075	141.5	139.7	141.2	141.5	140.8
1.3.6.3 Footwear	0.318	121.0	120.3	124.8	125.3	126.4
1.3.7 MANUFACTURE OF WOOD AND PRODUCTS OF WOOD AND CORK	0.772	141.0	140.8	142.0	143.0	143.3
1.3.7.1 Saw milling and Planing of wood	0.124	128.8	127.5	136.9	136.3	137.8
1.3.7.2 Veneer sheets; Manufacture of plywood, Laminboard, Particle board and Other panels and Boards	0.493	141.9	140.9	140.8	142.3	142.0
1.3.7.3 Builder's carpentry and Joinery	0.036	193.9	193.8	203.0	202.3	203.2
1.3.7.4 Wooden containers	0.119	134.1	138.7	133.8	135.5	136.2
1.3.8 MANUFACTURE OF PAPER AND PAPER PRODUCTS	1.113	137.5	132.5	155.8	153.9	154.6
1.3.8.1 Pulp, Paper and Paperboard	0.493	141.4	135.7	159.3	157.6	160.2
1.3.8.2 Corrugated paper and Paperboard and Containers of paper and Paperboard	0.314	137.8	135.8	150.2	150.4	150.7
1.3.8.3 Other articles of paper and Paperboard	0.306	131.0	124.1	155.9	151.6	149.6
1.3.9 PRINTING AND REPRODUCTION OF RECORDED MEDIA	0.676	157.8	156.5	166.8	167.0	167.7
1.3.9.1 Printing	0.676	157.8	156.5	166.8	167.0	167.7
1.3.10 MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS	6.465	133.5	130.3	148.3	147.2	146.7
1.3.10.1 Basic chemicals	1.433	143.8	137.6	166.6	166.0	162.9
1.3.10.2 Fertilizers and Nitrogen compounds	1.485	129.6	128.1	143.3	141.9	143.6
1.3.10.3 Plastic and Synthetic rubber in primary form	1.001	140.3	136.9	150.8	146.6	144.4
1.3.10.4 Pesticides and Other agrochemical products	0.454	132.1	130.1	144.4	144.0	144.7
1.3.10.5 Paints, Varnishes and Similar coatings, Printing ink and Mastics	0.491	130.4	126.8	143.4	143.3	145.1
1.3.10.6 Soap and Detergents, Cleaning and Polishing preparations, Perfumes and Toilet preparations	0.612	128.1	128.4	139.6	140.6	141.3
1.3.10.7 Other chemical products	0.692	130.3	126.3	144.4	145.0	144.2
1.3.10.8 Man-made fibres	0.296	106.6	103.7	117.2	115.6	115.1
1.3.11 MANUFACTURE OF PHARMACEUTICALS, MEDICINAL CHEMICAL AND BOTANICAL PRODUCTS	1.993	135.9	134.1	139.8	139.9	141.0
1.3.11.1 Pharmaceuticals, Medicinal chemical and Botanical products	1.993	135.9	134.1	139.8	139.9	141.0
1.3.12 MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS	2.299	124.8	122.5	131.3	130.5	129.4
1.3.12.1 Rubber Tyres and Tubes; Retreading and Rebuilding of Rubber Tyres	0.609	104.3	103.8	108.8	111.1	111.5
1.3.12.2 Other Rubber Products	0.272	101.9	99.8	106.7	106.8	108.0
1.3.12.3 Plastics products	1.418	138.0	134.8	145.7	143.4	141.2
1.3.13 MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS	3.202	123.7	122.1	134.0	132.0	135.8
1.3.13.1 Glass and Glass products	0.295	139.1	136.0	152.9	155.8	155.8
1.3.13.2 Refractory products	0.223	115.6	114.0	119.0	118.9	119.7
1.3.13.3 Clay Building Materials	0.121	119.3	111.3	140.1	138.6	132.5
1.3.13.4 Other Porcelain and Ceramic Products	0.222	112.9	111.3	117.2	117.8	118.2
1.3.13.5 Cement, Lime and Plaster	1.645	126.4	125.5	139.0	134.3	141.6

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2021-22	2021	2022		
			Aug.	Jun.	Jul. (P)	Aug. (P)
1.3.13.6 Articles of Concrete, Cement and Plaster	0.292	129.2	128.9	133.8	134.4	134.9
1.3.13.7 Cutting, Shaping and Finishing of Stone	0.234	122.2	121.5	123.8	124.6	126.2
1.3.13.8 Other Non-Metallic Mineral Products	0.169	90.6	87.7	103.9	104.5	105.4
1.3.14 MANUFACTURE OF BASIC METALS	9.646	140.1	135.9	150.0	148.9	148.6
1.3.14.1 Inputs into steel making	1.411	150.8	142.2	158.1	163.0	163.1
1.3.14.2 Metallic Iron	0.653	147.7	142.9	172.2	156.9	169.7
1.3.14.3 Mild Steel - Semi Finished Steel	1.274	119.1	116.9	127.4	128.0	127.1
1.3.14.4 Mild Steel -Long Products	1.081	137.4	132.9	151.6	149.9	149.1
1.3.14.5 Mild Steel - Flat products	1.144	157.5	156.4	162.3	157.2	153.6
1.3.14.6 Alloy steel other than Stainless Steel- Shapes	0.067	133.7	128.7	145.5	147.5	146.6
1.3.14.7 Stainless Steel - Semi Finished	0.924	141.7	135.9	147.8	156.7	154.4
1.3.14.8 Pipes & tubes	0.205	155.9	151.6	174.3	174.0	172.6
1.3.14.9 Non-ferrous metals incl. precious metals	1.693	139.7	134.6	149.8	145.2	142.1
1.3.14.10 Castings	0.925	118.9	118.8	128.2	127.0	128.2
1.3.14.11 Forgings of steel	0.271	159.0	155.8	169.9	168.5	172.9
1.3.15 MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT	3.155	130.5	130.6	140.0	140.3	140.2
1.3.15.1 Structural Metal Products	1.031	123.9	124.1	134.6	133.7	135.4
1.3.15.2 Tanks, Reservoirs and Containers of Metal	0.660	156.2	157.2	165.8	164.5	162.1
1.3.15.3 Steam generators, Except Central Heating Hot Water Boilers	0.145	96.1	96.8	98.2	100.0	98.0
1.3.15.4 Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy	0.383	117.5	117.4	136.0	139.2	137.8
1.3.15.5 Cutlery, Hand Tools and General Hardware	0.208	108.2	108.2	112.5	112.3	112.6
1.3.15.6 Other Fabricated Metal Products	0.728	136.5	135.7	142.6	144.3	144.9
1.3.16 MANUFACTURE OF COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS	2.009	113.7	113.0	116.6	116.2	117.0
1.3.16.1 Electronic Components	0.402	106.0	103.7	116.0	117.2	116.4
1.3.16.2 Computers and Peripheral Equipment	0.336	134.7	134.6	134.9	134.9	134.9
1.3.16.3 Communication Equipment	0.310	121.7	119.3	128.0	128.6	129.5
1.3.16.4 Consumer Electronics	0.641	102.1	103.0	99.6	97.7	100.2
1.3.16.5 Measuring, Testing, Navigating and Control equipment	0.181	108.4	107.1	112.8	112.9	113.1
1.3.16.6 Watches and Clocks	0.076	145.6	145.7	152.6	149.6	149.5
1.3.16.7 Irradiation, Electromedical and Electrotherapeutic equipment	0.055	106.1	104.0	109.2	107.0	107.0
1.3.16.8 Optical instruments and Photographic equipment	0.008	98.3	98.4	98.3	98.3	101.7
1.3.17 MANUFACTURE OF ELECTRICAL EQUIPMENT	2.930	122.3	121.8	128.6	127.5	128.5
1.3.17.1 Electric motors, Generators, Transformers and Electricity distribution and Control apparatus	1.298	119.7	119.5	125.2	124.3	126.7
1.3.17.2 Batteries and Accumulators	0.236	121.8	120.7	131.7	132.1	132.8
1.3.17.3 Fibre optic cables for data transmission or live transmission of images	0.133	103.1	101.0	112.5	112.9	115.6
1.3.17.4 Other electronic and Electric wires and Cables	0.428	140.7	138.8	150.6	145.7	142.6
1.3.17.5 Wiring devices, Electric lighting & display equipment	0.263	114.5	113.8	116.8	117.0	116.8
1.3.17.6 Domestic appliances	0.366	128.4	127.7	134.3	134.6	134.9
1.3.17.7 Other electrical equipment	0.206	113.2	114.5	115.8	115.6	117.0
1.3.18 MANUFACTURE OF MACHINERY AND EQUIPMENT	4.789	120.0	119.6	125.1	125.5	125.7
1.3.18.1 Engines and Turbines, Except aircraft, Vehicle and Two wheeler engines	0.638	119.2	119.7	126.9	125.8	125.7
1.3.18.2 Fluid power equipment	0.162	122.1	121.0	127.0	127.6	127.9
1.3.18.3 Other pumps, Compressors, Taps and Valves	0.552	115.1	114.9	117.7	117.7	117.6
1.3.18.4 Bearings, Gears, Gearing and Driving elements	0.340	118.1	117.3	121.3	123.7	124.9
1.3.18.5 Ovens, Furnaces and Furnace burners	0.008	74.2	75.1	78.5	78.2	78.8
1.3.18.6 Lifting and Handling equipment	0.285	120.0	119.5	125.6	126.4	126.6

No. 21: Wholesale Price Index (Concl'd.)

(Base: 2011-12 = 100)

Commodities	Weight	2021-22	2021	2022		
			Aug.	Jun.	Jul. (P)	Aug. (P)
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	133.4	134.7	142.6	143.5	142.3
1.3.18.9 Agricultural and Forestry machinery	0.833	128.4	127.0	135.0	136.5	136.4
1.3.18.10 Metal-forming machinery and Machine tools	0.224	114.2	115.3	118.7	119.6	119.6
1.3.18.11 Machinery for mining, Quarrying and Construction	0.371	78.2	78.4	84.5	83.8	84.1
1.3.18.12 Machinery for food, Beverage and Tobacco processing	0.228	130.1	129.0	129.1	128.0	130.1
1.3.18.13 Machinery for textile, Apparel and Leather production	0.192	125.3	122.9	126.5	126.7	128.4
1.3.18.14 Other special-purpose machinery	0.468	134.7	134.1	138.4	138.9	139.0
1.3.18.15 Renewable electricity generating equipment	0.046	66.6	66.2	68.5	68.2	68.6
1.3.19 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS	4.969	122.7	121.8	127.8	127.5	128.2
1.3.19.1 Motor vehicles	2.600	122.6	121.5	126.5	126.3	126.8
1.3.19.2 Parts and Accessories for motor vehicles	2.368	122.7	122.1	129.2	128.9	129.7
1.3.20 MANUFACTURE OF OTHER TRANSPORT EQUIPMENT	1.648	131.7	131.0	135.5	136.2	136.5
1.3.20.1 Building of ships and Floating structures	0.117	158.9	158.9	159.1	163.5	163.5
1.3.20.2 Railway locomotives and Rolling stock	0.110	104.4	104.9	104.0	103.9	105.5
1.3.20.3 Motor cycles	1.302	131.0	130.1	135.6	136.0	136.3
1.3.20.4 Bicycles and Invalid carriages	0.117	137.2	136.4	139.9	140.8	140.8
1.3.20.5 Other transport equipment	0.002	135.9	132.6	147.7	149.2	150.5
1.3.21 MANUFACTURE OF FURNITURE	0.727	150.1	149.0	157.0	157.7	156.5
1.3.21.1 Furniture	0.727	150.1	149.0	157.0	157.7	156.5
1.3.22 OTHER MANUFACTURING	1.064	137.9	133.3	139.6	144.3	143.9
1.3.22.1 Jewellery and Related articles	0.996	136.0	131.2	137.7	142.7	142.3
1.3.22.2 Musical instruments	0.001	192.3	183.4	175.4	175.4	190.5
1.3.22.3 Sports goods	0.012	140.4	138.7	147.8	148.9	149.3
1.3.22.4 Games and Toys	0.005	150.9	151.5	160.1	160.9	159.3
1.3.22.5 Medical and Dental instruments and Supplies	0.049	171.8	171.3	173.5	171.3	172.0
2 FOOD INDEX	24.378	163.8	160.1	177.4	174.4	176.0

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	2020-21	2021-22	April-July		July	
				2021-22	2022-23	2021	2022
	1	2	3	4	5	6	7
General Index	100.00	118.1	131.6	123.9	136.3	131.5	134.6
1 Sectoral Classification							
1.1 Mining	14.37	101.0	113.3	106.5	113.0	104.6	101.1
1.2 Manufacturing	77.63	117.2	131.0	122.1	134.6	131.0	135.2
1.3 Electricity	7.99	157.6	170.1	172.4	195.1	184.7	188.9
2 Use-Based Classification							
2.1 Primary Goods	34.05	118.1	129.5	125.1	138.8	128.5	131.7
2.2 Capital Goods	8.22	75.9	88.7	78.6	96.7	92.4	97.8
2.3 Intermediate Goods	17.22	124.7	143.9	136.3	149.2	143.7	148.9
2.4 Infrastructure/ Construction Goods	12.34	124.7	148.2	139.0	150.9	144.4	150.1
2.5 Consumer Durables	12.84	101.2	113.8	98.4	117.7	118.7	121.5
2.6 Consumer Non-Durables	15.33	142.1	146.7	140.8	141.2	145.9	143.0

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

(₹ Crore)

Item	Financial Year	April - August			
	2022-23 (Budget Estimates)	2022-23 (Actuals)	2021-22 (Actuals)	Percentage to Budget Estimates	
				2022-23	2021-22
	1	2	3	4	5
1 Revenue Receipts	2204422	816898	793493	37.1	44.4
1.1 Tax Revenue (Net)	1934771	700094	644843	36.2	41.7
1.2 Non-Tax Revenue	269651	116804	148650	43.3	61.2
2 Non-Debt Capital Receipt	79291	31527	15179	39.8	8.1
2.1 Recovery of Loans	14291	6967	6808	48.8	52.4
2.2 Other Receipts	65000	24560	8371	37.8	4.8
3 Total Receipts (excluding borrowings) (1+2)	2283713	848425	808672	37.2	40.9
4 Revenue Expenditure	3194663	1137698	1104813	35.6	37.7
<i>of which:</i>					
4.1 Interest Payments	940651	338637	278371	36.0	34.4
5 Capital Expenditure	750246	252328	171868	33.6	31.0
6 Total Expenditure (4+5)	3944909	1390026	1276681	35.2	36.7
7 Revenue Deficit (4-1)	990241	320800	311320	32.4	27.3
8 Fiscal Deficit (6-3)	1661196	541601	468009	32.6	31.1
9 Gross Primary Deficit (8-4.1)	720545	202964	189638	28.2	27.2

Source: Controller General of Accounts (CGA), Ministry of Finance, Government of India and Union Budget 2022-23.

No. 24: Treasury Bills – Ownership Pattern

(₹ Crore)

Item	2021-22	2021	2022					
	1	Aug. 27	Jul. 22	Jul. 29	Aug. 5	Aug. 12	Aug. 19	Aug. 26
		2	3	4	5	6	7	8
1 91-day								
1.1 Banks	5310	5990	10785	11428	12026	12171	13313	14723
1.2 Primary Dealers	16705	14559	29993	35008	36339	33210	27422	24936
1.3 State Governments	31320	59757	59800	58800	58250	58250	59250	54450
1.4 Others	72109	145396	127831	121432	117932	113541	111572	107259
2 182-day								
2.1 Banks	70130	103967	102435	103721	105001	103475	103132	96493
2.2 Primary Dealers	63669	54959	99496	99464	101179	99984	98737	99375
2.3 State Governments	15763	16510	38887	38187	39687	39687	39887	37587
2.4 Others	69259	117804	117743	113193	106183	105353	102567	105787
3 364-day								
3.1 Banks	112386	109084	118731	113731	113343	110293	111085	106984
3.2 Primary Dealers	160461	102355	179050	178252	178930	181375	179899	184586
3.3 State Governments	22836	19265	27925	26571	29246	30159	30970	27419
3.4 Others	118392	101340	127465	132209	132860	134420	135121	135463
4 14-day Intermediate								
4.1 Banks								
4.2 Primary Dealers								
4.3 State Governments	289362	144913	123995	129551	63805	145547	146032	151970
4.4 Others	659	201	1189	338	1331	515	409	841
Total Treasury Bills (Excluding 14 day Intermediate T Bills) #	758339	850986	1040141	1031995	1030977	1021919	1012956	995062

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)

(Amount in ₹ Crores)										
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										
2022-23										
Aug. 3	9000	121	32740	2718	40	8982	2718	11700	98.63	5.5586
Aug. 10	9000	135	44562	1318	27	8982	1318	10300	98.62	5.5949
Aug. 17	9000	140	35058	3883	45	8967	3883	12850	98.63	5.5598
Aug. 24	9000	157	43700	1739	32	8961	1739	10700	98.62	5.5998
Aug. 30	9000	106	37012	2525	32	8975	2525	11500	98.61	5.6341
182-day Treasury Bills										
2022-23										
Aug. 3	7000	126	26479	1519	24	6981	1519	8500	97.15	5.8886
Aug. 10	7000	105	23938	17	43	6983	17	7000	97.11	5.9630
Aug. 17	7000	97	22330	2021	24	6979	2021	9000	97.14	5.9099
Aug. 24	7000	111	17933	3491	45	6959	3491	10450	97.10	5.9896
Aug. 30	7000	98	13820	2129	69	6980	2129	9109	97.05	6.0890
364-day Treasury Bills										
2022-23										
Aug. 3	5000	174	28259	2911	16	4763	2911	7675	94.15	6.2300
Aug. 10	5000	156	21232	1639	44	4974	1639	6613	94.12	6.2599
Aug. 17	5000	161	21759	858	31	4953	858	5811	94.18	6.1980
Aug. 24	5000	195	23238	1293	68	4881	1293	6174	94.12	6.2701
Aug. 30	5000	140	19959	4104	57	4979	4104	9083	94.07	6.3199

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	1, 2022	3.35-4.95	4.73
August	2, 2022	3.25-4.85	4.66
August	3, 2022	3.25-4.85	4.65
August	4, 2022	3.25-4.80	4.59
August	5, 2022	3.30-5.35	5.00
August	6, 2022	4.00-5.40	4.44
August	8, 2022	3.50-5.65	5.10
August	10, 2022	3.50-5.30	5.08
August	11, 2022	3.25-5.25	5.05
August	12, 2022	3.50-5.50	5.17
August	17, 2022	3.50-5.30	5.07
August	18, 2022	3.50-5.30	5.06
August	19, 2022	3.50-5.32	5.13
August	20, 2022	4.10-5.10	4.40
August	22, 2022	3.80-5.35	5.08
August	23, 2022	3.80-5.35	5.12
August	24, 2022	3.80-5.30	5.08
August	25, 2022	3.80-5.40	5.13
August	26, 2022	3.80-5.45	5.15
August	29, 2022	3.80-5.45	5.15
August	30, 2022	3.80-5.70	5.21
September	1, 2022	3.80-5.65	5.30
September	2, 2022	3.80-5.35	5.08
September	3, 2022	4.00-5.30	4.72
September	5, 2022	3.80-5.30	5.11
September	6, 2022	3.80-5.35	5.08
September	7, 2022	3.80-5.25	5.08
September	8, 2022	3.80-5.30	5.06
September	9, 2022	3.80-5.40	5.14
September	12, 2022	3.80-5.30	5.12
September	13, 2022	3.80-5.35	5.13
September	14, 2022	3.80-5.35	5.12
September	15, 2022	3.80-5.40	5.16

Note: Includes Notice Money.

No. 27: Certificates of Deposit

Item	2021	2022			
	Aug. 27	Jul. 15	Jul. 29	Aug. 12	Aug. 26
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	64222.13	235248.52	249062.16	242172.94	237146.80
1.1 Issued during the fortnight (₹ Crore)	6332.44	20150.94	29372.29	23947.26	26979.70
2 Rate of Interest (per cent)	3.27-4.31	5.38-6.19	5.33-6.38	5.59-6.35	5.66-6.51

No. 28: Commercial Paper

Item	2021	2022			
	Aug. 31	Jul. 15	Jul. 31	Aug. 15	Aug. 31
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	391504.85	381468.70	374226.45	411152.10	410076.80
1.1 Reported during the fortnight (₹ Crore)	73288.65	46218.50	48380.15	63123.35	87514.55
2 Rate of Interest (per cent)	3.15-12.83	4.95-12.13	5.05-12.40	5.51-13.69	5.64-13.66

No. 29: Average Daily Turnover in Select Financial Markets

(₹ Crore)

Item	2021-22	2021	2022					
		Aug. 27	Jul. 22	Jul. 29	Aug. 5	Aug. 12	Aug. 19	Aug. 26
	1	2	3	4	5	6	7	8
1 Call Money	14515	12845	25768	21115	16625	19389	15243	20329
2 Notice Money	2122	1311	518	4246	4193	864	8916	511
3 Term Money	515	483	351	318	533	394	1245	501
4 Triparty Repo	618526	577354	589701	724049	601582	606519	786837	697741
5 Market Repo	383844	301952	449231	515023	424608	442384	561452	470547
6 Repo in Corporate Bond	4373	4152	2947	183	2652	1213	5851	1820
7 Forex (US \$ million)	67793	70694	91965	98204	88394	77956	88686	94756
8 Govt. of India Dated Securities	51300	47477	59173	70519	83929	78653	68894	67005
9 State Govt. Securities	5570	5068	4603	5865	6323	5371	4022	3366
10 Treasury Bills								
10.1 91-Day	4690	3081	3823	2921	5828	5850	3243	5470
10.2 182-Day	3440	4605	4651	5438	4904	3023	2927	6151
10.3 364-Day	3530	5220	2107	1597	1523	2384	2839	2895
10.4 Cash Management Bills								
11 Total Govt. Securities (8+9+10)	68530	65450	74357	86341	102507	95282	81925	84888
11.1 RBI	—	5128	336	442	2608	671	786	297

No. 30: New Capital Issues By Non-Government Public Limited Companies

(Amount in ₹ Crore)

Security & Type of Issue	2021-22		2021-22 (Apr.-Aug.)		2022-23 (Apr.-Aug.) *		Aug. 2021		Aug. 2022 *	
	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	164	138894	47	46663	67	19524	15	20546	8	945
1A Premium	154	136893	44	45821	59	18548	14	20298	5	849
1.1 Public	121	112567	38	45870	47	18199	14	20517	5	875
1.1.1 Premium	119	111314	38	45180	44	17565	14	20298	4	827
1.2 Rights	43	26327	9	792	20	1325	1	30	3	71
1.2.1 Premium	35	25580	6	641	15	983	—	—	1	22
2 Preference Shares	—	—	—	—	—	—	—	—	—	—
2.1 Public	—	—	—	—	—	—	—	—	—	—
2.2 Rights	—	—	—	—	—	—	—	—	—	—
3 Bonds & Debentures	28	11589	10	5389	13	3102	—	—	1	279
3.1 Convertible	—	—	—	—	—	—	—	—	—	—
3.1.1 Public	—	—	—	—	—	—	—	—	—	—
3.1.2 Rights	—	—	—	—	—	—	—	—	—	—
3.2 Non-Convertible	28	11589	10	5389	13	3102	—	—	1	279
3.2.1 Public	28	11589	10	5389	13	3102	—	—	1	279
3.2.2 Rights	—	—	—	—	—	—	—	—	—	—
4 Total(1+2+3)	192	150484	57	52052	80	22625	15	20546	9	1224
4.1 Public	149	124157	48	51260	60	21301	14	20517	6	1153
4.2 Rights	43	26327	9	792	20	1325	1	30	3	71

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	2021-22	2021	2022				
			Aug.	Apr.	May	Jun.	Jul.	Aug.
		1	2	3	4	5	6	7
1 Exports	₹ Crore	3147021	247634	302579	302037	330740	305993	269875
	US \$ Million	422004	33381	39725	39064	42362	38441	33923
1.1 Oil	₹ Crore	503850	34535	60009	65991	83170	66238	45464
	US \$ Million	67472	4655	7878	8535	10653	8321	5715
1.2 Non-oil	₹ Crore	2643171	213098	242570	236046	247570	239755	224411
	US \$ Million	354533	28725	31847	30529	31709	30119	28208
2 Imports	₹ Crore	4572775	334520	459199	488999	517980	527379	492457
	US \$ Million	613052	45093	60288	63244	66344	66252	61901
2.1 Oil	₹ Crore	1207803	70054	153230	148571	166299	168219	140817
	US \$ Million	161810	9443	20117	19215	21300	21133	17701
2.2 Non-oil	₹ Crore	3364972	264466	305969	340428	351681	359160	351640
	US \$ Million	451242	35650	40170	44029	45044	45120	44201
3 Trade Balance	₹ Crore	-1425753	-86886	-156620	-186962	-187240	-221385	-222583
	US \$ Million	-191048	-11712	-20562	-24180	-23982	-27812	-27978
3.1 Oil	₹ Crore	-703953	-35518	-93221	-82580	-83129	-101980	-95354
	US \$ Million	-94339	-4788	-12239	-10680	-10647	-12811	-11986
3.2 Non-oil	₹ Crore	-721800	-51368	-63399	-104382	-104110	-119405	-127229
	US \$ Million	-96709	-6924	-8324	-13500	-13335	-15000	-15993

Source: DGCI&S and Ministry of Commerce & Industry.

No. 32: Foreign Exchange Reserves

Item	Unit	2021	2022					
		Oct. 1	Aug. 26	Sep. 2	Sep. 9	Sep. 16	Sep. 23	Sep. 30
		1	2	3	4	5	6	7
1 Total Reserves	₹ Crore	4723970	4480681	4413659	4384380	4351017	4352850	4333987
	US \$ Million	637477	561046	553105	550871	545652	537518	532664
1.1 Foreign Currency Assets	₹ Crore	4264251	3982307	3926994	3896690	3866549	3864518	3846882
	US \$ Million	575451	498645	492117	489598	484901	477212	472807
1.2 Gold	₹ Crore	278316	316599	305654	307563	304491	306807	305964
	US \$ Million	37558	39643	38303	38644	38186	37886	37605
	Volume (Metric Tonnes)	744.77	781.29	781.29	781.29	781.29	783.16	785.35
1.3 SDRs	SDRs Million	13657	13658	13658	13658	13658	13658	13658
	₹ Crore	142576	142411	141897	141022	141030	142476	141787
	US \$ Million	19240	17832	17782	17719	17686	17594	17427
1.4 Reserve Tranche Position in IMF	₹ Crore	38826	39363	39114	39105	38948	39050	39354
	US \$ Million	5228	4926	4902	4910	4880	4826	4826

* Difference, if any, is due to rounding off.

No. 33: Non-Resident Deposits

(US\$ Million)

Scheme	Outstanding				Flows	
	2021-22	2021	2022		2021-22	2022-23
		Aug.	Jul.	Aug.	Apr.-Aug.	Apr.-Aug.
	1	2	3	4	5	6
1 NRI Deposits	139022	141523	135397	134683	2441	1435
1.1 FCNR(B)	16918	19331	15878	16017	-1142	-901
1.2 NR(E)RA	100801	102667	97925	96952	2464	906
1.3 NRO	21303	19525	21594	21713	1119	1430

No. 34: Foreign Investment Inflows

(US\$ Million)

Item	2021-22	2021-22	2022-23	2021	2022	
		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)	38587	18221	19285	5115	5385	305
1.1.1 Direct Investment to India (1.1.1.1–1.1.2)	56231	25861	23405	6004	6021	1103
1.1.1.1 Gross Inflows/Gross Investments	84835	36087	34073	8162	6978	4603
1.1.1.1.1 Equity	59684	27000	24289	6306	5044	2450
1.1.1.1.1.1 Government (SIA/FIPB)	1698	286	466	174	60	27
1.1.1.1.1.2 RBI	42932	17570	18535	4587	4155	1974
1.1.1.1.1.3 Acquisition of shares	14143	8792	4936	1471	756	376
1.1.1.1.1.4 Equity capital of unincorporated bodies	910	352	352	73	73	73
1.1.1.1.2 Reinvested earnings	19347	7490	7696	1556	1556	1556
1.1.1.1.3 Other capital	5805	1597	2089	300	378	597
1.1.1.2 Repatriation/Disinvestment	28605	10226	10668	2158	957	3500
1.1.1.2.1 Equity	27189	9990	9984	2086	895	3292
1.1.1.2.2 Other capital	1416	236	684	72	62	208
1.1.2 Foreign Direct Investment by India (1.1.2.1+1.1.2.2+1.1.2.3–1.1.2.4)	17644	7640	4120	889	636	798
1.1.2.1 Equity capital	10061	3917	2278	567	497	589
1.1.2.2 Reinvested Earnings	3379	1408	1439	282	282	282
1.1.2.3 Other Capital	7604	3635	1670	429	174	326
1.1.2.4 Repatriation/Disinvestment	3400	1320	1268	389	317	399
1.2 Net Portfolio Investment (1.2.1+1.2.2+1.2.3–1.2.4)	-16777	1691	-6823	2906	362	7446
1.2.1 GDRs/ADRs	–	–	–	–	–	–
1.2.2 FIIs	-14071	2111	-6669	3128	458	7532
1.2.3 Offshore funds and others	–	–	–	–	–	–
1.2.4 Portfolio investment by India	2706	420	154	222	96	86
1 Foreign Investment Inflows	21809	19911	12463	8021	5747	7751

No. 35: Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals

(US\$ Million)

Item	2021-22	2021	2022		
		Aug.	Jun.	Jul.	Aug.
	1	2	3	4	5
1 Outward Remittances under the LRS	19610.77	1965.35	1984.68	1982.44	2667.81
1.1 Deposit	830.05	58.04	72.49	79.96	72.02
1.2 Purchase of immovable property	112.90	7.39	14.54	11.65	12.24
1.3 Investment in equity/debt	746.57	46.31	65.03	59.71	53.53
1.4 Gift	2336.29	191.05	222.77	216.33	221.31
1.5 Donations	16.55	0.75	1.12	1.18	1.57
1.6 Travel	6909.04	574.22	1043.08	1015.27	1469.73
1.7 Maintenance of close relatives	3302.37	284.83	304.85	292.72	330.70
1.8 Medical Treatment	37.79	2.93	4.39	4.29	4.95
1.9 Studies Abroad	5165.33	780.26	240.86	276.03	467.52
1.10 Others	153.88	19.60	15.55	25.30	34.25

**No. 36: Indices of Nominal Effective Exchange Rate (NEER) and
Real Effective Exchange Rate (REER) of the Indian Rupee**

Item	2020-21	2021-22	2021	2022	
			September	August	September
	1	2	3	4	5
40-Currency Basket (Base: 2015-16=100)					
1 Trade-weighted					
1.1 NEER	93.92	93.13	93.92	92.29	93.05
1.2 REER	103.46	104.66	105.98	103.83	104.87
2 Export-weighted					
2.1 NEER	93.59	93.55	94.11	93.66	94.28
2.2 REER	102.96	103.48	104.63	102.54	103.30
6-Currency Basket (Trade-weighted)					
1 Base: 2015-16 = 100					
1.1 NEER	88.45	87.03	87.86	87.24	88.27
1.2 REER	101.84	102.27	103.70	103.74	105.23
2 Base: 2020-21 = 100					
2.1 NEER	100.00	98.39	99.33	98.63	99.80
2.2 REER	100.00	100.42	101.83	101.87	103.33

No. 37: External Commercial Borrowings (ECBs) – Registrations

(Amount in US\$ Million)

Item	2021-22	2021	2022	
		Aug	Jul	Aug
	1	2	3	4
1 Automatic Route				
1.1 Number	1086	90	96	83
1.2 Amount	28851	2247	2316	1875
2 Approval Route				
2.1 Number	18	1	1	0
2.2 Amount	11035	600	300	0
3 Total (1+2)				
3.1 Number	1104	91	97	83
3.2 Amount	39886	2847	2616	1875
4 Weighted Average Maturity (in years)	8.00	5.68	4.64	7.30
5 Interest Rate (per cent)				
5.1 Weighted Average Margin over 6-month LIBOR or reference rate for Floating Rate Loans	1.71	1.29	1.28	1.63
5.2 Interest rate range for Fixed Rate Loans	0.00-10.50	0.00-10.00	0.00-11.15	0.00-10.00
Borrower Category				
I. Corporate Manufacturing	12244	731	296	773
II. Corporate-Infrastructure	17023	956	288	540
a.) Transport	1597	0	36	36
b.) Energy	8215	3	60	504
c.) Water and Sanitation	10	2	0	0
d.) Communication	1258	500	0	0
e.) Social and Commercial Infrastructure	0	0	0	0
f.) Exploration, Mining and Refinery	4691	450	164	0
g.) Other Sub-Sectors	1252	1	28	0
III. Corporate Service-Sector	1570	36	118	66
IV. Other Entities	609	0	303	0
a.) units in SEZ	9	0	3	0
b.) SIDBI				
c.) Exim Bank	600	0	300	0
V. Banks	100	0	0	0
VI. Financial Institution (Other than NBFC)	4	0	0	0
VII. NBFCs	7995	1081	1611	480
a). NBFC- IFC/AFC	5621	600	340	50
b). NBFC-MFI	93	0	51	0
c). NBFC-Others	2282	481	1220	430
VIII. Non-Government Organization (NGO)	0	0	0	0
IX. Micro Finance Institution (MFI)	0	0	0	0
X. Others	341	44	0	16

No. 38: India's Overall Balance of Payments

(US\$ Million)

Item	Apr-Jun 2021			Apr-Jun 2022(P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance of Payments(1+2+3)	344159	312289	31870	429226	424631	4595
1 CURRENT ACCOUNT (1.1+ 1.2)	180111	173552	6559	230988	254881	-23893
1.1 MERCHANDISE	97448	128163	-30715	122968	191524	-68556
1.2 INVISIBLES (1.2.1+1.2.2+1.2.3)	82663	45389	37275	108019	63357	44663
1.2.1 Services	56217	30408	25808	76100	45024	31076
1.2.1.1 Travel	1597	2885	-1289	4705	6299	-1593
1.2.1.2 Transportation	6733	6616	117	9855	11780	-1924
1.2.1.3 Insurance	772	428	344	916	510	406
1.2.1.4 G.n.i.e.	203	236	-32	170	207	-37
1.2.1.5 Miscellaneous	46912	20243	26669	60454	26230	34225
1.2.1.5.1 Software Services	27602	2466	25136	34476	3784	30692
1.2.1.5.2 Business Services	12962	11635	1327	17751	14303	3448
1.2.1.5.3 Financial Services	1201	1118	83	1660	1514	146
1.2.1.5.4 Communication Services	807	310	497	961	439	522
1.2.2 Transfers	20917	1904	19013	25651	2800	22851
1.2.2.1 Official	23	232	-209	31	245	-214
1.2.2.2 Private	20894	1672	19222	25620	2555	23065
1.2.3 Income	5530	13077	-7547	6268	15532	-9264
1.2.3.1 Investment Income	3929	12366	-8437	4577	14749	-10172
1.2.3.2 Compensation of Employees	1601	711	890	1691	783	908
2 CAPITAL ACCOUNT (2.1+2.2+2.3+2.4+2.5)	164048	138656	25392	197716	169750	27966
2.1 Foreign Investment (2.1.1+2.1.2)	102726	90770	11956	106275	107310	-1035
2.1.1 Foreign Direct Investment	23689	12135	11554	23044	9449	13595
2.1.1.1 In India	23147	5910	17237	22492	6211	16281
2.1.1.1.1 Equity	17773	5818	11955	16795	5797	10999
2.1.1.1.2 Reinvested Earnings	4378		4378	4584		4584
2.1.1.1.3 Other Capital	997	92	905	1114	415	699
2.1.1.2 Abroad	542	6225	-5683	552	3238	-2686
2.1.1.2.1 Equity	542	2532	-1989	552	1193	-641
2.1.1.2.2 Reinvested Earnings	0	845	-845	0	876	-876
2.1.1.2.3 Other Capital	0	2849	-2849	0	1169	-1169
2.1.2 Portfolio Investment	79036	78634	402	83231	97861	-14630
2.1.2.1 In India	77499	77121	378	82548	97207	-14659
2.1.2.1.1 FIIs	77499	77121	378	82548	97207	-14659
2.1.2.1.1.1 Equity	69769	68832	937	72768	87798	-15029
2.1.2.1.1.2 Debt	7730	8289	-559	9780	9410	370
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	1537	1513	24	683	654	29
2.2 Loans (2.2.1+2.2.2+2.2.3)	16564	13727	2837	26628	18929	7698
2.2.1 External Assistance	1891	1605	286	3232	1423	1809
2.2.1.1 By India	13	16	-3	11	23	-12
2.2.1.2 To India	1879	1589	290	3221	1400	1820
2.2.2 Commercial Borrowings	3370	2756	614	3130	6005	-2875
2.2.2.1 By India	736	293	443	216	138	78
2.2.2.2 To India	2634	2463	171	2914	5867	-2953
2.2.3 Short Term to India	11303	9366	1937	20266	11502	8764
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	9259	9366	-107	17484	11502	5982
2.2.3.2 Suppliers' Credit up to 180 days	2044	0	2044	2782	0	2782
2.3 Banking Capital (2.3.1+2.3.2)	28916	24851	4065	49574	30533	19041
2.3.1 Commercial Banks	28916	24827	4089	49574	30018	19556
2.3.1.1 Assets	16216	14610	1606	35834	16375	19458
2.3.1.2 Liabilities	12700	10217	2483	13741	13643	97
2.3.1.2.1 Non-Resident Deposits	11212	8686	2525	12287	11937	349
2.3.2 Others	0	25	-25	0	514	-514
2.4 Rupee Debt Service	0	57	-57	0	59	-59
2.5 Other Capital	15842	9251	6591	15239	12919	2320
3 Errors & Omissions	0	81	-81	522	0	522
4 Monetary Movements (4.1+ 4.2)	0	31870	-31870	0	4595	-4595
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)		31870	-31870	0	4595	-4595

Note : P : Preliminary

No. 39: India's Overall Balance of Payments

(₹ Crore)

Item	Apr-Jun 2021			Apr-Jun 2022(P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance of Payments(1+2+3)	2538726	2303632	235094	3313079	3277608	35471
1 CURRENT ACCOUNT (1.1+ 1.2)	1328609	1280223	48386	1782929	1967352	-184423
1.1 MERCHANDISE	718833	945407	-226574	949158	1478320	-529162
1.2 INVISIBLES (1.2.1+1.2.2+1.2.3)	609775	334816	274960	833771	489032	344739
1.2.1 Services	414688	224311	190377	587397	347531	239866
1.2.1.1 Travel	11778	21283	-9505	36320	48618	-12298
1.2.1.2 Transportation	49664	48803	861	76068	90923	-14855
1.2.1.3 Insurance	5696	3160	2536	7067	3936	3131
1.2.1.4 G.n.i.e.	1500	1739	-239	1314	1596	-282
1.2.1.5 Miscellaneous	346050	149325	196724	466628	202458	264170
1.2.1.5.1 Software Services	203612	18192	185420	266112	29209	236902
1.2.1.5.2 Business Services	95612	85825	9787	137013	110398	26614
1.2.1.5.3 Financial Services	8856	8247	609	12811	11683	1129
1.2.1.5.4 Communication Services	5951	2286	3664	7419	3390	4029
1.2.2 Transfers	154296	14044	140252	197995	21616	176379
1.2.2.1 Official	171	1712	-1541	241	1894	-1653
1.2.2.2 Private	154125	12332	141793	197753	19722	178032
1.2.3 Income	40791	96460	-55669	48379	119885	-71506
1.2.3.1 Investment Income	28979	91217	-62238	35330	113844	-78514
1.2.3.2 Compensation of Employees	11812	5244	6568	13049	6041	7008
2 CAPITAL ACCOUNT (2.1+2.2+2.3+2.4+2.5)	1210117	1022811	187306	1526118	1310256	215862
2.1 Foreign Investment (2.1.1+2.1.2)	757768	669572	88196	820308	828297	-7989
2.1.1 Foreign Direct Investment	174747	89517	85230	177871	72934	104937
2.1.1.1 In India	170748	43594	127154	173612	47943	125670
2.1.1.1.1 Equity	131103	42917	88185	129638	44743	84895
2.1.1.1.2 Reinvested Earnings	32292	0	32292	35379	0	35379
2.1.1.1.3 Other Capital	7354	677	6676	8596	3200	5396
2.1.1.2 Abroad	3999	45923	-41924	4259	24992	-20733
2.1.1.2.1 Equity	3999	18675	-14676	4259	9206	-4947
2.1.1.2.2 Reinvested Earnings	0	6231	-6231	0	6763	-6763
2.1.1.2.3 Other Capital	0	21017	-21017	0	9023	-9023
2.1.2 Portfolio Investment	583021	580055	2966	642437	755362	-112926
2.1.2.1 In India	571680	568891	2789	637168	750316	-113148
2.1.2.1.1 FIIs	571680	568891	2789	637168	750316	-113148
2.1.2.1.1.1 Equity	514658	507747	6911	561680	677686	-116006
2.1.2.1.1.2 Debt	57022	61143	-4121	75489	72631	2858
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	11341	11164	177	5268	5046	222
2.2 Loans (2.2.1+2.2.2+2.2.3)	122188	101261	20927	205533	146111	59422
2.2.1 External Assistance	13953	11840	2112	24946	10985	13962
2.2.1.1 By India	95	120	-26	87	177	-89
2.2.1.2 To India	13858	11720	2138	24859	10808	14051
2.2.2 Commercial Borrowings	24860	20333	4528	24160	46348	-22188
2.2.2.1 By India	5430	2164	3265	1664	1062	603
2.2.2.2 To India	19431	18169	1262	22495	45286	-22790
2.2.3 Short Term to India	83375	69088	14287	156427	88778	67648
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	68300	69088	-788	134952	88778	46173
2.2.3.2 Suppliers' Credit up to 180 days	15076	0	15076	21475	0	21475
2.3 Banking Capital (2.3.1+2.3.2)	213303	183319	29984	382650	235676	146974
2.3.1 Commercial Banks	213303	183137	30166	382650	231704	150945
2.3.1.1 Assets	119616	107769	11847	276591	126397	150194
2.3.1.2 Liabilities	93687	75367	18319	106059	105308	752
2.3.1.2.1 Non-Resident Deposits	82703	64074	18629	94837	92139	2697
2.3.2 Others	0	182	-182	0	3971	-3971
2.4 Rupee Debt Service	0	419	-419	0	456	-456
2.5 Other Capital	116858	68240	48618	117627	99718	17910
3 Errors & Omissions	0	598	-598	4032	0	4032
4 Monetary Movements (4.1+ 4.2)	0	235094	-235094	0	35471	-35471
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	0	235094	-235094	0	35471	-35471

Note : P: Preliminary

No. 40: Standard Presentation of BoP in India as per BPM6

(US\$ Million)

Item	Apr-Jun 2021			Apr-Jun 2022(P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	180110	173529	6581	230985	254856	-23872
1.A Goods and Services (1.A.a+1.A.b)	153664	158571	-4907	199069	236548	-37480
1.A.a Goods (1.A.a.1 to 1.A.a.3)	97448	128163	-30715	122968	191524	-68556
1.A.a.1 General merchandise on a BOP basis	97369	120278	-22909	122522	181035	-58513
1.A.a.2 Net exports of goods under merchandising	79	0	79	446	0	446
1.A.a.3 Nonmonetary gold		7885	-7885		10489	-10489
1.A.b Services (1.A.b.1 to 1.A.b.13)	56217	30408	25808	76100	45024	31076
1.A.b.1 Manufacturing services on physical inputs owned by others	83	9	73	321	28	293
1.A.b.2 Maintenance and repair services n.i.e.	58	127	-70	48	432	-384
1.A.b.3 Transport	6733	6616	117	9855	11780	-1924
1.A.b.4 Travel	1597	2885	-1289	4705	6299	-1593
1.A.b.5 Construction	583	892	-309	739	730	9
1.A.b.6 Insurance and pension services	772	428	344	916	510	406
1.A.b.7 Financial services	1201	1118	83	1660	1514	146
1.A.b.8 Charges for the use of intellectual property n.i.e.	191	1972	-1781	332	2251	-1919
1.A.b.9 Telecommunications, computer, and information services	28489	3017	25473	35521	4436	31085
1.A.b.10 Other business services	12962	11635	1327	17751	14303	3448
1.A.b.11 Personal, cultural, and recreational services	647	804	-157	946	1252	-306
1.A.b.12 Government goods and services n.i.e.	203	236	-32	170	207	-37
1.A.b.13 Others n.i.e.	2698	669	2029	3137	1284	1853
1.B Primary Income (1.B.1 to 1.B.3)	5530	13077	-7547	6268	15532	-9264
1.B.1 Compensation of employees	1601	711	890	1691	783	908
1.B.2 Investment income	2962	12106	-9143	3404	14387	-10983
1.B.2.1 Direct investment	1511	7318	-5807	2047	9391	-7384
1.B.2.2 Portfolio investment	143	1852	-1709	62	1604	-1542
1.B.2.3 Other investment	45	2935	-2890	102	3378	-3276
1.B.2.4 Reserve assets	1264	1	1263	1193	15	1178
1.B.3 Other primary income	966	260	706	1173	362	811
1.C Secondary Income (1.C.1+1.C.2)	20916	1882	19034	25648	2776	22872
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	20894	1672	19222	25620	2555	23065
1.C.1.1 Personal transfers (Current transfers between resident and non-resident households)	20074	1183	18891	24969	1806	23163
1.C.1.2 Other current transfers	820	489	331	651	749	-98
1.C.2 General government	22	210	-187	28	221	-193
2 Capital Account (2.1+2.2)	116	170	-54	141	230	-88
2.1 Gross acquisitions (DR.) / disposals (CR.) of non-produced nonfinancial assets	7	56	-49	19	132	-113
2.2 Capital transfers	109	114	-5	123	98	25
3 Financial Account (3.1 to 3.5)	163933	170379	-6446	197578	174140	23438
3.1 Direct Investment (3.1A+3.1B)	23689	12135	11554	23044	9449	13595
3.1.A Direct Investment in India	23147	5910	17237	22492	6211	16281
3.1.A.1 Equity and investment fund shares	22150	5818	16332	21379	5797	15582
3.1.A.1.1 Equity other than reinvestment of earnings	17773	5818	11955	16795	5797	10999
3.1.A.1.2 Reinvestment of earnings	4378		4378	4584		4584
3.1.A.2 Debt instruments	997	92	905	1114	415	699
3.1.A.2.1 Direct investor in direct investment enterprises	997	92	905	1114	415	699
3.1.B Direct Investment by India	542	6225	-5683	552	3238	-2686
3.1.B.1 Equity and investment fund shares	542	3376	-2834	552	2069	-1517
3.1.B.1.1 Equity other than reinvestment of earnings	542	2532	-1989	552	1193	-641
3.1.B.1.2 Reinvestment of earnings		845	-845		876	-876
3.1.B.2 Debt instruments	0	2849	-2849	0	1169	-1169
3.1.B.2.1 Direct investor in direct investment enterprises		2849	-2849		1169	-1169
3.2 Portfolio Investment	79036	78634	402	83231	97861	-14630
3.2.A Portfolio Investment in India	77499	77121	378	82548	97207	-14659
3.2.1 Equity and investment fund shares	69769	68832	937	72768	87798	-15029
3.2.2 Debt securities	7730	8289	-559	9780	9410	370
3.2.B Portfolio Investment by India	1537	1513	24	683	654	29
3.3 Financial derivatives (other than reserves) and employee stock options	3544	4841	-1297	5267	7658	-2391
3.4 Other investment	57663	42898	14765	86036	54577	31459
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	11212	8711	2501	12287	12452	-165
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	25	-25	0	514	-514
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	11212	8686	2525	12287	11937	349
3.4.2.3 General government			0			0
3.4.2.4 Other sectors			0			0
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	22966	20502	2464	43650	25509	18141
3.4.3.A Loans to India	22217	20192	2025	43423	25349	18074
3.4.3.B Loans by India	749	310	439	227	160	66
3.4.4 Insurance, pension, and standardized guarantee schemes	32	63	-30	74	184	-110
3.4.5 Trade credit and advances	11303	9366	1937	20266	11502	8764
3.4.6 Other accounts receivable/payable - other	12150	4257	7894	9760	4931	4829
3.4.7 Special drawing rights			0			0
3.5 Reserve assets	0	31870	-31870	0	4595	-4595
3.5.1 Monetary gold			0			0
3.5.2 Special drawing rights n.a.			0			0
3.5.3 Reserve position in the IMF n.a.			0			0
3.5.4 Other reserve assets (Foreign Currency Assets)	0	31870	-31870	0	4595	-4595
4 Total assets/liabilities	163933	170379	-6446	197578	174140	23438
4.1 Equity and investment fund shares	97575	84443	13132	100722	104158	-3436
4.2 Debt instruments	54207	49808	4399	87096	60456	26640
4.3 Other financial assets and liabilities	12150	36127	-23977	9760	9526	233
5 Net errors and omissions		81	-81	522		522

Note : P : Preliminary

No. 41: Standard Presentation of BoP in India as per BPM6

(₹ Crore)

Item	Apr-Jun 2021			Apr-Jun 2022(P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	1328602	1280058	48544	1782907	1967166	-184259
1.A Goods and Services (1.A.a+1.A.b)	1133522	1169718	-36197	1536555	1825851	-289296
1.A.a Goods (1.A.a.1 to 1.A.a.3)	718833	945407	-226574	949158	1478320	-529162
1.A.a.1 General merchandise on a BOP basis	718253	887242	-168989	945715	1397359	-451644
1.A.a.2 Net exports of goods under merchandising	580	0	580	3443	0	3443
1.A.a.3 Nonmonetary gold	0	58165	-58165	0	80961	-80961
1.A.b Services (1.A.b.1 to 1.A.b.13)	414688	224311	190377	587397	347531	239866
1.A.b.1 Manufacturing services on physical inputs owned by others	610	68	542	2474	213	2261
1.A.b.2 Maintenance and repair services n.i.e.	424	938	-514	367	3334	-2967
1.A.b.3 Transport	49664	48803	861	76068	90923	-14855
1.A.b.4 Travel	11778	21283	-9505	36320	48618	-12298
1.A.b.5 Construction	4303	6581	-2278	5705	5637	68
1.A.b.6 Insurance and pension services	5696	3160	2536	7067	3936	3131
1.A.b.7 Financial services	8856	8247	609	12811	11683	1129
1.A.b.8 Charges for the use of intellectual property n.i.e.	1412	14547	-13135	2560	17373	-14813
1.A.b.9 Telecommunications, computer, and information services	210155	22252	187903	274180	34244	239936
1.A.b.10 Other business services	95612	85825	9787	137013	110398	26614
1.A.b.11 Personal, cultural, and recreational services	4776	5933	-1157	7303	9666	-2363
1.A.b.12 Government goods and services n.i.e.	1500	1739	-239	1314	1596	-282
1.A.b.13 Others n.i.e.	19901	4934	14967	24215	9910	14305
1.B Primary Income (1.B.1 to 1.B.3)	40791	96460	-55669	48379	119885	-71506
1.B.1 Compensation of employees	11812	5244	6568	13049	6041	7008
1.B.2 Investment income	21852	89299	-67446	26277	111052	-84775
1.B.2.1 Direct investment	11143	53979	-42836	15804	72484	-56680
1.B.2.2 Portfolio investment	1051	13662	-12610	476	12377	-11902
1.B.2.3 Other investment	336	21651	-21316	789	26078	-25289
1.B.2.4 Reserve assets	9322	7	9315	9209	113	9096
1.B.3 Other primary income	7127	1918	5209	9053	2792	6261
1.C Secondary Income (1.C.1+1.C.2)	154289	13879	140410	197973	21430	176543
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	154125	12332	141793	197753	19722	178032
1.C.1.1 Personal transfers (Current transfers between resident and non-resident households)	148076	8724	139352	192727	13938	178789
1.C.1.2 Other current transfers	6049	3608	2441	5026	5784	-757
1.C.2 General government	164	1547	-1383	219	1709	-1489
2 Capital Account (2.1+2.2)	854	1253	-399	1092	1773	-681
2.1 Gross acquisitions (DR.) / disposals (CR.) of non-produced nonfinancial assets	51	413	-363	145	1016	-871
2.2 Capital transfers	803	839	-37	947	756	190
3 Financial Account (3.1 to 3.5)	1209270	1256817	-47547	1525048	1344140	180908
3.1 Direct Investment (3.1.A+3.1.B)	174747	89517	85230	177871	72934	104937
3.1.A Direct Investment in India	170748	43594	127154	173612	47943	125670
3.1.A.1 Equity and investment fund shares	163395	42917	120477	165017	44743	120274
3.1.A.1.1 Equity other than reinvestment of earnings	131103	42917	88185	129638	44743	84895
3.1.A.1.2 Reinvestment of earnings	32292	0	32292	35379	0	35379
3.1.A.2 Debt instruments	7354	677	6676	8596	3200	5396
3.1.A.2.1 Direct investor in direct investment enterprises	7354	677	6676	8596	3200	5396
3.1.B Direct Investment by India	3999	45923	-41924	4259	24992	-20733
3.1.B.1 Equity and investment fund shares	3999	24906	-20907	4259	15969	-11710
3.1.B.1.1 Equity other than reinvestment of earnings	3999	18675	-14676	4259	9206	-4947
3.1.B.1.2 Reinvestment of earnings	0	6231	-6231	0	6763	-6763
3.1.B.2 Debt instruments	0	21017	-21017	0	9023	-9023
3.1.B.2.1 Direct investor in direct investment enterprises	0	21017	-21017	0	9023	-9023
3.2 Portfolio Investment	583021	580055	2966	642437	755362	-112926
3.2.A Portfolio Investment in India	571680	568891	2789	637168	750316	-113148
3.2.1 Equity and investment fund shares	514658	507747	6911	561680	677686	-116006
3.2.2 Debt securities	57022	61143	-4121	75489	72631	2858
3.2.B Portfolio Investment by India	11341	11164	177	5268	5046	222
3.3 Financial derivatives (other than reserves) and employee stock options	26144	35709	-9565	40653	59109	-18455
3.4 Other investment	425358	316442	108916	664087	421264	242823
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	82703	64257	18447	94837	96111	-1274
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	182	-182	0	3971	-3971
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	82703	64074	18629	94837	92139	2697
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)	169413	151235	18177	336919	196897	140022
3.4.3.A Loans to India	163889	148951	14938	335168	195659	139509
3.4.3.B Loans by India	5524	2284	3240	1751	1238	513
3.4.4 Insurance, pension, and standardized guarantee schemes	238	462	-224	571	1417	-846
3.4.5 Trade credit and advances	83375	69088	14287	156427	88778	67648
3.4.6 Other accounts receivable/payable - other	89629	31400	58229	75333	38060	37273
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	0	235094	-235094	0	35471	-35471
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	235094	-235094	0	35471	-35471
4 Total assets/liabilities	1209270	1256817	-47547	1525048	1344140	180908
4.1 Equity and investment fund shares	719775	622906	96869	777448	803969	-26521
4.2 Debt instruments	399867	367417	32450	672267	466640	205627
4.3 Other financial assets and liabilities	89629	266494	-176865	75333	73531	1802
5 Net errors and omissions	0	598	-598	4032	0	4032

Note : P: Preliminary

No. 42: International Investment Position

(US\$ Million)

Item	As on Financial Year /Quarter End							
	2021-22		2021		2022			
			Jun.		Mar.		Jun.	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	1	2	3	4	5	6	7	8
1.1 Equity and investment fund shares	132765	493987	125560	467984	132765	493987	134283	489605
1.2 Debt instruments	78807	27673	74052	25696	78807	27673	79976	27719
1 Direct investment	211573	521661	199612	493680	211573	521661	214259	517324
2.1 Equity and investment fund shares	1110	156381	3146	176203	1110	156381	8153	135476
2.2 Debt securities	9533	114124	4766	108708	9533	114124	2461	110966
2 Portfolio investment	10642	270505	7912	284911	10642	270505	10614	246442
3.1 Trade credit and advances	18561	118157	7875	102106	18561	118157	21270	126894
3.2 Loans	10474	195761	13607	189980	10474	195761	6543	192103
3.3 Currency and deposits	42081	140994	35904	143096	42081	140994	30242	137445
3.4 Other accounts receivable	19858	32203	19427	12344	19858	32203	19504	30929
3 Other investment	90974	487115	76813	447526	90974	487115	77559	487371
4 Reserve assets	607309		611075		607309		589155	
5 Total Assets / Liabilities	920498	1279281	895412	1226117	920498	1279281	891585	1251136
6 Net International Investment Position	-358783		-330705		-358783		-359551	

Payment and Settlement Systems

No.43: Payment System Indicators

PART I - Payment System Indicators - Payment & Settlement System Statistics

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2021-22	2021	2022		FY 2021-22	2021	2022	
		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)	33.01	2.51	3.39	3.30	206873112	15362952	21126044	20028644
1.1 Govt. Securities Clearing (1.1.1 to 1.1.3)	12.22	0.96	1.33	1.33	142072939	10388877	14218681	13493765
1.1.1 Outright	6.22	0.50	0.71	0.75	8793301	730532	851204	888832
1.1.2 Repo	3.08	0.24	0.34	0.32	51015712	3479766	5764070	5251883
1.1.3 Tri-party Repo	2.92	0.22	0.28	0.25	82263926	6178579	7603407	7353051
1.2 Forex Clearing	19.91	1.48	1.93	1.89	59775826	4599545	6272728	5970122
1.3 Rupee Derivatives @	0.88	0.06	0.13	0.09	5024347	374530	634635	564757
B. Payment Systems								
I Financial Market Infrastructures (FMIs)	—	—	—	—	—	—	—	—
1 Credit Transfers - RTGS (1.1 to 1.2)	2078.39	166.52	189.26	188.08	128657516	10164296	11551440	11665583
1.1 Customer Transactions	2063.73	165.34	188.06	186.92	113319292	8940380	9927091	10274480
1.2 Interbank Transactions	14.66	1.18	1.20	1.16	15338225	1223916	1624349	1391103
II Retail								
2 Credit Transfers - Retail (2.1 to 2.6)	577934.74	45370.66	74673.64	77757.95	42728006	3277624	4267239	4288963
2.1 AePS (Fund Transfers) @	9.76	1.05	0.68	0.54	575	61	40	30
2.2 APBS \$	12573.33	722.32	1259.99	1162.46	133345	10305	12511	9662
2.3 IMPS	46625.25	3797.12	4608.30	4669.09	4171037	320203	444541	445989
2.4 NACH Cr \$	18757.82	2075.99	1892.88	1940.04	1281685	98119	119677	128480
2.5 NEFT	40407.29	3218.73	4018.39	4166.76	28725463	2209818	2627354	2631639
2.6 UPI @	459561.30	35555.45	62893.40	65819.06	8415900	639117	1063117	1073162
2.6.1 of which USSD @	11.99	1.14	1.62	1.63	177	17	18	17
3 Debit Transfers and Direct Debits (3.1 to 3.3)	12189.49	1008.32	1217.97	1247.15	1034444	85436	100581	102824
3.1 BHIM Aadhaar Pay @	227.73	21.99	21.26	17.57	6113	462	621	516
3.2 NACH Dr \$	10754.74	876.81	1067.05	1097.38	1026641	84818	99754	102100
3.3 NETC (linked to bank account) @	1207.02	109.52	129.66	132.20	1689	155	207	209
4 Card Payments (4.1 to 4.2)	61782.93	5493.00	5481.80	5481.30	1701851	142600	180371	174516
4.1 Credit Cards (4.1.1 to 4.1.2)	22398.82	1904.71	2348.34	2447.83	971638	77733	115856	112358
4.1.1 PoS based \$	11124.59	984.62	1220.69	1330.54	380643	32969	41767	44943
4.1.2 Others \$	11274.23	920.08	1127.64	1117.30	590994	44764	74089	67414
4.2 Debit Cards (4.2.1 to 4.2.1)	39384.11	3588.29	3133.47	3033.47	730213	64867	64515	62159
4.2.1 PoS based \$	22967.10	2119.63	2053.40	2012.17	451550	41177	41211	40585
4.2.2 Others \$	16417.00	1468.66	1080.07	1021.30	278663	23690	23304	21574
5 Prepaid Payment Instruments (5.1 to 5.2)	65782.75	5259.90	6195.34	6177.69	279416	22362	25309	24625
5.1 Wallets	53013.86	4227.08	4855.87	4877.42	220183	17746	18775	18495
5.2 Cards (5.2.1 to 5.2.2)	12768.89	1032.82	1339.48	1300.27	59233	4617	6534	6131
5.2.1 PoS based \$	1116.16	132.27	85.43	83.90	19546	1110	1285	1177
5.2.2 Others \$	11652.73	900.54	1254.05	1216.37	39687	3507	5250	4953
6 Paper-based Instruments (6.1 to 6.2)	6999.12	588.62	588.67	575.81	6650333	533903	579727	548385
6.1 CTS (NPCI Managed)	6999.12	588.62	588.67	575.81	6650333	533903	579727	548385
6.2 Others	0.00	—	—	—	—	—	—	—
Total - Retail Payments (2+3+4+5+6)	724689.03	57720.50	88157.42	91239.89	52394049	4061924	5153226	5139314
Total Payments (1+2+3+4+5+6)	726767.42	57887.02	88346.69	91427.97	181051565	14226220	16704666	16804896
Total Digital Payments (1+2+3+4+5)	719768.30	57298.40	87758.02	90852.16	174401233	13692317	16124940	16256512

PART II - Payment Modes and Channels

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2021-22	2021	2022		FY 2021-22	2021	2022	
		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)	507531.37	39029.40	68451.32	72227.76	14973493	1136503	1786719	1827748
1.1 Intra-bank \$	40805.69	3244.29	4902.42	6590.62	2726363	201774	323929	363782
1.2 Inter-bank \$	466725.68	35785.12	63548.90	65637.14	12247129	934729	1462790	1463966
2 Internet Payments (Netbanking / Internet Browser Based) @ (2.1 to 2.2)	40726.59	3561.18	3765.16	3537.74	83159996	6537169	7396630	7351640
2.1 Intra-bank @	9583.32	814.17	934.78	932.41	52142582	4087618	4450729	4304970
2.2 Inter-bank @	31143.27	2747.01	2830.38	2605.33	31017413	2449550	2945902	3046670
B. ATMs								
3 Cash Withdrawal at ATMs \$ (3.1 to 3.3)	65240.43	5684.73	5774.19	5766.61	3111946	262881	272103	268788
3.1 Using Credit Cards \$	62.37	5.02	6.95	7.46	3130	248	342	359
3.2 Using Debit Cards \$	64851.61	5652.37	5731.82	5723.84	3097739	261683	270609	267289
3.3 Using Pre-paid Cards \$	326.45	27.35	35.42	35.31	11076	949	1152	1141
4 Cash Withdrawal at PoS \$ (4.1 to 4.2)	91.17	6.52	2.26	2.19	728	64	22	21
4.1 Using Debit Cards \$	79.42	5.50	2.25	2.16	557	42	22	21
4.2 Using Pre-paid Cards \$	11.75	1.02	0.01	0.03	171	22	0	0
5 Cash Withdrawal at Micro ATMs @	11126.04	1061.82	1082.22	1021.48	299776	26830	29517	26193
5.1 AePS @	11126.04	1061.82	1082.22	1021.48	299776	26830	29517	26193

PART III - Payment Infrastructures (Lakh)

System	As on March 2022	2021	2022	
		Aug.	Jul.	Aug.
	1	2	3	4
Payment System Infrastructures				
1 Number of Cards (1.1 to 1.2)	9912.93	9771.97	10077.33	10128.50
1.1 Credit Cards	736.27	639.34	802.56	779.91
1.2 Debit Cards	9176.66	9132.63	9274.77	9348.59
2 Number of PPIs @ (2.1 to 2.2)	15553.69	13682.92	15604.53	15661.77
2.1 Wallets @	12787.93	11510.97	12922.65	12948.75
2.2 Cards @	2765.76	2171.94	2681.89	2713.02
3 Number of ATMs (3.1 to 3.2)	2.52	2.41	2.54	2.54
3.1 Bank owned ATMs \$	2.20	2.14	2.20	2.20
3.2 White Label ATMs \$	0.31	0.27	0.34	0.34
4 Number of Micro ATMs @	9.16	6.31	10.97	11.31
5 Number of PoS Terminals	60.70	48.16	68.19	70.58
6 Bharat QR @	49.72	43.52	45.21	47.49
7 UPI QR *	1727.34	1142.06	2014.22	2092.54

@: 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.

Occasional Series

No. 44: Small Savings

(₹ Crore)

Scheme		2020-21	2021		2022	
			Feb.	Dec.	Jan.	Feb.
		1	2	3	4	5
1 Small Savings	Receipts	181237	14405	18175	14893	13932
	Outstanding	1259585	1224772	1397878	1412766	1426737
1.1 Total Deposits	Receipts	132687	10143	13855	10676	9753
	Outstanding	867494	847119	969847	980523	990274
1.1.1 Post Office Saving Bank Deposits	Receipts	39748	2252	4475	3018	3568
	Outstanding	205888	194738	226701	229719	233287
1.1.2 MGNREG	Receipts					
	Outstanding					
1.1.3 National Saving Scheme, 1987	Receipts	276	-23	-366	-15	-20
	Outstanding	3419	3037	3200	3185	3165
1.1.4 National Saving Scheme, 1992	Receipts	166	57	2	-1	-777
	Outstanding	175	40	150	149	-628
1.1.5 Monthly Income Scheme	Receipts	12211	1135	1228	1146	933
	Outstanding	221379	220277	232747	233892	234825
1.1.6 Senior Citizen Scheme 2004	Receipts	21009	1950	1929	1615	1490
	Outstanding	97051	94750	114134	115749	117239
1.1.7 Post Office Time Deposits	Receipts	41470	3798	3926	3438	3217
	Outstanding	207557	203597	241034	244474	247690
1.1.7.1 1 year Time Deposits	Outstanding	108205	107099	116043	116819	117578
1.1.7.2 2 year Time Deposits	Outstanding	7473	7418	7931	7967	7996
1.1.7.3 3 year Time Deposits	Outstanding	7227	7267	6983	6964	6944
1.1.7.4 5 year Time Deposits	Outstanding	84652	81813	110077	112724	115172
1.1.8 Post Office Recurring Deposits	Receipts	17807	974	2662	1475	1338
	Outstanding	132029	130683	151885	153359	154697
1.1.9 Post Office Cumulative Time Deposits	Receipts	0	0	-1	0	4
	Outstanding	-25	-24	-25	-25	-22
1.1.10 Other Deposits	Receipts	0	0	0	0	0
	Outstanding	21	21	21	21	21
1.2 Saving Certificates	Receipts	34860	3647	3978	3691	3583
	Outstanding	286863	282483	321027	324713	328337
1.2.1 National Savings Certificate VIII issue	Receipts	17361	1843	1860	1626	1585
	Outstanding	135348	133016	150513	152139	153724
1.2.2 Indira Vikas Patras	Receipts	-3	0	0	0	0
	Outstanding	159	157	158	158	158
1.2.3 Kisan Vikas Patras	Receipts	-7911	-470	-426	-193	940
	Outstanding	-6776	-6194	-8455	-8648	-7708
1.2.4 Kisan Vikas Patras - 2014	Receipts	25340	2274	2544	2258	1019
	Outstanding	147942	145422	168720	170978	171996
1.2.5 National Saving Certificate VI issue	Receipts	41	0	0	0	23
	Outstanding	-114	-147	-114	-114	-90
1.2.6 National Saving Certificate VII issue	Receipts	32	0	0	0	16
	Outstanding	-74	-103	-74	-74	-58
1.2.7 Other Certificates	Outstanding	10378	10332	10279	10274	10315
1.3 Public Provident Fund	Receipts	13690	615	342	526	596
	Outstanding	105228	95170	107004	107530	108126

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	2021			2022	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(A) Total (in ₹. Crore)	7882533	8235318	8439811	8529036	8784931
1 Commercial Banks	35.99	37.82	35.40	37.75	38.04
2 Non-Bank PDs	0.34	0.35	0.27	0.29	0.33
3 Insurance Companies	25.83	24.18	25.74	25.89	26.34
4 Mutual Funds	2.82	2.91	3.08	2.91	2.32
5 Co-operative Banks	1.82	1.50	1.82	1.81	1.84
6 Financial Institutions	1.43	1.17	1.69	0.94	1.09
7 Corporates	1.39	0.72	1.37	1.47	1.52
8 Foreign Portfolio Investors	1.79	1.81	1.66	1.56	1.43
9 Provident Funds	4.04	3.77	4.33	4.60	4.77
10 RBI	17.11	16.98	16.92	16.62	16.06
11. Others	7.43	8.79	7.73	6.15	6.30
11.1 State Governments	1.67	1.67	1.69	1.82	1.84

State Governments Securities					
Category	2021			2022	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(B) Total (in ₹. Crore)	4028849	4153508	4257578	4410250	4472011
1 Commercial Banks	33.75	35.94	34.41	34.39	34.22
2 Non-Bank PDs	0.39	0.44	0.40	0.38	0.41
3 Insurance Companies	29.67	27.50	28.85	28.42	28.39
4 Mutual Funds	1.74	1.97	1.91	1.82	1.89
5 Co-operative Banks	4.12	3.60	4.07	4.04	4.06
6 Financial Institutions	1.79	1.72	1.73	1.72	1.73
7 Corporates	1.45	1.32	1.70	1.82	1.98
8 Foreign Portfolio Investors	0.02	0.03	0.02	0.02	0.02
9 Provident Funds	21.09	18.27	20.66	20.79	20.52
10 RBI	0.88	0.85	0.83	0.80	0.79
11. Others	5.10	8.38	5.40	5.81	5.99
11.1 State Governments	0.18	0.18	0.19	0.20	0.21

Treasury Bills					
Category	2021			2022	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(C) Total (in ₹. Crore)	901327	763582	692869	757198	1022053
1 Commercial Banks	52.25	50.22	47.01	51.14	53.14
2 Non-Bank PDs	1.82	1.33	1.53	4.20	2.49
3 Insurance Companies	4.75	4.12	6.29	6.58	5.34
4 Mutual Funds	19.93	17.72	13.72	14.01	14.86
5 Co-operative Banks	1.60	1.32	1.49	1.79	1.34
6 Financial Institutions	2.56	2.12	2.36	3.53	3.73
7 Corporates	3.00	2.40	3.13	3.47	4.27
8 Foreign Portfolio Investors	0.00	0.15	0.72	0.49	0.40
9 Provident Funds	0.10	0.37	0.85	0.21	1.70
10 RBI	2.58	2.63	0.00	0.00	0.00
11. Others	11.42	17.62	22.89	14.59	12.72
11.1 State Governments	7.97	12.64	18.92	11.54	10.99

No. 46: Combined Receipts and Disbursements of the Central and State Governments

(₹ Crore)

Item	2016-17	2017-18	2018-19	2019-20	2020-21 RE	2021-22 BE
	1	2	3	4	5	6
1 Total Disbursements	4265969	4515946	5040747	5410887	6523916	7160694
1.1 Developmental	2537905	2635110	2882758	3074492	3906147	4254004
1.1.1 Revenue	1878417	2029044	2224367	2446605	3259401	3242247
1.1.2 Capital	501213	519356	596774	588233	636062	922982
1.1.3 Loans	158275	86710	61617	39654	10684	88775
1.2 Non-Developmental	1672646	1812455	2078276	2253027	2526514	2810847
1.2.1 Revenue	1555239	1741432	1965907	2109629	2334608	2602289
1.2.1.1 Interest Payments	724448	814757	894520	955801	1082302	1244457
1.2.2 Capital	115775	69370	111029	141457	189487	177328
1.2.3 Loans	1632	1654	1340	1941	2419	31230
1.3 Others	55417	68381	79713	83368	91255	95843
2 Total Receipts	4288432	4528422	5023352	5734166	6489736	7039032
2.1 Revenue Receipts	3132201	3376416	3797731	3851563	3834126	4682025
2.1.1 Tax Receipts	2622145	2978134	3278947	3231582	3175594	3829889
2.1.1.1 Taxes on commodities and services	1652377	1853859	2030050	2012578	2100982	2514708
2.1.1.2 Taxes on Income and Property	965622	1121189	1246083	1216203	1071552	1311449
2.1.1.3 Taxes of Union Territories (Without Legislature)	4146	3086	2814	2800	3060	3732
2.1.2 Non-Tax Receipts	510056	398282	518783	619981	658532	852135
2.1.2.1 Interest Receipts	33220	34224	36273	31137	39830	33198
2.2 Non-debt Capital Receipts	69063	142433	140287	110094	54861	201138
2.2.1 Recovery of Loans & Advances	20942	42213	44667	59515	21151	19581
2.2.2 Disinvestment proceeds	48122	100219	95621	50578	33710	181557
3 Gross Fiscal Deficit [1 - (2.1 + 2.2)]	1064704	997097	1102729	1449230	2634928	2277532
3A Sources of Financing: Institution-wise						
3A.1 Domestic Financing	1046708	989167	1097210	1440548	2580406	2276017
3A.1.1 Net Bank Credit to Government	617123	144792	387091	571872	890012	-----
3A.1.1.1 Net RBI Credit to Government	195816	-144847	325987	190241	107494	-----
3A.1.2 Non-Bank Credit to Government	429585	844375	710119	868676	1690394	-----
3A.2 External Financing	17997	7931	5519	8682	54522	1514
3B Sources of Financing: Instrument-wise						
3B.1 Domestic Financing	1046708	989167	1097210	1440548	2580406	2276017
3B.1.1 Market Borrowings (net)	689821	794856	795845	971378	1778062	1620936
3B.1.2 Small Savings (net)	35038	71222	88961	209232	455724	367863
3B.1.3 State Provident Funds (net)	45688	42351	51004	38280	47300	45504
3B.1.4 Reserve Funds	-6436	18423	-18298	10411	-3450	5051
3B.1.5 Deposits and Advances	17792	25138	66289	-14227	29050	28868
3B.1.6 Cash Balances	-22463	-12476	17395	-323279	34179	121663
3B.1.7 Others	287268	49653	96014	548753	239540	86132
3B.2 External Financing	17997	7931	5519	8682	54522	1514
<i>4 Total Disbursements as per cent of GDP</i>	<i>27.7</i>	<i>26.4</i>	<i>26.7</i>	<i>26.6</i>	<i>33.0</i>	<i>32.1</i>
<i>5 Total Receipts as per cent of GDP</i>	<i>27.9</i>	<i>26.5</i>	<i>26.6</i>	<i>28.2</i>	<i>32.9</i>	<i>31.6</i>
<i>6 Revenue Receipts as per cent of GDP</i>	<i>20.3</i>	<i>19.8</i>	<i>20.1</i>	<i>18.9</i>	<i>19.4</i>	<i>21.0</i>
<i>7 Tax Receipts as per cent of GDP</i>	<i>17.0</i>	<i>17.4</i>	<i>17.4</i>	<i>15.9</i>	<i>16.1</i>	<i>17.2</i>
<i>8 Gross Fiscal Deficit as per cent of GDP</i>	<i>6.9</i>	<i>5.8</i>	<i>5.8</i>	<i>7.1</i>	<i>13.3</i>	<i>10.2</i>

...: 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-2022					
		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	760.98	29	1549.15	26	2448.92	9
2	Arunachal Pradesh	-	-	-	-	-	-
3	Assam	276.68	2	-	-	-	-
4	Bihar	-	-	-	-	-	-
5	Chhattisgarh	-	-	-	-	-	-
6	Goa	-	-	-	-	-	-
7	Gujarat	-	-	-	-	-	-
8	Haryana	460.24	6	835.08	2	-	-
9	Himachal Pradesh	-	-	394.44	3	328.43	1
10	Jammu & Kashmir UT	-	-	893.51	23	128.47	7
11	Jharkhand	-	-	-	-	-	-
12	Karnataka	351.53	9	-	-	-	-
13	Kerala	148.81	4	1008.06	4	-	-
14	Madhya Pradesh	-	-	-	-	-	-
15	Maharashtra	-	-	-	-	-	-
16	Manipur	12.30	7	176.79	23	149.99	13
17	Meghalaya	135.10	9	71.60	7	-	-
18	Mizoram	77.42	2	56.70	9	97.53	2
19	Nagaland	107.08	7	193.02	4	125.12	2
20	Odisha	-	-	-	-	-	-
21	Puducherry	-	-	-	-	-	-
22	Punjab	862.44	28	-	-	-	-
23	Rajasthan	3104.26	9	-	-	-	-
24	Tamil Nadu	-	-	-	-	-	-
25	Telangana	921.26	30	1154.03	26	301.75	4
26	Tripura	-	-	-	-	-	-
27	Uttar Pradesh	-	-	-	-	-	-
28	Uttarakhand	-	-	-	-	-	-
29	West Bengal	-	-	-	-	-	-

Source: Reserve Bank of India.

No. 48: Investments by State Governments

(₹ Crore)

Sr. No	State/Union Territory	As on end of August 2022			
		Consolidated Sinking Fund (CSF)	Guarantee Redemption Fund (GRF)	Government Securities	Auction Treasury Bills (ATBs)
	1	2	3	4	5
1	Andhra Pradesh	9654	951	0	0
2	Arunachal Pradesh	2104	3	0	0
3	Assam	3681	72	0	0
4	Bihar	6526	0	0	0
5	Chhattisgarh	5946	0	1	4308
6	Goa	794	382	0	0
7	Gujarat	8415	559	0	0
8	Haryana	1417	1415	0	0
9	Himachal Pradesh	0	0	0	0
10	Jammu & Kashmir UT	0	0	0	0
11	Jharkhand	1011	0	0	0
12	Karnataka	10699	0	0	40019
13	Kerala	2494	0	0	0
14	Madhya Pradesh	0	1066	0	0
15	Maharashtra	54228	1175	0	18000
16	Manipur	58	117	0	0
17	Meghalaya	910	64	8	0
18	Mizoram	305	55	0	0
19	Nagaland	1484	39	0	0
20	Odisha	15169	1705	98	43975
21	Puducherry	393	0	0	873
22	Punjab	4210	0	8	0
23	Rajasthan	0	0	129	4900
24	Tamil Nadu	7797	0	18	5682
25	Telangana	6594	1443	0	0
26	Tripura	810	15	0	1700
27	Uttar Pradesh	3597	0	116	0
28	Uttarakhand	3991	157	0	0
29	West Bengal	10547	775	239	0
	Total	162835	9992	616	119456

No. 49: Market Borrowings of State Governments

(₹ Crore)

Sr. No.	State	2020-21		2021-22		2022-23						Total amount raised, so far in 2022-23	
		Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	June		July		August		Gross	Net
						Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised		
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Andhra Pradesh	50896	41915	46443	36692	10500	9630	8000	7130	7000	6130	36890	32395
2	Arunachal Pradesh	767	767	563	530	-	-	-	-20	-	-	-	-20
3	Assam	15030	14230	12753	10753	2000	2000	2000	2000	2400	2400	6400	6400
4	Bihar	27285	24685	28489	24334	-	-	-	-	3000	3000	3000	2250
5	Chhattisgarh	13000	10500	4000	913	-	-	-	-	-	-	-	-
6	Goa	3354	3054	2000	1450	100	100	-	-	-	-150	100	-50
7	Gujarat	44780	33280	31054	13554	4000	2500	4500	3300	3500	2300	12000	5100
8	Haryana	30000	25550	30500	20683	8000	5625	4000	2745	3000	2450	18000	11170
9	Himachal Pradesh	6000	3755	4000	1875	-	-430	1000	570	1500	1200	2500	1340
10	Jammu & Kashmir UT	9328	6020	8562	5373	-	-	1250	750	-	-	2250	1750
11	Jharkhand	9400	8900	5000	3191	-	-200	-	-	-	-300	-	-500
12	Karnataka	69000	61900	59000	49000	-	-	-	-	-	-	-	-
13	Kerala	28566	23066	27000	18120	1500	1500	-	-1000	6000	4000	7500	2500
14	Madhya Pradesh	45573	38773	22000	13900	2000	2000	-	-	2000	-	4000	2000
15	Maharashtra	69000	50022	68750	40790	10000	3500	-	-1800	-	-1700	30000	17500
16	Manipur	1302	1044	1476	1326	150	150	250	190	-	-90	650	425
17	Meghalaya	1777	1587	1608	1298	200	200	200	150	200	150	600	500
18	Mizoram	944	677	747	447	100	100	90	90	200	150	540	425
19	Nagaland	1721	1366	1727	1222	400	400	250	250	226	-24	876	626
20	Odisha	3000	500	0	-6473	-	-1000	-	-	-	-500	-	-3000
21	Puducherry	1390	790	1374	841	-	-	200	200	-	-	200	200
22	Punjab	32995	23467	25814	12428	-	-1742	5100	4100	6500	5100	14600	8658
23	Rajasthan	57359	44273	51149	38243	6500	3688	5000	4000	5000	4000	20000	14688
24	Sikkim	1292	1292	1511	1471	-	-	150	150	-	-	150	150
25	Tamil Nadu	87977	76796	87000	72500	8000	6150	8000	6500	11000	9500	27000	21528
26	Telangana	43784	37365	45716	38667	7000	6370	5000	4370	4500	3870	16500	13245
27	Tripura	1916	1631	300	0	-	-125	-	-	-	-	-	-125
28	Uttar Pradesh	75500	59185	62500	42355	-	-2733	-	-1000	2500	1500	2500	-3733
29	Uttarakhand	6200	5208	3200	1800	-	-	-	-	-	-	-	-
30	West Bengal	59680	50180	67390	45199	5000	4500	8000	6500	1000	-500	16500	8000
	Grand Total	798816	651777	701626	492483	65450	42183	52990	39175	59526	42486	222756	143422

- : 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	2019-20				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	238613.6	476724.8	386450.4	530769.8	1632558.5
<i>Per cent of GDP</i>	4.8	9.8	7.5	10.3	8.1
I. Financial Assets	398076.7	567753.2	517351.0	924069.3	2407250.2
<i>Per cent of GDP</i>	8.1	11.7	10.1	18.0	12.0
of which:					
1. Total Deposits (a+b)	12239.0	296625.6	124015.7	451698.3	884578.5
(a) Bank Deposits	-10550.9	278124.4	116211.9	444044.6	827830.0
i. Commercial Banks	-13293.8	269475.4	66666.7	446006.7	768855.0
ii. Co-operative Banks	2742.9	8649.0	49545.2	-1962.1	58975.0
(b) Non-Bank Deposits	22789.9	18501.2	7803.7	7653.7	56748.5
2. Life Insurance Funds	117873.1	108209.1	110373.8	37714.2	374170.2
3. Provident and Pension Funds (including PPF)	104681.1	98426.3	103356.1	193739.0	500202.5
4. Currency	61244.1	-26104.8	86832.6	160690.2	282662.1
5. Investments	43936.8	43018.8	22655.1	-11953.8	97656.9
of which:					
(a) Mutual Funds	23303.5	38382.2	19191.1	-19191.1	61685.7
(b) Equity	18648.2	2172.4	936.2	4981.0	26737.8
6. Small Savings (excluding PPF)	57038.5	46514.1	69053.6	91117.2	263723.4
II. Financial Liabilities	159463.1	91028.5	130900.6	393299.5	774691.7
<i>Per cent of GDP</i>	3.2	1.9	2.6	7.7	3.9
Loans (Borrowings) from					
1. Financial Corporations (a+b)	159429.6	90994.9	130867.1	393266.0	774557.6
(a) Banking Sector	140261.4	58074.4	114905.9	196581.1	509822.8
of which:					
Commercial Banks	135754.1	57135.0	87377.4	202214.2	482480.6
(b) Other Financial Institutions	19168.2	32920.5	15961.2	196684.8	264734.8
i. Non-Banking Financial Companies	-519.7	22976.7	29930.7	198264.3	250652.0
ii. Housing Finance Companies	17033.0	8093.1	-15710.4	-3093.1	6322.6
iii. Insurance Companies	2655.0	1850.8	1740.9	1513.6	7760.2
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.8	135.1
3. General Government	-0.3	-0.3	-0.3	-0.3	-1.0

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Contd.)

(Amount in ₹ Crore)

Item	2020-21				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	600422.5	573643.2	481433.5	719844.5	2375343.7
<i>Per cent of GDP</i>	15.5	12.1	8.8	12.5	12.0
I. Financial Assets	805869.5	612224.3	651241.3	1092617.4	3161952.5
<i>Per cent of GDP</i>	20.8	13.0	12.0	19.0	16.0
of which:					
1. Total Deposits (a+b)	297412.4	278631.7	158172.2	525550.7	1259767.1
(a) Bank Deposits	281191.3	264565.3	147096.0	527056.7	1219909.2
i. Commercial Banks	279010.5	262033.7	143558.6	471730.9	1156333.7
ii. Co-operative Banks	2180.8	2531.6	3537.3	55325.8	63575.6
(b) Non-Bank Deposits	16221.1	14066.4	11076.3	-1506.0	39857.9
2. Life Insurance Funds	123291.4	142365.7	156438.6	141120.0	563215.8
3. Provident and Pension Funds (including PPF)	119666.9	110916.6	108512.2	207604.5	546700.1
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)	55760.7	70924.2	67947.4	86862.2	281494.6
II. Financial Liabilities	205447.0	38581.1	169807.8	372772.9	786608.8
<i>Per cent of GDP</i>	5.3	0.8	3.1	6.5	4.0
Loans (Borrowings) from					
1. Financial Corporations (a+b)	205490.3	38624.3	169851.0	372816.9	786782.5
(a) Banking Sector	211058.8	13213.0	139622.0	284732.6	648626.4
of which:					
Commercial Banks	211259.3	13213.8	140514.3	242476.0	607463.5
(b) Other Financial Institutions	-5568.6	25411.3	30229.0	88084.4	138156.1
i. Non-Banking Financial Companies	-15450.4	21627.1	15921.2	61326.1	83424.0
ii. Housing Finance Companies	10516.6	2875.1	13048.5	25336.1	51776.2
iii. Insurance Companies	-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	-77.0	-77.0	-77.0	-77.0	-308.0

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Concl'd.)

(Amount in ₹ Crore)

Item	2021-22				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	519781.2	358325.2	453302.7	636259.8	1967668.9
<i>Per cent of GDP</i>	10.1	6.4	7.2	9.6	8.3
I. Financial Assets	382780.7	547346.2	834009.6	796341.7	2560478.2
<i>Per cent of GDP</i>	7.5	9.7	13.2	12.0	10.8
of which:					
1. Total Deposits (a+b)	-84377.1	202652.1	425821.4	151374.9	695471.4
(a) Bank Deposits	-106507.3	197301.2	422819.5	140297.2	653910.7
i. Commercial Banks	-108037.7	195617.4	418642.9	145510.5	651733.1
ii. Co-operative Banks	1530.4	1683.8	4176.7	-5213.3	2177.6
(b) Non-Bank Deposits	22130.2	5350.9	3001.9	11077.7	41560.7
2. Life Insurance Funds	114617.8	127356.0	103154.9	95681.7	440810.4
3. Provident and Pension Funds (including PPF)	126469.7	108777.0	91543.9	254877.2	581667.9
4. Currency	128660.2	-68631.2	62793.3	146845.0	269667.4
5. Investments	24929.6	82305.4	69760.9	50980.8	227976.7
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)	71423.1	93829.6	79877.9	95524.7	340655.3
II. Financial Liabilities	-137000.5	189021.0	380706.9	160081.8	592809.2
<i>Per cent of GDP</i>	-2.7	3.4	6.0	2.4	2.5
Loans (Borrowings) from					
1. Financial Corporations (a+b)	-137021.8	188999.7	380685.6	160060.6	592724.1
(a) Banking Sector	-113662.5	134166.1	320160.2	153323.3	493987.0
of which:					
Commercial Banks	-108061.2	135728.8	317452.5	152364.2	497484.4
(b) Other Financial Institutions	-23359.3	54833.7	60525.5	6737.3	98737.1
i. Non-Banking Financial Companies	-31118.4	28880.1	29479.8	-31016.3	-3774.8
ii. Housing Finance Companies	7132.0	24403.8	29494.8	37436.2	98466.8
iii. Insurance Companies	627.1	1549.8	1550.9	317.4	4045.2
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.8	135.1
3. General Government	-12.5	-12.5	-12.5	-12.5	-50.0

- Notes:** 1. Net Financial Savings of households refer to the flow of net financial assets, which represents change in financial assets held by households minus change in their financial liabilities.
2. Revisions in small savings and PPF are mainly on account of quarterly figures being derived from monthly receipts data sourced from Controller General of Accounts, Government of India.
3. Revisions in bank deposits for 2021-22 are attributed to the lower share of households in total deposits as per BSR-2.
4. Data as ratios to GDP have been calculated based on the Provisional Estimates of National Income 2021-22 released on May 31, 2022.
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-2019	Sep-2019	Dec-2019	Mar-2020
Financial Assets (a+b+c+d)	16315506.3	16632816.5	17010694.5	17180616.2
<i>Per cent of GDP</i>	<i>84.7</i>	<i>85.4</i>	<i>86.2</i>	<i>85.6</i>
(a) Bank Deposits (i+ii)	8858293.4	9136417.9	9252629.8	9696674.3
i. Commercial Banks	8131543.2	8401018.6	8467685.3	8913692.0
ii. Co-operative Banks	726750.2	735399.2	784944.4	782982.3
(b) Life Insurance Funds	3883609.7	3930727.6	4049902.5	3884771.5
(c) Currency	2010842.9	1984738.1	2071570.7	2232261.0
(d) Mutual Funds	1404631.5	1412654.1	1468727.6	1197092.9
Financial Liabilities (a+b)	6370092.6	6461087.5	6591954.6	6985220.6
<i>Per cent of GDP</i>	<i>33.1</i>	<i>33.2</i>	<i>33.4</i>	<i>34.8</i>
Loans (Borrowings) from				
(a) Banking Sector	5148115.0	5206189.4	5321095.3	5517676.4
of which:				
i. Commercial Banks	4668496.4	4725631.3	4813008.7	5015222.9
ii. Co-operative Banks	478956.2	479656.9	506946.6	501074.8
(b) Other Financial Institutions	1221977.5	1254898.1	1270859.3	1467544.1
of which:				
i. Non-Banking Financial Companies	451922.3	474899.0	504829.7	703094.0
ii. Housing Finance Companies	673312.1	681405.2	665694.8	662601.7

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Contd.)

(Amount in ₹ Crore)

Item	Jun-2020	Sep-2020	Dec-2020	Mar-2021
Financial Assets (a+b+c+d)	18039169.4	18606364.4	19333484.1	20168953.3
<i>Per cent of GDP</i>	<i>94.9</i>	<i>98.6</i>	<i>100.8</i>	<i>101.9</i>
(a) Bank Deposits (i+ii)	9977865.6	10242430.9	10389526.9	10916583.6
i. Commercial Banks	9192702.5	9454736.2	9598294.8	10070025.7
ii. Co-operative Banks	785163.1	787694.7	791232.1	846557.9
(b) Life Insurance Funds	4102000.7	4274424.9	4551882.0	4718718.2
(c) Currency	2434693.7	2455980.6	2547436.6	2614237.0
(d) Mutual Funds	1343752.0	1443784.4	1648999.0	1730461.0
Financial Liabilities (a+b)	7190710.8	7229335.1	7399186.1	7772003.0
<i>Per cent of GDP</i>	<i>37.8</i>	<i>38.3</i>	<i>38.6</i>	<i>39.3</i>
Loans (Borrowings) from				
(a) Banking Sector	5728735.3	5741948.3	5881570.2	6166302.8
of which:				
i. Commercial Banks	5226482.2	5239696.0	5380210.4	5622686.4
ii. Co-operative Banks	500870.2	500865.3	499968.8	542221.2
(b) Other Financial Institutions	1461975.5	1487386.9	1517615.9	1605700.3
of which:				
i. Non-Banking Financial Companies	687643.6	709270.7	725191.9	786518.0
ii. Housing Finance Companies	673118.3	675993.4	689041.8	714377.9

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Concl.)

(Amount in ₹ Crore)

Item	Jun-2021	Sep-2021	Dec-2021	Mar-2022
Financial Assets (a+b+c+d)	20508115.7	21057343.4	21673261.7	22104312.7
<i>Per cent of GDP</i>	97.4	95.9	95.0	93.4
(a) Bank Deposits (i+ii)	10810076.3	11007377.6	11430197.1	11570494.3
i. Commercial Banks	9961988.0	10157605.4	10576248.3	10721758.8
ii. Co-operative Banks	848088.3	849772.1	853948.8	848735.5
(b) Life Insurance Funds	4894238.5	5105262.1	5175997.5	5287980.3
(c) Currency	2742897.3	2674266.1	2737059.4	2883904.4
(d) Mutual Funds	1855000.1	2064363.5	2126112.0	2152140.5
Financial Liabilities (a+b)	7634981.2	7823980.9	8204666.6	8364727.1
<i>Per cent of GDP</i>	36.3	35.6	36.0	35.3
Loans (Borrowings) from				
(a) Banking Sector	6052640.2	6186806.3	6506966.5	6660289.7
of which:				
i. Commercial Banks	5514625.2	5650354.1	5967806.6	6120170.8
ii. Co-operative Banks	536604.9	535027.3	537720.1	538664.3
(b) Other Financial Institutions	1582341.0	1637174.6	1697700.1	1704437.4
of which:				
i. Non-Banking Financial Companies	755399.6	784279.7	813759.5	782743.2
ii. Housing Finance Companies	721510.0	745913.7	775408.5	812844.7

Notes: 1. Data have been compiled for select financial instruments only (loans from Banking Sector, NBFCs and HFCs) for which data are available.
2. Data as ratios to GDP have been calculated based on the Provisional Estimates of National Income 2021-22 released on May 31, 2022.
3. Figures in the columns may not add up to the total due to rounding off.

Explanatory Notes to the Current Statistics

Table No. 1

1.2& 6: Annual data are average of months.
 3.5 & 3.7: Relate to ratios of increments over financial year so far.
 4.1 to 4.4, 4.8,4.9 &5: Relate to the last friday of the month/financial year.
 4.5, 4.6 & 4.7: Relate to five major banks on the last Friday of the month/financial year.
 4.10 to 4.12: Relate to the last auction day of the month/financial year.
 4.13: Relate to last day of the month/ financial year
 7.1&7.2: Relate to Foreign trade in US Dollar.

Table No. 2

2.1.2: Include paid-up capital, reserve fund and Long-Term Operations Funds.
 2.2.2: Include cash, fixed deposits and short-term securities/bonds, e.g., issued by IIFC (UK).

Table No. 4

Maturity-wise position of outstanding forward contracts is available at <http://nsdp.rbi.org.in> under "Reserves Template".

Table No. 5

Special refinance facility to Others, i.e. to the EXIM Bank, is closed since March 31, 2013.

Table No. 6

For scheduled banks, March-end data pertain to the last reporting Friday.
 2.2: Exclude balances held in IMF Account No.1, RBI employees' provident fund, pension fund, gratuity and superannuation fund.

Table Nos. 7 & 11

3.1 in Table 7 and 2.4 in Table 11: Include foreign currency denominated bonds issued by IIFC (UK).

Table No. 8

NM₂ and NM₃ do not include FCNR (B) deposits.
 2.4: Consist of paid-up capital and reserves.
 2.5: includes other demand and time liabilities of the banking system.

Table No. 9

Financial institutions comprise EXIM Bank, SIDBI, NABARD and NHB.
 L₁ and L₂ are compiled monthly and L₃ quarterly.
 Wherever data are not available, the last available data have been repeated.

Table No. 13

Data against column Nos. (1), (2) & (3) are Final and for column Nos. (4) & (5) data are Provisional.

Table No. 14

Data in column Nos. (4) & (8) are Provisional.

Table No. 17

2.1.1: Exclude reserve fund maintained by co-operative societies with State Co-operative Banks

2.1.2: Exclude borrowings from RBI, SBI, IDBI, NABARD, notified banks and State Governments.

4: Include borrowings from IDBI and NABARD.

Table No. 24

Primary Dealers (PDs) include banks undertaking PD business.

Table No. 30

Exclude private placement and offer for sale.

1: Exclude bonus shares.

2: Include cumulative convertible preference shares and equi-preference shares.

Table No. 32

Exclude investment in foreign currency denominated bonds issued by IIFC (UK), SDRs transferred by Government of India to RBI and foreign currency received under SAARC 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 & 1.1.1.1.4: 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 2020-21 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 revised table format since June 2016, incorporates the ownership pattern of State Governments Securities and Treasury Bills along with the Central Government Securities.

State Government Securities include special bonds issued under Ujwal DISCOM Assurance Yojana (UDAY) scheme. Bank PDs are clubbed under Commercial Banks. However, they form very small fraction of total outstanding securities.

The category 'Others' comprises State Governments, Pension Funds, PSUs, Trusts, HUF/Individuals etc.

Table No. 46

GDP data is based on 2011-12 base. GDP data from 2020-21 pertains to the Provisional Estimates of National Income released by National Statistics Office on May 31, 2021. GDP for 2021-22 is from Union Budget 2021-22.

Data pertains to all States and Union Territories.

Total receipts and total expenditure exclude National Calamity Contingency Fund expenditure.

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 2022	₹350 per copy (over the counter) ₹400 per copy (inclusive of postage) ₹4,800 (one year subscription - inclusive of postage) ₹3,600 (one year concessional rate*) ₹3,840 (one year subscription - inclusive of postage [@]) ₹2,880 (one year concessional rate [@])	US\$ 15 per copy (inclusive of postage) US\$ 180 (one-year subscription) (inclusive of air mail courier charges)
2. Handbook of Statistics on the Indian States 2020-21	₹550 (Normal) ₹600 (inclusive of postage)	US\$ 24 (inclusive of air mail courier charges)
3. Handbook of Statistics on the Indian Economy 2020-21	₹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 2021-22	₹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 2021-22	₹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)	
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