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*FinTech and the Changing Financial Landscape**

Shaktikanta Das

It gives me great pleasure to be here at the 4th edition of the Global FinTech Festival (GFF). I compliment the organisers for bringing all stakeholders of the FinTech ecosystem together for this three-day event with the aim of achieving a common goal of inclusive, resilient, and sustainable financial system. It would be obvious to state that innovation is the bedrock of the FinTech industry. Events such as these festivals enable sharing of knowledge and experience with peers, both domestic and global, which facilitate more innovation. By bringing regulators and FinTechs on the same forum, the festival also facilitates an understanding of regulatory expectations by the industry on the one hand, and appreciation of industry developments and expectations by the regulators, on the other. Such thematic events provide the right kind of platform for nurturing a more vibrant FinTech ecosystem.

In my address today, I propose to touch upon changes in the financial landscape with the advent of FinTechs, with particular emphasis on the role of Digital Public Infrastructure and role of the Reserve Bank in fostering innovation.

The landscape of traditional financial services has undergone a profound shift with the advent of FinTechs. This transformation has significantly impacted delivery of financial services by making them faster, cheaper, efficient and more accessible. The global FinTech sector which currently generates US$ 245 billion annual revenue - a mere 2 per cent share of global financial services revenue - is estimated to reach US$ 1.5 trillion annual revenue by 2030[1]. The Indian FinTech industry is projected to generate around US$ 200 billion in revenue by the year 2030[2]. This projection indicates that by 2030, India's FinTech sector could potentially contribute to approximately 13 per cent of the global FinTech industry's total revenue. These projections underscore the increasing significance of the Indian Fintech sector.

Technological innovations by FinTechs are the result of interplay between the underlying (i) digital public infrastructure; (ii) institutional arrangements; and (iii) policy initiatives. These key elements help foster a conducive environment for nurturing creative ideas and promoting transformative technologies, which lead to beneficial and impactful changes in the financial industry. Let me elaborate on these three aspects.

A. Digital Public Infrastructure

Digital Public Infrastructure (DPI) is commonly recognised as a technology system that promotes interoperability, openness, and inclusion to deliver vital public and private services. The defining feature of the Indian 'model' of digitisation is the lead taken by the Government and the Public Sector in building an infrastructure, on top of which innovative products are created by private sector FinTech firms and start-ups. In fact, India has pioneered a layered approach to DPI, with the concept of the India Stack. In this respect, the impact of JAM trinity, *i.e.*, **J**an Dhan Yojana, **A**adhaar and **M**obile in terms of financial inclusion, digitisation of financial services, and emergence of FinTech ecosystem has been significant.

(i) Jan Dhan Yojana/Bank accounts

As per the World Bank's Global Findex Database 2021, 76 per cent of adults worldwide had access to an account in a bank or a regulated financial institution as compared to 51 per cent in 2011. In comparison,

* Keynote Address by Shri Shaktikanta Das, Governor, RBI - September 6, 2023 - at the Global Fintech Festival, Mumbai.

1 https://www.bcg.com/publications/2023/future-of-fintech-and-banking

2 https://www.ey.com/en_in/financial-services/how-is-the-fintech-sector-in-india-poised-for-exponential-growth

the percentage of adults in India who had access to bank account increased from 35 per cent in 2011 to 78 per cent in 2021. As you would be aware, the Jan Dhan scheme launched by the government in 2014 for universalisation of bank account has played a significant role in achieving this remarkable progress. So far, over 500 million Jan Dhan bank accounts have been opened in India.[3]

(ii) *Aadhaar*- Digital identity

Aadhaar, India's biometric identity system, provides a single and portable proof of identity. As on 30th November 2022, Unique Identification Authority of India had issued 1.35 billion Aadhaar identities[4]. The unique Aadhaar identification number allows individuals to verify their identity through authentication, regardless of their location, thereby ensuring convenient access to financial services, targeted financial subsidies, benefits, and other services nationwide. This has also enabled FinTechs to offer paperless and contactless financial services. Aadhaar has enhanced customer convenience, strengthened the security of financial transactions and substantially mitigated the risk of identity fraud. It is a good example of how digital public infrastructure can be leveraged for achieving public policy objectives.

(iii) Mobile Connectivity

The spread of mobile connectivity has also played a major role in the digitisation of financial services in India. The number of internet users through mobile phone in India has grown from about 70 million in 2014[5] to about 800 million in 2022[6]. During the same period, the number of digital transactions in India grew from about 1.2 billion in 2014[7] to about 91 billion in 2022[8]. Increasing affordability of mobile phones, cheap access to data and the expansion of mobile network coverage have spurred the growth in adoption of mobile wallets, UPI, and other digital payment methods.

(iv) Unified Payments Interface (UPI)

The UPI has played a phenomenal role in the FinTech revolution in India. Its success story has in fact become an international model. Its ability to instantly transfer money between bank accounts through mobile applications has transformed the way people make digital transactions. The interoperability of UPI across banks has created a unified payment ecosystem. Its user-friendly interface and QR code-based payments have made it very popular. It has facilitated digital payments for small businesses and street vendors, leading to greater financial inclusion.

UPI has also spurred innovation in the FinTech space, leading to the growth and development of other payment systems. For instance, the volume of transactions through Bharat Bill Payment System(BBPS) increased phenomenally after UPI-based platforms started providing such facilities. Prepaid Payment Instruments/ mobile wallets have also witnessed higher volumes when mobile wallets were made interoperable through UPI. The success of UPI is reflected in the sheer numbers, as it has scaled up in relatively a short period of time. More than 10 billion transactions for over ₹15 trillion value were carried out in August 2023. This number is steadily rising[9]. India's technology stack has accelerated digitalisation[10] through mobile phones and internet; identity system; data sharing rails (AA framework[11]); payment rails; and universalisation of bank accounts.

3 https://pmjdy.gov.in/

4 https://uidai.gov.in/en/about-uidai/

5 https://www.trai.gov.in/release-publication/reports/telecom-subscriptions-reports

6 https://www.trai.gov.in/release-publication/reports/telecom-subscriptions-reports

7 https://pib.gov.in/newsite/PrintRelease.aspx?relid=184668

8 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1897272

9 https://www.npci.org.in/what-we-do/upi/product-statistics

10 BIS Papers No 106, The design of digital financial infrastructure: lessons from India, December 2019.

11 The Account Aggregator (AA) framework enables secure and consent-based sharing of data by users, across financial institutions.

B. Institutional arrangements

Institutional arrangements are also critical for the development of a financial system. They undertake various functions such as research, innovation, training, advancing technology solutions and developing best practices in finance. They also promote stability, transparency, and fair practices in the financial sector. The Reserve Bank's initiatives in institution building for the FinTech sector include: (i) establishment of the Institute for Development and Research in Banking Technology (IDRBT)[12] which has been playing a crucial role in shaping the digital transformation of the Indian banking industry; (ii) creation of the National Payment Corporation of India Ltd (NPCI)[13] which has emerged as a pivotal organisation driving the transformation of retail digital payments in India; (iii) setting up of the Indian Financial Technology & Allied Services (IFTAS)[14], an institution to design, deploy & provide essential IT-related services, as required by the RBI, banks, and financial institutions; (iv) setting up of the Reserve Bank Information Technology Pvt. Ltd. (ReBIT)[15] in 2016 to strengthen cyber resilience of the Reserve Bank and that of the banking sector; (v) formation of the FinTech department in RBI in 2022; and (vi) establishment of the Reserve Bank Innovation Hub (RBIH) to promote innovation in financial services.

C. Policy Initiatives

Timely and appropriate policy initiatives play a crucial role in shaping the development of the FinTech sector. The focus of our policy initiatives is to promote a conducive environment for innovation and also ensure the security and stability of financial services. We have taken many such policy initiatives in the recent times. They include issuance of regulatory guidelines for emerging areas such as payments banks (2014), account aggregators (AA) [2016], pre-paid instruments (2017), peer-to-peer (P2P) lending (2017), invoice discounting (Trade Receivable and Discounting System – TReDS) [2018], and Digital Lending Guidelines (2022, 2023). Incidentally, the cumulative number of consent-based information sharing through Account Aggregators has reached 15.65 million in July 2023. With entities from Insurance, Capital markets and Pension Funds joining the AA framework, it is receiving a lot of traction.

The Regulatory Sandbox framework was announced in August 2019 with a view to foster responsible innovation and promote efficiencies in financial services. The four cohorts on retail payments, cross border payments, MSME lending and prevention of financial frauds, together with the neutral fifth cohort, reflect our commitment to promote innovation in the FinTech space. Drawing upon the learnings from the first cohort of Regulatory Sandbox, RBI has put in place a 'Framework for facilitating Small Value Digital Payments in Offline Mode' which should give a push to digital transactions in areas with poor or weak internet or telecom connectivity.

Further, RBI is now conducting hackathons to promote innovation. Our first hackathon, HaRBInger was conducted in 2021 under the broad theme - 'Smarter Digital Payments'. The second edition of our global hackathon – 'HARBINGER 2023'– has also been launched with the theme 'Inclusive Digital Services'.

[12] IDRBT, established in 1996, develops secure and efficient banking technologies, cybersecurity solutions, and policy frameworks. It also created the National Financial Switch, SFMS, and INFINET.

[13] NPCI was set up at the initiative of RBI in 2008. NPCI's UPI, IMPS, RuPay Cards and other digital innovations such as BBPS, NACH and AePS have transformed payments systems in India. Bharat Bill Payment System (BBPS) enables users to pay various utility bills; National Automated Clearing House (NACH) facilitates bulk and repetitive transactions; and Aadhaar-enabled Payment System (AePS) allows people to perform basic banking transactions using Aadhaar authentication.

[14] IFTAS operates the Indian Financial Network (INFINET) and Structured Financial Messaging System (SFMS) services 24*7*365. These two services serve as the backbone for Indian Financial system. They also enable NEFT and RTGS payment transactions. IFTAS also provides cloud-based solutions like Mobile Wallets and mobile banking for several banks.

[15] ReBIT also provides assistance in implementation of IT projects of RBI and cybersecurity assessment of entities supervised by the RBI.

D. Current Initiatives

Let me now turn to some of the recent tech-based initiatives taken by the RBI which promise to be transformational.

(i) Central Bank Digital Currency (CBDC)

CBDC provides unique opportunities as it represents the next milestone in the evolution of the payment system. As you would be aware, RBI has commenced pilot runs of India's CBDC (e-Rupee) for specific use cases in both wholesale and retail segments. The CBDC-Wholesale Pilot was launched on November 1, 2022, to settle secondary market transactions in government securities. We are planning to test some more use cases going forward.

The CBDC-Retail Pilot was launched on December 1, 2022 and covers both Person to Person (P2P) and Person to Merchant (P2M) transactions. The pilot is testing the robustness of the entire process of digital rupee creation, distribution and retail usage in real time. The pilot is currently being operated through 13 banks across 26 cities. Around 1.46 million users and 0.31 million merchants are currently part of the pilot as on August 31, 2023.

Needless to say, as the next generation currency system, CBDC needs to be introduced in a non-disruptive manner. Therefore, we are following a strategy of calibrated and phased implementation. Recently, we have enabled full interoperability of CBDC with UPI QR codes and are targeting one million CBDC transactions per day by December 2023. This will give us enough data points to study various design choices, use cases and also behavioural pattern.

(ii) Public Tech Platform for Frictionless Credit

In the last GFF in September 2022, I had mentioned about the commencement of pilots on end-to-end digitalisation of small ticket agricultural loans (known as Kisan Credit Card – KCC loans) in a few states and our effort to develop a platform to provide frictionless credit for all segments of loans.

The pilot on KCC digitalisation was launched in September 2022 in select districts of Madhya Pradesh and Tamil Nadu. The pilot enabled successful disbursal of agricultural loans up to ₹1.6 lakh (not requiring any collateral) per borrower, within a few minutes to farmers by integrating with the digitised state land records database, Credit Information Companies (CICs), satellite data, Aadhaar e-KYC, *etc.* Farmers can apply for new KCC loans as well as KCC loan renewal, directly from their location or from anywhere on smartphones/tablets directly or through assisted mode. The KCC pilot has been subsequently extended to select districts of Uttar Pradesh, Karnataka and Maharashtra. A total of seven banks are now part of Digital KCC Pilot. The pilot has also been extended to dairy farmers in Gujarat. The eligibility and scale of finance for such dairy loans is instantly decided based on milk pouring data available with the milk cooperatives.

We are now moving beyond digital KCC loans. Let me elaborate. Currently, data required for credit appraisal exists in separate systems of different entities like Central and State Governments, technology and FinTech companies, banks, service providers like Credit Information Companies, digital identity authorities, *etc.* Accessing customer data available with multiple data sources is a challenge for banks as it would require multiple integrations with each information provider. It is a challenge for the borrower also. To enable frictionless credit, in August 2023 RBI announced the launch of a digital Public Tech Platform, conceptualised and developed in association with the RBIH. The platform enables seamless flow of digital information from all the above sources to lenders, obviating the need for multiple integrations.

The Pilot project on the Platform was launched on August 17, 2023. To begin with, the platform will focus on products like MSME loans (without collateral), personal loans and home loans. Based on the

learnings, the scope and coverage would be expanded to include more products, information providers and lenders during the pilot.

E. Customer Centricity, Governance and Self-regulation

I would now like to touch upon certain key issues which are critical for the FinTech ecosystem to be stable and future ready. In this context, three critical issues, *viz.*, customer centricity, governance, and self-regulation merit attention. In the dynamic and ever-evolving world of business, it is easy to get caught up in the pursuit of revenue, bottom lines and the relentless drive for valuations. Sometimes, it is forgotten that the success of any enterprise is intricately tied to the satisfaction and trust of its customers. This is the first critical issue I wish to highlight. We must remember what Steve Jobs once said, "*you have got to start with the customer experience and work backward to the technology*"[16].

To focus on customers means embracing a customer-centric approach to innovation by understanding the needs of customers, making provisions that protect customer interests and earn their trust. This calls for developing an organisational culture in which continuous feedback mechanisms are embedded in the business strategy. Designing solutions that safely and efficiently meet customer needs would not only elicit trust of customers, it would also meet business objectives in a sustainable manner. This can be achieved through simplified user interfaces and quick customer grievance redress mechanisms. Avoiding customer harassment is essential to achieving long-term customer trust.

In this context, I would like to further add that digital innovations, at times, have also led to cyber-risk and data security related issues. Illustratively, mushrooming of illegal loan apps, many of which had their origin in foreign jurisdictions, have led to serious concerns about breach of data privacy, unethical business conduct, levying of exorbitant interest rates, and harsh recovery practices. This highlights the urgent need to ensure that innovations are accompanied by prudential safeguards and responsible conduct. It is also imperative that regulated entities operate within the perimeter set by the licensing conditions and only undertake activities which are permitted under the regulations.

The second critical aspect is the important role of governance in FinTechs. By providing clear governance structures, FinTechs can demonstrate their commitment to transparency, accountability and responsible decision-making. In fact, effective governance in FinTechs require a collaborative effort involving regulators, industry associations and the FinTech community itself. Regulators play a critical role in addressing arbitrage, ensuring compliance with existing laws, and adapting regulations to technological advancements. Industry associations can facilitate development of best practices. The most critical role, however, has to be played by FinTechs themselves. They must proactively adopt high standards of governance. A robust governance structure encompasses clear delineation of roles and responsibilities, transparent decision-making processes, accountability mechanisms, and stakeholder engagement. Good governance must focus on ensuring effective oversight, ethical conduct and risk management. Ultimately, it is good governance which would be key to durable and long term success of FinTechs.

The third critical issue I would like to highlight is the need to establish an effective self-regulatory structure by the FinTech players themselves. They need to evolve industry best practices, privacy and data protection norms in sync with the laws of the land, set standards to avoid mis-selling, promote ethical business practices, transparency of pricing,

[16] Worldwide Developers Conference, 1997 (Steve Jobs).

etc. I would like to use this opportunity to urge and encourage the FinTechs to establish a Self-Regulatory Organisation (SRO) themselves.

Conclusion

Technological innovation has unprecedented potential to make finance more inclusive, competitive and robust. It is crucial that technological advancements in the world of FinTech evolve in a responsible manner and are truly beneficial to the people at large. It is, therefore, vital for these innovations to be scalable and interoperable. FinTech players should themselves ensure responsible digital innovations. The Reserve Bank, on its part, will continue to drive the necessary regulatory and other policy measures to promote a vibrant and responsive FinTech ecosystem.

The Indian economy is growing rapidly and with it, the demand for financial services. The coming years hold immense promise and innovators across the world should explore these opportunities. I firmly believe that the GFF will emerge as a key global platform to unlock the full potential of India's FinTech ecosystem.

My best wishes to you all for the success of this Global Fintech Festival.

*Art of Monetary Policy Making: The Indian Context**

Shaktikanta Das

I am delighted to be here with all of you to celebrate the Diamond Jubilee Year of the Delhi School of Economics (DSE). The Delhi School has made a distinct mark as an institution of excellence and very high reputation, both in India and abroad. The list of eminent economists and distinguished alumni associated with the DSE is long and impressive. The School has inspired generations of students to excel in diverse streams such as academia, research, government and corporate sectors. In the Reserve Bank of India, we have also benefitted immensely from the DSE, with a continuous stream of students joining the RBI. It is a matter of pride for me to be part of this momentous year in the history of the institute which has contributed immensely to the policy discourse in India.

Today, I have chosen to speak on "Art of Monetary Policy Making: The Indian Context". As you would be aware, India formally adopted the flexible inflation targeting (FIT) framework in 2016, in broad alignment with global trends. The underlying principle of this framework is that a clearly articulated, legislatively mandated numerical inflation target is the best foundation for overall macroeconomic stability. Low and stable inflation helps households and businesses in planning for long-term savings and investments which ultimately drive innovation, productivity and sustainable growth. On the contrary, high and volatile inflation corrodes the economy by denting productivity and the long-term growth potential. Inflation also imposes disproportionate burden on the poor.

I have structured my talk in the following sequence: (i) evolution of monetary policy in India, culminating in the adoption of flexible inflation targeting (FIT) framework; (ii) key elements of this framework, including the forecasting process; (iii) conduct of monetary policy under the FIT regime; and (iv) monetary policy challenges at the current juncture.

Evolution of Monetary Policy Since Independence

During the 1950s and 1960s, as the country embarked upon planned economic development, monetary policy assumed a developmental role of meeting the credit needs of the economy as identified under the five-year plans. Bank nationalisation in 1969 ushered in the era of social banking and led to the credit planning phase (1969-85). This period witnessed widespread use of non-market instruments such as directed credit, administered interest rates and moral suasion.

Monetary policy during the 1970s and 1980s was constrained by fiscal dominance, automatic monetisation of budget deficits and excessive growth of monetary aggregates. The large scale deficit financing and the resultant high monetary and credit expansion led to inflationary pressures which were further exacerbated by a series of shocks, namely, the Indo-Pak war of 1971, the drought of 1973, the collapse of the Bretton Woods system in 1973, and global oil price shocks of 1973 and 1979. These events precipitated the adoption of "monetary targeting with feedback" as a formal monetary policy framework in 1985. Money supply (M3) became the intermediate target with the objective of controlling inflation. This approach to monetary policy was recommended by a Committee led by Prof. Sukhamoy Chakravarty, a distinguished faculty of Delhi School of Economics.[1] In this framework, the Reserve Bank aimed at controlling

* Speech by Shri Shaktikanta Das, Governor, Reserve Bank of India - September 5, 2023 - Delhi School of Economics (DSE) Diamond Jubilee Distinguished Lecture.

[1] Report of the Committee to Review the Working of the Monetary System (Chairman: Dr. Sukhamoy Chakravarty, 1985).

the growth in money supply commensurate with the expected real GDP growth and a tolerable level of inflation. The cash reserve ratio (CRR) was used as the primary instrument for monetary control, with both CRR and statutory liquidity ratio (SLR) reaching their peak levels by 1990 due to continued fiscal dominance.

The deteriorating external balance position in the backdrop of adverse geo-political developments and domestic macroeconomic imbalances in the 1980s, and the resultant balance of payments crisis in 1991, triggered large scale structural reforms, deregulation of the economy, financial sector liberalisation and a shift towards market determined exchange rate. In the wake of trade and financial sector reforms and the consequent rise in foreign capital flows and financial innovations, the efficacy of broad money as an intermediate target came under scrutiny around mid-1990s.[2] At the same time, there was a notable shift towards market-based financing for both the government and the private sector. In this environment, a multiple indicator (MI) approach was adopted in April 1998 as the new framework of monetary policy. Under this approach, a host of indicators constituted the information set used for monetary policy formulation.[3] The restrictions on primary financing (1997),[4] enactment of the Fiscal Responsibility and Budget Management (FRBM) Act in 2003, and the consequent introduction of fiscal discipline provided enhanced flexibility to monetary policy. Increased market orientation of the domestic economy and deregulation of interest rates introduced since the early 1990s also enabled a shift from direct to indirect instruments of monetary policy.[5] The multiple indicator approach remained in vogue from 1998-99 till a few years after the outbreak of the global financial crisis (GFC) in 2008-09.[6]

Introduction of Flexible Inflation Targeting (FIT) in India

During the years following the global financial crisis (GFC) in 2008, India witnessed stubbornly high inflation with retail inflation in double digits and growth losing momentum. India's macroeconomic fundamentals appeared fragile with widening twin deficits in both fiscal and current accounts and depleting forex reserves. The global ripples created by the 'taper talk' in May/June 2013 exposed the macroeconomic vulnerabilities and India was identified as one among the "fragile five"[7]. These events called for an evaluation of the multiple indicator approach. Accordingly, an Expert Committee was set up in the Reserve Bank to revise and strengthen the monetary policy framework.[8] The Committee recommended a shift to Flexible Inflation Targeting framework, which was formally institutionalised with the amendment of the Reserve Bank of India Act (1934) in May 2016. Incidentally, I was Secretary, Economic Affairs in the Ministry of Finance at that time dealing with the adoption of inflation targeting. The amended Act gives a clear mandate to the Reserve Bank to maintain price stability, keeping in mind the objective of growth. Price stability has been numerically defined

2 Working Group on Money Supply: Analytics and Methodology of Compilation" (Chairman: Dr. Y.V. Reddy, 1998).

3 These indicators included credit, output, inflation, trade, capital flows, exchange rate, returns in different markets and fiscal performance, besides monetary aggregates.

4 Primary financing through automatic monetisation of *ad hoc* treasury bills was done away with in 1997. Subsequent to the enactment of the FRBM Act, 2003, the Reserve Bank was finally barred from subscribing to the primary issuances of the government from April 1, 2006.

5 With a view to stabilise short-term interest rates, the Reserve Bank used changes in CRR, standing facilities and OMOs to affect the quantum of liquidity, while changes in policy rates, such as the Bank Rate and repo / reverse repo rates under the liquidity adjustment facility (LAF) were the instruments for changing its price. CRR and SLR are examples of direct instruments, while LAF operations and OMOs are indirect instruments.

6 Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework, (Chairman: Dr Urjit R. Patel, 2014).

7 Global Emerging Market Investor, Morgan Stanley Research, August 5, 2013.

8 https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/ECOMRF210114_F.pdf

as maintaining a headline CPI inflation target of 4.0 per cent with a tolerance band of +/- 2 per cent.[9] The tolerance band provides flexibility to accommodate growth and financial stability concerns, supply shocks, and measurement and forecast errors. The target is set by the Government of India in consultation with the Reserve Bank for a period of 5 years.[10]

Another major change with the amendment of the Act in 2016 was the shift from a Governor-centric monetary policy decision making process to a collegial decision-making body in the form of the Monetary Policy Committee (MPC).[11] The MPC is entrusted with the responsibility of deciding the policy repo rate with the objective of achieving the inflation target, keeping in mind the objective of growth. I am happy to recall that Prof. Pami Dua[12] was an esteemed member of the first MPC and the Reserve Bank benefitted immensely from her distinguished academic rigour and practical insights. I have personal experience of the same. The decisions of the MPC are taken by a majority of votes among the members present. In the event of a tie, the Governor has a second or casting vote.[13] After the conclusion of every MPC meeting, the RBI publishes the resolution adopted by the MPC. In addition, Governor's statement and press briefings are the other modes of policy communication. The minutes of the individual members of the MPC are published on the 14th day after the meeting. The RBI is required to publish a Monetary Policy Report (MPR) once in every six months, which provides a more detailed review of domestic and global macroeconomic conditions. These provisions add to transparency of the whole process.

Forward Looking Monetary Policy and Importance of Forecasting

As monetary policy works with long and variable lags, the forecasts of key macroeconomic variables play a vital role in the conduct of monetary policy. It is for this reason that inflation targeting framework is also termed as "inflation forecast targeting" framework.[14] To take a real-life analogy, the conduct of monetary policy is like driving a car on a road with potential ditches and speedbumps. The driver needs to see them ahead and in time to regulate the speed of his car and to negotiate the ditch or speedbump smoothly. If the driver reacts suddenly to a speedbump, he runs the risk of losing control and causing an accident. Therefore, a successful conduct of monetary policy depends critically on credible forecasts of key variables like inflation and growth. In other words, monetary policy has to be forward-looking. Rear view mirror can lead to policy errors.

The forecasting process followed at the Reserve Bank has three broad components, *viz.* nowcasting, short-term forecasting and medium-term forecasting.[15] The first component of nowcasting uses high-frequency coincident indicators for the current month or quarter that are available ahead of the official data releases on inflation and growth. This is augmented with informed judgement based on extensive discussions with subject area experts, forward-looking surveys and market intelligence. The second component comprises short-term forecasts for up to one-year. These are generated from semi-structural models that employ time-series and econometric methods, using

9 The justification of the target and band is premised on the following. Empirical investigation suggested that inflation above 6.0 per cent is inimical to growth. Moreover, the output gap was found to be close to zero during the period Q3:2003-04 to Q1:2006-07 during which average CPI inflation was at around 4 per cent. These estimates provided empirical support to a range of 4 to 6 per cent for the inflation target.

10 The current target of 4 per cent *plus/minus* 2 per cent is applicable till March 2026.

11 The MPC in India consists of three internal members and three external experts. External members are appointed by the Central Government for a fixed term of four years. Currently, the MPC meets six times in a financial year, *i.e.*, every two months; the schedule of these meetings is announced in advance for the entire financial year.

12 At Present, Director, Delhi School of Economics. She was MPC member from September 2016 to September 2020.

13 There has been no need for a casting vote so far.

14 Lars E.O. Svensson (1997): Inflation forecast targeting: Implementing and monitoring inflation targets, *European Economic Review*, Vol 41(6), pp 1111-1146.

aggregate and disaggregated data and information from forward looking surveys and lead indicators. The third component involves generating medium-term forecasts and alternate scenarios using the quarterly projection model (QPM).[16] This framework has been widely accepted and adopted by modern central banks operating under FIT regime. Its main purpose is to generate medium-term projections and policy analysis, consistent with achieving the inflation target or mandate set under the FIT framework. Each of these three components has different forecasting horizons and hence different approaches. These forecasts become the backbone of monetary policy making.

Conduct of Monetary Policy under FIT Framework

Let me now turn to the practical side of implementation of the FIT framework and highlight how we used the flexibility embedded in our monetary policy framework to judiciously calibrate our actions. In view of tepid growth outlook for 2019-20, the MPC moved into a rate easing cycle from February 2019 to stimulate economic activity. During February – October 2019, the policy repo rate was reduced by 135 bps from 6.50 per cent to 5.15 per cent. Also, the stance of policy was changed from neutral to accommodative in June 2019. Effective October 1, 2019, the external benchmark-based lending rate (EBLR) system[17] was introduced which quickened the pace of policy transmission to lending rates.

When the COVID-19 pandemic hit India, the MPC responded swiftly by reducing the policy repo rate sizeably by 115 bps in a span of two months (March-May 2020). In parallel, the Reserve Bank infused large amount of liquidity through both conventional and unconventional measures to stimulate the economy, restore confidence and revive market activity, while ensuring that these measures did not engender future fragilities.[18] Overall, liquidity enhancing measures worth ₹17.2 trillion or 8.7 per cent of GDP were announced during the COVID-19 period. All these measures were taken in view of the large output losses although pandemic-induced supply disruption and demand mismatches pushed inflation levels higher than 4 per cent. The flexibility embedded in FIT enabled the MPC to take these measures to safeguard the economy and the financial sector from the debilitating impact of the pandemic.

In October 2020, the Reserve Bank noted that a stable and orderly evolution of the yield curve was a public good, the benefit of which accrues to all stakeholders in the financial system[19]. Since monetary policy transmission through the regular interest rate channel was impeded because of inadequate credit demand during the pandemic, the Reserve Bank activated the asset price channel

[15] Nowcasting is the forecasting of the present or the very recent past to arrive at likely estimates for the current period and in some cases even the previous period for which actual numbers are not available at the time of decision making. Short-term forecast has a time horizon up to one year, while medium-term forecast looks further ahead with one to two-year horizon and beyond.

[16] QPM is a forward looking, open economy, calibrated, gap model broadly following a theoretical framework founded on New Keynesian principles. For a discussion on the QPM in the Indian context, see John, J, D. Kumar, A. T. George, P. Mitra, M. Kapur and M. D.Patra (2023), "A Recalibrated Quarterly Projection Model (QPM 2.0) for India", *Reserve Bank of India Bulletin*, February, Volume LXXVII(2), pp.59-77

[17] Under the EBLR, scheduled commercial banks (excluding regional rural banks and small finance banks) are required to link all new floating rate personal or retail loans and floating rate loans to micro small and medium enterprises (MSMEs) to an external benchmark, *viz.*, the policy repo rate or 3-month T-bill rate or 6-month T-bill rate or any other benchmark market interest rate.

[18] We undertook measures to augment systemic liquidity through long term repo operations (LTRO) and sector specific liquidity through targeted long term repo operations (TLTRO) and refinance facilities. We undertook asset purchases through the G-SAP programme and operation twist to modulate long term G-sec yields, which, in turn, lowered rates on all instruments that are priced off the G-sec yield curve.

[19] In a market economy, prices of financial instruments like commercial paper and corporate bonds as well as a part of bank loans are priced off government bond yields/Treasury Bills. Thus, any undue volatility in the government bond yields will lead to volatility in yields/interest rates of these financial instruments; moreover, their spreads over government bond yields of similar maturity can widen due to uncertainty. This can hamper credit and financial flows to the private sector. Hence, stability in the government bond yields has wider benefits and acts like a public good, helping the broader real economy.

through large-scale purchases of government paper through open market operations (OMOs) and the secondary market government securities acquisition programme (G-SAP)[20]. Large purchases of government paper softened G-Sec yields which, in turn, facilitated the lowering of yields, *i.e.*, interest rates, on all instruments priced off the yield curve.

The pandemic-induced liquidity measures were unique in several ways: (i) liquidity was provided only through the Reserve Bank's counterparties for on-lending to stressed entities/sectors; in that sense, most of it was targeted and not open ended; (ii) asset purchase programme (G-SAP) was for a limited period of six months and much smaller in size than advanced economies, and was confined to government securities in the secondary market; (iii) collateral standards were not diluted in lending facilities;[21] (iv) loan resolution frameworks for COVID-19 related stressed assets of banks and NBFCs were not open ended but subject to achievement of certain financial and operational parameters; and (v) most of the liquidity injection measures had pre-announced sunset clauses, which helped in an orderly unwinding of liquidity on their respective terminal dates without de-anchoring market expectations.

Global Upsurge in Inflation and Monetary Tightening Cycle

In early 2022, inflation in India was expected to moderate significantly with a projected average rate of 4.5 per cent for 2022-23. This was premised upon an anticipated normalisation of supply chains, the gradual ebbing of COVID-19 infections and a normal monsoon. Such expectations were, however, belied by the outbreak of hostilities in Ukraine in February 2022. Initially, the shocks came from food and fuel prices, which were mainly global in origin, but local factors from adverse weather events also played an important role in stoking food inflation. The shocks to inflation got increasingly generalised over the ensuing months. Under these circumstances, the MPC quickly changed gears by prioritising inflation ahead of growth in April 2022 and changed its stance from accommodative to withdrawal of accommodation in June 2022.

In an off-cycle meeting in May 2022, the MPC raised the policy rate by 40 bps. This was followed by rate hikes of varying sizes, in each of the five subsequent meetings till February 2023. In all, the policy repo rate was raised by 250 bps cumulatively between May 2022 and February 2023. The quantum of rate hikes was calibrated keeping in view the changing inflation outlook. We have maintained a pause in the April, June and August 2023 meetings of the MPC as the 250 bps hike is still working through. Headline inflation had eased to 4.8 per cent in June 2023 from the peak of 7.8 per cent in April 2022. It, however, surged to 7.4 per cent in July, mainly on account of a spurt in vegetable prices which have already started moderating.

As I noted in my monetary policy statement on August 10, 2023, given the likely short-term nature of the vegetable price shocks, monetary policy can await the dissipation of the first-round effects of such shocks which may produce short-lived spikes in headline inflation. We remain on guard to ensure that second order effects in the form of generalisation and persistence are not allowed to take hold. The frequent incidences of recurring food price shocks pose a risk to anchoring of inflation expectations, which has been underway since September 2022. We will remain watchful of this also. The role of continued and timely supply side interventions, as being undertaken by the government, assumes criticality in limiting the

[20] With a view to improving monetary policy transmission and enabling a stable and orderly evolution of the yield curve, the Reserve Bank implemented a secondary market G-sec acquisition programme (G-SAP) in April-September 2021 to anchor yield expectations in the context of the large borrowing programme of the Government. The Reserve Bank purchased G-secs amounting to ₹1.2 lakh crore under G-SAP 1.0 and ₹1.0 lakh crore under G-SAP 2.0.

[21] Unlike in many advanced economies, the collateral standards on the liquidity facilities of the RBI were not diluted but was confined to central and state government securities only.

severity and duration of such food price shocks. In these circumstances, it is necessary to be watchful of any risk to price stability and act timely and appropriately. We remain firmly focused on aligning inflation to the target of 4.0 per cent.

Policy Issues and Challenges

The current episode of high global inflation and the preceding overlapping shocks of the pandemic and the Russia-Ukraine war have raised significant issues and challenges for the conduct of monetary policy. First, the FIT framework and the target of 4 per cent was put to test, given the multiple challenges faced by the economy due to the pandemic. So when the inflation target was to be reviewed in early 2021 and notified for the next 5 years, the Reserve Bank reiterated and recommended for retention of the 4 per cent target[22]. It was stressed that the target and the flexibility built around it had helped us to support the economy when required and shift gears and re-prioritise inflation over growth if inflation became high and breached the upper tolerance level of 6 per cent. In fact, this is precisely what happened when there was a sudden surge in inflationary pressures following the war in Ukraine. The pursuit of FIT demonstrated our commitment to price stability and enhanced the credibility of monetary policy.

Second, the level of liquidity in the system plays an important role in determining the actual overnight call money rate or the weighted average call money rate (WACR) which is the operating target of monetary policy. The MPC decides the policy repo rate and the stance of monetary policy. Thereafter, it is the Reserve Bank's responsibility to conduct its liquidity management operations in consonance with the decision of the MPC. During the pandemic, while the MPC reduced the policy rate by 115 bps within a span of two months, the Reserve Bank infused significant quantum of liquidity, driving the overnight call money rates closer to reverse repo rate. This was done to stimulate the economy, restore confidence and revive market activity in consonance with the accommodative stance of monetary policy. As the MPC's focus shifted to 'withdrawal of accommodation' in June 2022 in the wake of surge in inflation, the RBI's liquidity management operations focused even more on gradual and calibrated withdrawal of surplus liquidity in a non-disruptive manner.[23] The objective was to reduce the size of the liquidity surplus in the system to a level consistent with the prevailing stance of monetary policy. Overall, liquidity management by the Reserve Bank has been nimble-footed and agile while responding to evolving circumstances.

Third, our experience in recent years shows that supply shocks have become more frequent with profound implications for inflation management and anchoring of inflation expectations. A key risk of sustained high inflation is that it can de-anchor inflation expectations. It is, therefore, important to remain vigilant and take necessary steps in a calibrated and timely manner to keep expectations firmly anchored. The Reserve Bank has been quick and calibrated while navigating through such turbulences. We look through fleeting shocks but remain prepared to undertake policy responses if such shocks show signs of persistence and getting generalised. In such a scenario, monetary policy has to focus on containing the second round effects.

Fourth, price stability and financial stability are complementary to each other. In fact, price stability is an anchor for financial stability – but sometimes, the trade-off between the two becomes a close call as demonstrated in the recent banking sector turmoil in

[22] "Reviewing the Monetary Policy Framework", *Report on Currency and Finance* 2020-21, Reserve Bank of India.

[23] Liquidity rebalancing was already underway during 2021 through recommencement of variable rate reverse repo (VRRR) main operations from January 15, 2021. Surplus liquidity was also migrated from the short end to longer tenor through VRRR operations of varying amount and tenor. Stepped-up liquidity withdrawal started with the increase in CRR by 50 bps from 4 per cent to 4.5 per cent, effective May 21, 2022.

some advanced economies. After a near zero policy rate for a prolonged period, central banks in these economies started raising interest rates aggressively in 2022 which contributed to stress in certain banks in these economies. In contrast, our battle against inflation is not constrained by financial stability concerns. In fact, even during the COVID phase, we continuously took measures to strengthen financial stability. The Reserve Bank has adopted a prudent approach and taken a number of initiatives to revamp regulation and supervision of Banks, NBFCs and other financial entities by developing an integrated and harmonised architecture. Our banking system remains resilient and healthy with improved capital ratios, asset quality and profitability.[24]

Fifth, central bank communication plays a vital role in on-ground efficacy of monetary policy. A few decades ago, central banks believed that they should be "shrouded in mystery", "say as little as possible" and "say cryptically".[25] Former Chairman of the Federal Reserve Mr. Alan Greenspan had famously remarked "*if I seem unduly clear to you, you must have misunderstood what I said*".[26] Those times are gone. Now, managing expectations through effective communication is a vital instrument in the monetary policy toolkit. In the case of Reserve Bank, effective forward guidance during the easing cycle reinforced the impact of our conventional and non-conventional measures during the pandemic. At the height of the pandemic during 2020 and 2021, the MPC prioritised growth over inflation. In fact, when inflation was above the upper tolerance level of 6 per cent in July-August 2020, we provided both state- and time-based forward guidance of continuing with the accommodative stance of monetary policy, as output remained well below its pre-pandemic level. Besides, our forecast also showed that inflation was likely to soften gradually.[27] In the second half of 2020-21, inflation eased in line with our assessment. In the tightening phase, which commenced in April-May 2022, the scale and nature of communication has been appropriately fine-tuned and calibrated to ensure successful transmission of policy rate hikes. The focus has been on anchoring of inflation expectations by emphasising our firm commitment to re-align inflation with the target. Overall, central bank communication has to be balanced – too much of it may confuse the market while too little may keep it guessing. We tread a very fine line and constantly endeavour to refine our communication strategies.

Conclusion

Monetary policy framework in India has evolved in line with the developments in theory and country practices, the changing nature of the economy and developments in financial markets. Within the broad objectives, the relative emphasis on inflation, growth and financial stability has, however, varied across monetary policy regimes since independence.

Our experience during the inflation targeting regime provides some useful lessons for the conduct of monetary policy. First, being proactive and nimble footed during a crisis gives one the ability to respond speedily to fast paced and overwhelming developments. Second, policy measures should be prudent, targeted and calibrated to the need of the hour without being tied down by any existing dogma or orthodoxy. Third, monetary policy actions – when needed – should be backed up by appropriate regulatory and supervisory measures, including macro-prudential instruments, to reinforce the policy impact and its credibility. Fourth, guidance and confidence need to be provided to the market and the wider public through effective communication,

[24] See *Financial Stability Report*, Reserve Bank of India, June 2023.

[25] Blinder, A. S., M. Ehrmann, M. Fratzscher, J. de Haan, and D. J Jansen. (2008). "Central Bank Communication and Monetary Policy: A Survey of Theory and Evidence." *Journal of Economic Literature 46*, pp 910–45.

[26] Speaking to a Subcommittee of the US Congress, November-December 1987.

[27] See MPC Resolution and Governor's statement of October 9, 2020.

as part of the endeavour to anchor expectations and sentiments appropriately. All these principles were firmly embedded in our actions during the multiple shocks in the recent period.

Alan Blinder, who wore both hats of being an academician and a practitioner, once said, "*Having looked at monetary policy from both sides now, I can testify that central banking in practice is as much art as science*".[28] As students of economics at the prestigious Delhi School of Economics, I am sure you are well-versed with the science of monetary policy as a macro-stabilisation tool. I took this opportunity to throw some light on the art of monetary policy making from a practitioner's perspective, especially in a dynamic and uncertain environment as witnessed in recent years. As we continue our journey ahead, we remain clear in our focus, flexible in our approach and determined in our efforts to strengthen India's macroeconomic fundamentals and support its growth story.

Thank You. Namaskar.

[28] Blinder, Alan S. 1997. "Distinguished Lecture on Economics in Government: What Central Bankers Could Learn from Academics--And Vice Versa." *Journal of Economic Perspectives*, *11* (2): 3-19.

*Keynote Address at the G20 TechSprint Finale**

Shaktikanta Das

It gives me immense pleasure to be present here on the occasion of the G20 TechSprint 2023 Grand Finale - an event that represents the spirit of innovation, collaboration and transformation. TechSprint is yet another initiative which reinforces our commitment to harness technology and foster innovations that can transform the financial landscape of the entire world. As we gather here, in the presence of remarkable minds and visionary leaders, we stand on the vortex of possibility and progress, where innovation is not just a concept, but a catalyst for change.

The G20 TechSprint is a global long-form hackathon series that the BIS Innovation Hub co-hosts annually with the G20 Presidency. The objective of these hackathons is to identify new technologies which can address the challenges and priorities of central banks. It provides a unique opportunity for public-private partnerships as well as regulator-innovator partnerships. These partnerships have great potential to contribute positively towards improving the efficiency and effectiveness of the financial services ecosystem.

TechSprint 2023 resonates profoundly with India's commitment to innovation. With its robust start-up ecosystem, vibrant talent pool, and unwavering commitment to digital transformation, India is now focusing on the way technology can be harnessed to bridge gaps, empower individuals and promote financial inclusion. The past few years have seen a rapid expansion of digital technologies in India having transformative impact on our financial system. Today, more and more people have access to financial services, regardless of their location or social status, owing to the robust digital public infrastructure like Aadhar, affordable internet and mobile phone services. Innovations are powering the spread of mobile banking, digital payments, and other customised digital product offerings.

A landmark example of our commitment to innovation is the Unified Payments Interface (UPI), which has been a game-changer for India's digital payments ecosystem. It has helped to drive financial inclusion by bringing millions of unbanked individuals into the formal financial system. With over 10 billion transactions a month, the UPI has become the backbone of digital payments in India and has helped to catalyse a wave of innovations in the fintech sector. Today, there are more than 70 mobile apps and more than 50 million merchants, who accept UPI payments.

From financial inclusion through digital payments to using Artificial Intelligence (AI) for credit assessments, India's journey exemplifies innovation with a human touch. At the Reserve Bank, we are committed to promoting responsible innovation. As part of this, we have taken a few strategic steps in the recent past. On the institutional front, we have set up a FinTech Department in the Reserve Bank with the objective of paying dedicated attention to the fast-evolving fintech sector. The mandate of this department is to promote innovation while managing the associated risks, if any. Similarly, we have set up the Reserve Bank Innovation Hub (RBIH) as a wholly owned subsidiary which is currently engaged in several innovative technology based projects touching people at the bottom of the pyramid. Once fully scaled, these projects are expected to have transformational impact on the financial services ecosystem, particularly in the lending space. The Reserve Bank has also put in place a Regulatory Sandbox framework wherein innovators get the opportunity to test their products in controlled environment. The experience from the four cohorts,

* Keynote Address by Shri Shaktikanta Das, Governor, RBI at the G20 TechSprint Finale organised by Reserve Bank of India and Bank for International Settlements (BIS). Mumbai, September 4, 2023.

under this sandbox so far, has been encouraging. In fact, some of the products that successfully exited the sandbox environment have seen actual deployment. Further, with a view to generate ideas for a specific problem, we have started conducting long-form hackathons known as HARBINGER. After successful completion of the first HaRBInger in 2021, the second hackathon is currently in progress.

More recently, we have launched a pilot project on a Public Tech Platform for Frictionless Credit. This platform was developed in association with the Reserve Bank Innovation Hub. As you would be aware, the data required for credit appraisal are available with different entities, and they are in separate systems, and these create frictions in timely delivery of loans to the needy. Through this public end-to-end digital platform, we are enabling lenders to use the information available in multiple places for credit assessment and offer various lending products in a frictionless and speedy manner. This platform would obviate the need for multiple bilateral integrations of lenders with information providers. This end-to-end digital platform is expected to bring in greater efficiency to the entire process of delivery of credit in terms of reduction of costs, improving Turnaround Time, greater scalability, and further expanding the reach of financial services.

Under India's G20 presidency, this fourth edition of G20 TechSprint was launched on May 4, 2023 with the theme 'Technology solutions for cross-border payments'. The issue of cross-border payments is a G20 priority area. Notwithstanding the progress made so far, the key challenges to existing cross-border payments continue to be high cost, low speed, limited access and insufficient transparency. Faster, cheaper, more transparent, and more inclusive cross-border payment services would deliver widespread benefits to people and economies worldwide. It would also support economic growth, international trade and financial inclusion.

Let me now move on to another technology innovation, namely, Central Bank Digital Currency (CBDC). Several central banks across the world are considering introduction of CBDCs and are taking steps in this direction. India is one of the few countries which have launched CBDC pilots in both wholesale and retail segments. Slowly and steadily, we are expanding the pilot to more banks, more cities, more people and more use cases. The empirical data that we are generating would go a long way in shaping the policies and future course of action. With its instant settlement feature, I believe, CBDCs can play an important role in making cross-border payments cheaper, faster and more secure.

The problem statements identified for this G20 TechSprint 2023 have been carefully chosen. These pertain to (i) reducing illicit finance risk; (ii) forex and technology solutions for currency settlement; and (iii) technology solutions for multilateral cross border CBDC platforms. Let me highlight some important aspects of these problem statements.

The first problem statement focuses on AML/CFT (Anti-Money Laundering / Countering the Financing of Terrorism) technology solutions that can be integrated into multilateral platforms to reduce the risks of illicit finance, while increasing efficiency of the screening processes for AML/CFT/Sanctions. Estimates from the United Nations Office on Drugs and Crime (UNODC) place global money laundering at 2-5 per cent of global GDP, which is about US$ 800 billion to US$ 2 trillion. Other estimates place this closer to US$ 3 trillion, of which, an estimated 3 billion per annum is successfully intercepted. A very small percentage indeed of 0.1 per cent. It is extremely challenging to achieve full AML/CFT compliance as enforcement is difficult, slow and, at times, only partial. Therefore, it is important to come up with innovative solutions to deal with this major risk to the international financial system.

The second problem statement seeks to encourage the participants to come up with technology solutions

in forex and liquidity to enable settlement in more number of emerging market and developing economy (EMDE) currencies. The use of local currencies in cross-border payments can help to shield the EMDEs from global shocks, protect against exchange rate fluctuations and encourage the development of local forex and capital markets. Multilateral payment platforms that support multiple currencies would offer a way to promote such local-currency payments. As things stand today, FX and liquidity risks associated with EMDE currencies can make the operation of multilateral platforms with EMDE currencies more challenging. It is in this backdrop that effective liquidity mechanisms need to be developed.

The third problem statement which was intentionally kept broad, calls for technology solutions for multilateral cross-border CBDC platforms. It invited solutions and technologies for multilateral cross-border CBDC platforms which can contribute to interoperability across multi-CBDC platforms or domestic payment systems; reduce operational cost; and increase efficiency, while ensuring consistency in standards across multiple jurisdictions. I strongly believe, cross-border payments can be made more efficient through adoption of CBDCs and this is an area which should receive close attention. As all of us are starting on a clean slate on the CBDC front. The adoption of right technology platform, which is inter-operable, would be a great benefit to the future of cross-border payments ecosystem.

I am happy to share that this G20 TechSprint 2023 has witnessed encouraging participation from around the world with 93 proposals submitted across the three problem statements. In collaboration with the BIS, 21 proposals in total (7 each for the three problem statements) were shortlisted. These proposals have the potential to bring transformation in the cross-border payments ecosystem in line with the G20 priority. They have the power to provide solutions to maintain the integrity of the financial system, empower the underserved, reduce frictions in cross-border payments and amplify the resilience of financial systems. These proposals were evaluated by an eminent jury and three best submissions (one for each problem statement) have been chosen as winners. My congratulations to the winning teams. I would also like to thank all the participants for their efforts and encourage them to continue their innovative endeavours. I extend my gratitude to every participant, mentor, judge, and partner who have contributed to the success of this edition of the G20 TechSprint. I also acknowledge the active contribution of the BIS Innovation Hub in this entire journey. Together, we have demonstrated the power of collaboration and the promise of innovation.

Let me now conclude by stating that innovation is at the heart of progress. In an increasingly complex and interconnected world, our economies, markets, and regulatory frameworks must evolve in tandem. The Grand Finale of the G20 TechSprint is not just a celebration of technological advancement; it is a testimony to our commitment to innovation as a driver of prosperity, resilience, and inclusion. In our pursuit of innovation, we must also recognise that technology is often accompanied by risks relating to market integrity, conduct, data privacy, security and ethics. Innovation must, therefore, be accompanied by a commitment to responsible innovation—a pledge to balance progress with accountability; disruption with safeguards; and growth with ethics.

This TechSprint has showcased that innovation is not confined to the walls of laboratories or the realm of academia. It resides in the aspirations of people and nations. As we get closer to the G20 Summit on 9th and 10th September, let us renew our commitment to realise the G20 theme of 'One Future'. We must embrace the spirit of global co-operation to make the benefits of technological advancements and innovations available to all.

Thank you and wish everyone all the best.

*Building Blocks for a Sustainable Future: Some Reflections**

Shaktikanta Das

I am deeply honoured for the invitation to deliver this lecture in the memory of Shri Lalit Doshi, an eminent civil servant, whose sudden demise at an early age nearly three decades back was a great loss to many, including the state of Maharashtra. Shri Doshi is fondly remembered as unassuming, sober, hardworking and extremely competent by his colleagues and contemporaries. In his distinguished public service career spanning more than 27 years, he held several key positions both in the state and central governments. As Secretary Industries, Government of Maharashtra during 1992-94, till his sad demise in January 1994, he played a pivotal role in formulating the New Industrial Policy for the State. I can personally relate to Shri Lalit Doshi and the challenges he would have faced as Secretary Industries, as I served as Industries' Secretary, Government of Tamil Nadu on two occasions (2001 and 2006) and as Joint Secretary Industries in 1991-1993.

The 1990s held out great promise for the industrial sector in India, following the delicencing of industries and initiation of economic reforms. In tandem, the Indian rupee was devalued to improve the competitiveness of the Indian economy. New opportunities for investment opened up, as domestic and foreign investors looked at expanding their footprints. The Bombay Club[1] took some time to adjust to the new reality, but adjusted very well over a period of time. In this *milieu*, there was growing competition among states to attract investments on the basis of their fundamentals, supporting infrastructure, quality and availability of skilled manpower and other relevant factors.

Recognising Shri Lalit Doshi's contributions to the development and well-being of the state and the country at large, I have chosen "Building Blocks for a Sustainable Future" as the theme of my address today. Sustainable future would mean sustaining and strengthening the growth momentum of the economy without creating inflationary pressures and other macroeconomic imbalances, while remaining inclusive and climate sensitive. I would like to begin by dwelling upon the role of a central bank in economic development and highlighting the current macroeconomic context and then touch upon certain supporting pillars for a sustainable future.

Central Banks and Economic Development

A strong and dynamic central bank acts as a critical building block for a country's progress. The story of central banking goes back at least to the 17th century, when the first institution recognised as a central bank, the Swedish Riksbank, was formed in 1668. This was followed by the Bank of England in 1694.[2] While Bagehot's principles of lender of last resort (LOLR) to commercial banks, war financing of governments, maintaining banking stability amidst recurrent bank failures have served as the basis for their origin, central banks were later entrusted with the tasks of banknote issuance and management of internal and external value of currency. Their role has continuously evolved over the decades, reflecting the changing political and economic landscape and now they play a critical role in macroeconomic and financial stability in modern economies.[3] The

* Speech by Shri Shaktikanta Das, Governor, Reserve Bank of India - Delivered at the 29th Lalit Doshi Memorial Lecture on August 23, 2023 at the Y. B. Chavan Centre, Mumbai.

1 The Bombay Club refers to a group of Indian businessmen who got together after the 1991 structural reforms for protection from foreign competition and argued for a level playing field *vis-à-vis* the foreigners. (Business Standard, 2013).

2 Michael D. Bordo (2007), "A Brief History of Central Banks", Federal Reserve Bank of Cleveland, December.

3 "The Evolution of Central Banking in India", *Report on Currency and Finance* 2004-05, Reserve Bank of India.

price stability objective and the conduct of monetary policy gradually gained importance in an environment of high and volatile inflation globally. During the 1990s and the early 2000s, a number of central banks started focusing narrowly on the price stability objective, with the responsibility of banking and financial sector regulation shifting to separate regulatory bodies outside the central bank. The 2008 global financial crisis (GFC) led to a rethink on this separation principle and central banks are now more actively entrusted with financial stability in addition to the price stability objective. More recently, during the COVID-19 pandemic, central banks resorted to both conventional and unconventional policies as during the GFC, to safeguard their respective economies.

The framework of central banking in India, and in particular of monetary policy, has evolved around the objectives specified under the Reserve Bank of India Act, 1934[4]. Consistent with this, the Reserve Bank's macroeconomic and monetary policy has focussed on maintaining price stability, ensuring adequate flow of credit to sustain the growth momentum, and securing financial stability. The financial stability objective is enabled by the powers vested with the Reserve Bank for regulation and supervision of the Indian financial system and its various segments, including the money, debt and foreign exchange segments and the payment and settlement system. These are augmented by critical functions like maintenance of foreign exchange reserves, issuance of bank notes and currency management, agency functions such as management of public debt, acting as banker to Government (Centre and States) and banker to the banking system. The Reserve Bank also has powers to act as the lender of last resort whenever necessary. As a full-service central bank, it also promotes financial inclusion. In all these areas, we have continuously strengthened our capabilities over the decades in tune with the transition of the Indian economy from a state-dominated system in the 1950s, 1960s and 1970s to a growing market economy from the 1990s onwards.

The process of liberalisation and globalisation of the Indian economy initiated since 1991 added several new dimensions to the responsibilities of the Reserve Bank. Along with financial sector reforms, the monetary policy framework has been fine-tuned over the years, leading to the flexible inflation targeting framework in 2016. Over the last three years, we have utilised the flexibility in the monetary policy framework to calibrate our actions to counter the adverse effects of COVID-19 and the war in Ukraine. During the COVID-19 pandemic, our monetary policy committee (MPC) reacted swiftly by reducing the policy repo rate by 115 bps cumulatively in a span of two months (March-May 2020). Along with the rate cut, we infused significant quantum of liquidity through both conventional and unconventional measures to stimulate the economy, restore confidence and revive market activity, while ensuring that our liquidity augmenting measures did not engender future fragilities.[5]

Recognising the need for strengthening financial stability, the Reserve Bank has taken a number of initiatives to revamp regulation and supervision of Banks, NBFCs and other financial entities by developing an integrated and harmonized architecture. The supervisory approach is now geared to effectively address the root cause of vulnerabilities

[4] "*to regulate the issue of Bank notes and keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage*". As amended in 2016 vide section 45Z, the objective of monetary policy was specified as under: "*It is essential to have a modern monetary policy framework to meet the challenge of an increasingly complex economy; the primary objective of the monetary policy is to maintain price stability while keeping in mind the objective of growth; and the monetary policy framework in India shall be operated by the Reserve Bank of India*".

[5] Overall, liquidity enhancing measures worth ₹17.2 trillion or 8.7% of GDP were announced during February 2020 to March 2022.

and identifying any build-up of potential systemic risks. We engage regularly with all regulated entities to identify incipient signs of stress and deal with them at an early stage. We have been focusing on constantly improving governance and the functions of compliance, risk management and audit in banks and other financial entities.

The Reserve Bank is leveraging data analytics and carrying out periodic off-site analysis to provide sharper analytical inputs to its on-site supervisory teams. An Early Warning Framework has been developed. A new SupTech initiative, with the name "*दक्ष - DAKSH*", has been launched. A College of Supervisors (CoS) has been set up to upgrade supervisory skills of the regulatory and supervisory staff. Recently, we launched a Centralised Information Management System or CIMS, which is our next generation data warehouse. Digital Payment Security Control Guidelines have been issued to address the risks in digital payment products. Guidelines for digital lending – an emerging area – have also been issued. In fact, it will not be off the mark to say that almost the entire regulatory and supervisory architecture of the financial sector has been restructured in the last 4 to 5 years.

While pursuing these reforms, the Reserve Bank has also made conscious efforts to improve systemic resilience and efficiency by maintaining external stability and building forex reserves. The development of vibrant financial markets has also been a key priority. These reforms, among other things, seek to remove market segmentation, facilitate greater access including non-residents, widen the participation base, promote innovation, and ensure customer protection. Measures have also been taken to put in place state-of-the-art market infrastructure, pilot launch of central bank digital currency (CBDC) and internationalisation of the rupee. The COVID crisis was converted into an opportunity by harnessing the best benefits of digitalisation.

Thanks to these and several other initiatives by the RBI and the banks and other financial entities, India's financial sector remains resilient and healthy. There is, however, no room for complacency. New challenges and stress points keep coming up and all stake holders have to be cognizant of emerging developments and associated risks.

Indian Economy – The Current Setting

As a backdrop to the building blocks for future growth, let me turn briefly to the current macroeconomic scenario, starting with the global environment. The global landscape is witnessing major structural changes. The process of globalisation has slowed down and is drifting from multilateralism towards bilateralism and geo-economic fragmentation. Friend-shoring and reshoring have become more pronounced. Global supply chains have been under pressure, which along with rising global commodity prices contributed to multi-decadal high inflation in 2022. The resultant aggressive monetary tightening has dampened the global growth outlook. Tight financial conditions and volatile capital flows are accentuating the impact of global slowdown on the prospects of emerging and developing economies. Headline inflation is now easing unevenly across countries but remains above the target in major economies. The pace of monetary tightening has been scaled down, but policy rates could stay higher for longer in several countries. Even as the grim prospects of hard landing have receded, global growth is likely to remain low by historical standards in the medium-term. With increasing climate change risks, the development of climate-friendly technology, new and renewable sources of energy and sustainable agricultural practices would shape our future. The pace of progress in these fronts need to be hastened.

Amidst such volatile world environment, India stands out as the emerging growth engine for the world. India's real gross domestic product (GDP) recorded a growth of 7.2 per cent in 2022-23, surpassing

its pre-pandemic level by 10.1 per cent. Overall, the conditions are favourable for the growth momentum to continue and the capex cycle to gain momentum in 2023-24. Opportunities are now promising and can be utilised to propel our economy to a higher growth trajectory.

The challenge of high inflation, however, still persists and has to be effectively addressed. After reaching a low of 4.3 per cent in May 2023, headline inflation has risen to 7.4 per cent in July driven by the surge in tomato and other vegetable prices. The July print which was released after the MPC meeting was on the higher side compared to our estimates. Prices of vegetables surged by 37.3 per cent (year-on-year), led by an increase of 201.5 per cent in tomato prices. Reflecting these drivers, food group inflation more than doubled from 4.7 per cent in June to 10.6 per cent in July. On the positive side, inflation excluding food and fuel (core inflation) has softened by around 130 bps from its recent peak in January 2023. Although it is still elevated at 4.9 per cent, this steady easing of core inflation over the last five months is indicative of the ongoing transmission of monetary policy.

Looking ahead, the spike in vegetable prices in July is starting to see a correction, led by tomato prices. New arrivals of tomatoes in *mandis* are already softening prices, coupled with proactive supply management in the case of onions. We expect to see an appreciable slowdown in vegetable inflation from September. Meanwhile, the prospects for *kharif* crops have improved, thanks to the progress of the monsoon in July, although the cumulative rainfall has again moved into the deficit territory.[6] The outlook for cereal prices has accordingly brightened, supported by active supply side interventions. Sudden weather events, *El Niño* conditions and renewed geopolitical tensions, however, impart uncertainty to the food prices outlook. As I noted in my monetary policy statement on August 10, 2023, given the likely short-term nature of the vegetable price shocks, monetary policy can await the dissipation of the first-round effects of such shocks that may produce short-lived spikes in headline inflation. We will remain on guard to ensure that second order effects in the form of generalisation and persistence are not allowed to take hold. The frequent incidences of recurring food price shocks pose a risk to anchoring of inflation expectations, which has been underway since September 2022. We will remain watchful of this also. The role of continued and timely supply side interventions assumes criticality in limiting the severity and duration of such shocks. In these circumstances, it is necessary to be watchful of any risk to price stability and act appropriately and in time. We remain firmly focused on aligning inflation to the target of 4.0 per cent.

Building Blocks for a Sustainable Future

Having provided a snapshot of the current context, I would now like to turn to the certain thrust areas that can propel India forward over the next 25 years. The potential is huge for India to raise its growth trajectory and improve the general well-being of the people. In this context, I would like to focus on six key areas that can provide the required growth momentum. They are (i) agriculture; (ii) manufacturing; (iii) services; (iv) demography; (v) technology; and (vi) start-ups. In all these areas, we already have certain comparative advantages which should continue to be exploited to push our growth frontier further. Let me now touch upon these areas one by one.

(i) Agriculture

Despite having only 2.4 per cent of the world's land area, India is among the top five agri-producers globally[7]. Indian agriculture epitomises enormous diversity with wide ranging agro-ecological areas. India is not only self-sufficient in food production

[6] The cumulative south-west rainfall 7 per cent below normal as on August 21, 2023.

[7] Pathak H, Mishra JP and Mohapatra T. (2022). Indian Agriculture after Independence. I*ndian Council of Agricultural Research (ICAR)*, New Delhi.

but is also net exporter of foodgrains. Nevertheless, the agriculture sector in India faces challenges of productivity gaps, shifting preferences and sudden weather events. All these require heavy investments in infrastructure and innovation to modernise the sector and realise its true potential in terms of achieving higher productivity, providing more efficient access to markets and maximising farmers' income. As a nation we must find a way of carrying out the much needed agricultural reforms, especially in the area of agricultural marketing and the connected value chains. These reforms are critical not only for sustained high growth but also for farmers' income, durable price stability and to mitigate the frequency and intensity of food price shocks that we have seen in the recent months. Policies towards setting up and improving cold chains and storage facilities, mega food parks and food processing units are steps in the right direction to reduce wastage and improve value addition in the agriculture sector.

(ii) Manufacturing

The manufacturing sector plays an important role in economic growth due to its specific characteristics like economies of scale, backward and forward linkages and integration to global supply chain. Manufacturing is also one of the largest consumers of services, making the two sectors complementary to growth. Contrary to the conventional growth paradigm in which an economy transitions from agriculture to manufacturing and then to services, India has directly leapfrogged from an agrarian to a service-led economy. As a result, the share of the manufacturing sector in gross value added (GVA) has remained stagnant at around 18-19 per cent.

In the changing landscape of the manufacturing sector,[8] India has the potential to capitalise on emerging areas such as aerospace and defence, low-carbon technologies, electric vehicles and semiconductors. India has initiated reforms to build manufacturing prowess in emerging areas, including electric vehicles and advancements in lithium recycling capabilities. In this regard, ongoing mining reforms to sustainably exploit available mineral resources in the country need to be fast tracked. Overall, it is vital to adopt a holistic approach to improve infrastructure, technological adoption, training and skilling of the workforce, and digital advancements.

(iii) Services

India's emergence as one of the fastest growing economies in recent decades is largely attributed to the rapid growth of its services sector. The contribution of services to gross domestic product (GDP) has been more than 60 per cent since 2014-15. India emerged as the 7th largest services exporter globally in 2022, up from 21st position in 2001. India has played a leading role in establishing global service networks and has become a global hub for information technology (IT) and business process outsourcing (BPO) services. Newer opportunities have been harnessed to improve India's participation and competitiveness in global value chains (GVCs).

Service industries like tourism, education, telecommunications, utilities and health care can generate significant employment opportunities. Activities like road transport and construction services have the highest backward and forward linkages along with high employment intensity. These services have received a boost after the introduction of GST.

India's business services exports are growing rapidly, owing to its status as the preferred destination to set up Global Capability Centres (GCCs) by multinationals.[9] The development and provision of services such as internet infrastructure, cloud

[8] Recent Government policy measures like the "Make in India" campaign, the Production-Linked Incentive Scheme, reduction in corporate taxes, improvement in Ease of Doing Business, reforms in FDI policy, measures to boost domestic manufacturing through public procurement orders, and phased manufacturing programme (PMP) are timely and are making an impactful contribution to the manufacturing sector.

[9] GCCs provide IT support, accounting services, legal services, business consultancy, operations, capacity development and research.

computing, and data analytics are vital in supporting the digital transformation and growth of various industries. India is well-positioned to leverage these opportunities and cater to more skill-intensive and increasingly digitalised services.

(iv) Demography

India accounts for around 67 per cent of the global working-age population,[10] and is expected to add another 183 million people to the working age over the next three decades. The median age for India is expected to be a little over 30 by 2030.[11] Given this demographic advantage, India would be a significant source of human capital amidst anticipated shortage of labour supply globally, and also a thriving market capable of adapting to evolving demands for goods and services. This can lead to an improved growth differential in favour of India and increase India's relative size in the global economy. The evolving demographic profile is also expected to lead to a substantial increase in the quantum as well as quality of remittances. Over the years, there has been a gradual structural shift in Indian migrants' key destinations from largely low-skilled and informal employment in the gulf countries to a dominant share of high-skilled jobs in high-income countries. Inward remittances have scaled record peaks to reach US$ 112.5 billion in 2022-23 and accounted for around 3 per cent of GDP. Going forward, labour market transformations driven by technological breakthroughs, energy transition and geo-economics are going to be significant forces to offer cross-border benefits to India from its migrant population.

Improving the labour force participation rate, especially of women, is critical to realise our full potential.[12] There is a need to invest in education, skill development, and healthcare to capitalise on our demographic advantage. Continued and greater focus on innovation and social sector infrastructure could increase labour productivity, India's potential growth and per capita income.

(v) Technology

With the world on the cusp of a technological revolution, the time is opportune for India to establish itself as a digital-economic powerhouse. Technological advancements have not only enabled virtual education, remote work, and contactless sales during the pandemic years, but also aided efficient public delivery and acted as a positive shock to overall productivity growth.[13]

It is important for Indian businesses to take the lead in rapidly adopting frontier technologies like artificial intelligence (AI), Internet of Things (IoT) and Big Data. Combined with the presence of a young and skilled workforce, a dynamic and nimble ecosystem and strong public digital infrastructure, this can set in motion a virtuous cycle of growth for Indian businesses. This decade has been described as India's 'Digital Decade', with the country poised to reach a US$ 1 trillion consumer internet economy by 2030.[14]

At the Reserve Bank, we strive to constantly improve and offer all users safe, secure, fast, convenient, accessible, and affordable e-payment options. The Reserve Bank has been at the forefront to facilitate safe and inclusive growth in the digital financial sector.[15] The UPI has been recognised as the fastest growing retail payment system in the world and many countries have expressed interest

[10] Organisation for Economic Cooperation and Development (OECD)

[11] In contrast, developed economies are experiencing rapid aging, with estimates suggesting that 25-30 per cent of their population will be above 60 years by 2047 (McKinsey-FICCI Report). By 2030, the median age for China and the US is expected to be around 40 (World Economic Forum).

[12] India@100, *RBI Bulletin*, June 2023.

[13] This phenomenon was observed in the Indian manufacturing sector, where installation of industrial robots increased by 54 per cent in 2021.

[14] A Report by Google, Temasek and Bain & Company titled 'e-Conomy India 2023: The economy of a billion connected Indians', June 2023.

[15] Measures include Account Aggregator guidelines in 2016, regulations for Peer-to-Peer (P2P) lending in 2017, the launch of the Regulatory Sandbox framework to encourage responsible innovation in 2019, the establishment of the RBI Innovation Hub in 2021 and the pilot of the central bank digital currency (e-₹) in 2022.

in having a UPI-like platform. Together with the National Payments Corporation of India (NPCI), the Reserve Bank's initiatives in linking UPI with the fast payment systems in Singapore, Bhutan, Nepal, the UAE and several other countries demonstrate the huge potential of UPI in the years to come. The availability of RTGS on a 24*7*365 basis has helped in reducing the settlement and credit risks in the payments ecosystem. This feature was introduced in the middle of the COVID-19 pandemic.

(vi) Innovation and Start-ups

Innovation is a key driver of long-term economic growth. The recent breakthrough in Artificial Intelligence (AI), not by a BigTech company but by a start-up, *i.e.,* OpenAI, speaks volumes about the power of start-ups in ushering in technology driven economic prosperity.[16] The start-up investment outlook in India remains positive. It is encouraging that many start-ups are focused on small and medium businesses, financial inclusion, access to affordable healthcare, better education and higher earnings as their core value proposition[17].

The time is now ripe for targeted development of start-ups in high-tech domains such as quantum computing, small modular reactors (SMR), AI-based defence equipment, biotechnology, rare earths extraction, battery technology, oceanography and space exploration. The start-up ecosystem that encompasses these sectors needs to be promoted to hasten the progress of the country.

Concluding Observations

Let me now conclude by saying that as India's growth narrative changes from caution and watchfulness to optimism and exuberance, it is now India's time to make a mark in the emerging global economic landscape. A recent media article aptly captures India's potential in an article titled: "*The global economy needs a new powerhouse. India is stepping up*".[18] The need of the hour is to make concerted efforts in the areas outlined in my speech today and also a few other areas to lay the foundations of this new powerhouse - India - which is destined to grow in size, confidence and inclusiveness.

Thank you. Namaskar.

[16] Today, India has the third largest startup ecosystem in the world (https://pib.gov.in/PressReleasePage.aspx?PRID=1913106) and is home to more than 99,000 recognised startups (https://www.startupindia.gov.in/ accessed on July 22, 2023). India's tech startups raised US$ 18.2 billion in CY2022 (India Tech Start-up Landscape Report 2022, NASSCOM and Zinnov), and India added 23 unicorns to its tally this year, the second highest only after the US.

[17] India Tech Start-up Landscape Report 2022, NASSCOM and Zinnov.

[18] https://www.bloomberg.com/news/features/2023-01-23/india-s-1-4-billion-population-could-become-world-economy-s-new-growth-engine#xj4y7vzkg

*Credit Intermediation – Can Regulations Tango with Markets ?**

M. Rajeshwar Rao

Distinguished Guests, Professors, and my dear students,

I am delighted to be here and share a few thoughts at this seminar.

The theme of the seminar very aptly ties in the two key objectives of banking regulation – enhancing resilience of institutions and maintaining systemic stability. In my address today, I would like to dwell, in detail, about an aspect that has a critical bearing on the soundness of the banking system - effective and de-risked credit intermediation. While credit intermediation in some ways describes and defines the role of the banking system in an economy, it also acts, at the same time, as the key channel for effective monetary transmission and greater financialisation of the economy. However, if not regulated appropriately, this channel can lead to the undoing of institutions and become a source of broader financial instability. Therefore, the bank regulation and soundness of financial intermediaries are necessary conditions to facilitate orderly credit growth. This, therefore, brings up a few issues and challenges in designing prudentially sound boundaries for the same. In this context I thought I could share some perspectives on the need for having robust credit markets and the way forward.

I. Financialisation - What Do We Mean and How it is Relevant?

Let me start with the scope for financialisation of the economy. Whenever we refer to financialisation, in popular parlance, it is understood to mean the expanding role of financial markets, financial actors, and financial institutions in the operation of the economy. Since independence, our economy has grown substantially, reaching the status of the world's fifth largest economy, while we set up ourselves on course to become the third largest economy in the world. This growth trajectory has been enabled and supported by a multitude of factors including greater entrepreneurial spirit, policy reforms, structural economic changes and development of institutional structures.

Effective financialisation has been a key enabler in this journey. This has been facilitated by the growth of financial institutions in terms of institutional outreach, last mile presence and availability of banking services over multiple channels. Expanded bank presence across the country, growth of non-bank financial intermediation and the concomitant efforts of the authorities to further financial inclusion and democratise credit have aided the process. The concepts of door-step banking and banking correspondents (BCs) have revolutionised the idea of financial inclusion *per se* and facilitated overall deepening of financialisation in India. More recently, the evolution of fintech entities and their interplay with the formal financial system has been instrumental in transforming the way financial products and services are delivered to masses. However, the changes have also brought forth several challenges in using the existing and conventional approaches for regulating these activities, which is an issue that we need to address as regulators.

II. Credit growth – Its role in Financialisation & Need for Orderliness

The word 'credit' has its genesis in Latin word *credere* which means 'to entrust'. The financial usage of the term 'credit' also borrows the same idea of trust whereby money is given to an individual or entity

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* Keynote Address by Shri M. Rajeshwar Rao, Deputy Governor – delivered on September 04, 2023 at the Inaugural Seminar on Banking Regulation, Intermediary Soundness, and System Stability at IIM Kozhikode. The valuable inputs provided by Saurabh Pratap Singh, Peshimam Khabeer Ahmed, Pradeep Kumar and Vaibhav Chaturvedi are gratefully acknowledged.

on the trust with the expectation of getting it back with some reward in the form of interest. Of course, for the financial entity this trust rests on both sides of the balance sheet. The financial institutions, for example banks, are able to raise funds from public as the latter trust the institutions to repay their deposits. At the same time, when such financial entities lend funds to their customers, they must be able to have a similar degree of trust on the repayment capability, willingness and abilities of their borrowers. Hence, money-flow in the system is based on mutual faith. The idea of financialisation and its success is built on this edifice of trust.

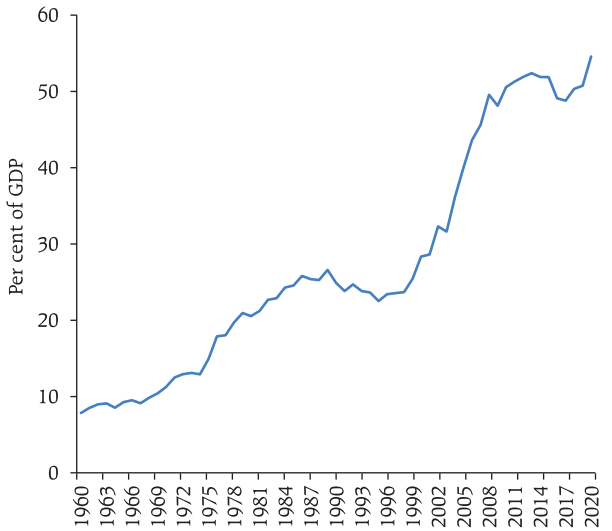
There have been several studies which establish that credit plays an important role in financialisation. Empirically too, it is observed that the growth of GDP in India and credit flow to commercial sector by banks are positively correlated with each other. Over time, the growth in credit flow has also outpaced the growth of the economy, contributing increasingly to facilitate availability of capital to the productive sector of the economy. To give some perspective on this growth, suffice it to say that the credit-to-GDP ratio which was ranging around 7-8 per cent in 1960s has increased significantly to around 55 per cent by the beginning of this decade.

While acknowledging the impact of financialisation, let me also focus a bit on how the changing components of the credit markets have larger implications for financialisation in India. The traditional form of credit involving loans extended by financial institutions have dominated the credit markets in India, but of late there has been an upswing in other forms of credit instruments. The market linked instruments such as corporate bonds, debentures, and commercial papers, in particular, have manifested an upward trend.

Data indicate that, while banks still account for a large proportion of credit flow to commercial sector, other sources of borrowings such as from non-banks, or through corporate bonds and foreign borrowings also show a rising trend.

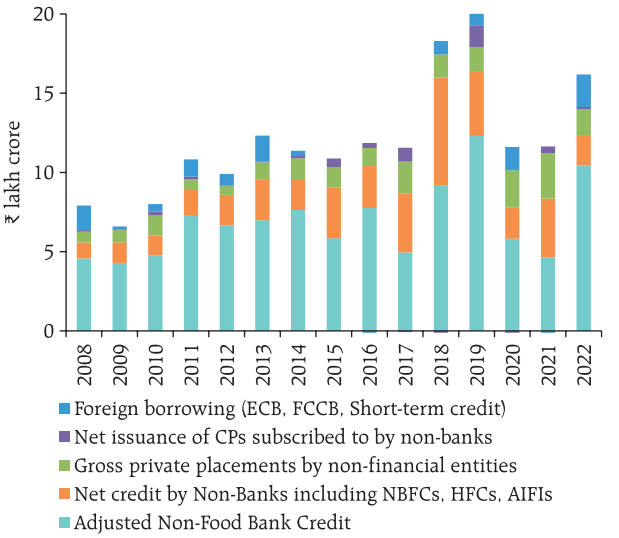
In a way, these developments are not purely organic; in fact, there have been some regulatory nudges for deepening the financial sector and

Domestic Credit to Private Sector by Banks



Source: World Bank Data.

Credit Flow to Commercial Sector



Source: Handbook of Statistics on Indian Economy - 2022, RBI.

diversifying sources of credit. This begs the question that if credit growth led financialisation alone can drive economic growth, should we only focus on the credit growth as the driver of economic growth?

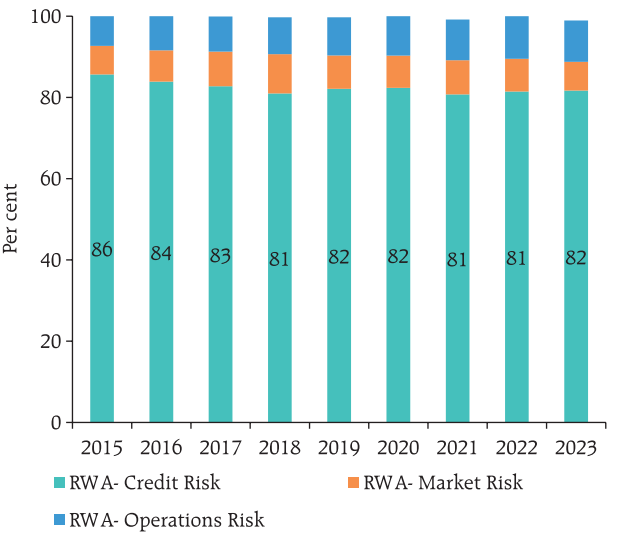
This is unlikely to be the case as there could be two major consequences of an excessive expansion of credit in an uncontrolled and unregulated manner – first of all, it may lead to build up of an excessive leverage in the real sector, and second, as often experienced, episodes of excessive credit growth may lead to dilution in underwriting standards by the lending institutions. A combination of these two factors may lead to systemic crisis and endanger financial and systemic stability. In addition, this also has a significant influence on the broader aspect of 'trust' in the financial system. We have learnt this the hard way during the global financial crisis of 2008 when unbridled credit expansion led to a banking sector crisis and later manifested into a systemic crisis.

Besides, if the process of unchecked credit growth leads to growth of money above the level of comfort of the Monetary Authorities, there would be concerns around controlling money supply and transmission of monetary policy impulses and may hinder achieving the broader objectives of price stability. Therefore, it's not just unqualified, unconditional 'credit growth' which is crucial for economic development, but 'orderly credit growth' which maintains and anchors financial stability in system and that in turn ensures sustainable growth over the long term.

Necessity for Regulation of Credit Market

Given the size of credit portfolios of financial institutions and the large share which credit risk plays on their balance sheets, it is imperative that any strategy to maintain financial resilience of the institution and financial system stability needs to consider 'credit risk' as its core element.

Composition of Risk-weighted assets (RWAs)



Source: Supervisory Returns, RBI.

If we delve a little deeper into the landscape of credit risk, it is apparent that there are three fundamental elements which need to be factored in, namely - 'trust', 'prudence', and 'contractual arrangements' which are also mutually inter-connected. Information asymmetry may result in vulnerabilities despite having due contractual arrangements in place which can potentially impede the process of credit intermediation. Regulatory frameworks and policies come into play here and our regulatory policies require well-thought-out frameworks relating to credit appraisal, due diligence, recovery and resolution, in order to overcome this trust deficit or compensate for it in some manner or the other. The policies seek to ensure that the risks associated with lending business are prudentially measured, managed, and provided for.

From the perspective of this thematic seminar, let me focus on the '*prudential*' aspect of credit risk management for which we have a principle-based regulatory approach. To describe our approach in an engaging manner, we can call it a 5M framework for risk management which focuses on the following

five elements – **m**easuring, **m**onitoring, **m**anaging, **m**itigating, and **m**igrating. The elements of this framework are not mutually exclusive and interact with and relate to and reinforce each other.

To elaborate:

- **Measurement:** Peter Drucker, the famous management expert once said that *"if you cannot measure it, you cannot manage it"*. I believe this to be a universal principle, and banking regulations around risk management also follows a similar approach. In order to measure the credit risk, all the regulators around the world, including the Reserve Bank, have prescribed detailed guidelines to enable a proper measurement of the risk.
- **Monitoring:** This aspect of credit risk management largely relies on the monitoring and oversight exercised by the financial institutions through their policies which have to be dovetailed with the prudential norms prescribed by the regulators. The concerned financial institutions are mandated to frame prudent policies on risk management, governance, compliance, *etc.* These norms are intended to overcome any inherent moral hazard in the system. There are usually three layers of internal checks prescribed for the institutions- first, underwriting and due diligence at the time of origination of loans, second, adherence with internal risk management and compliance practices, and third, internal audit. This is examined as part of supervisory oversight wherein apart from assessing the efforts of financial institutions on these parameters, supervisors also assess if the general or other provisions maintained by the bank truly reflect the inherent risk.
- **Management:** Factoring in the risk-and-reward payoff, the financial institutions may prefer to bear and manage some risk as part of its risk management practice. That would be essentially a business call. But in order to ensure that the regulated entities are well capitalised in proportion to the risk they are carrying, regulators across the world prescribe capital adequacy norms where minimum regulatory capital is provided by the banks based on certain principles. This then becomes the first level of risk management wherein the risk is absorbed internally, and adequate capital is provided for the same. Besides, pricing of credit also influences this risk return trade-off.
- **Mitigation:** If the risk taken by financial institution grows beyond its comfort zone ('risk appetite'), then they may have to manage it actively rather than merely absorbing it. This risk mitigation is enforced at two levels – first by the regulators – which is mostly prudential in nature like provisioning norms or exposure limits. Second at the institutional level, wherein the institutions themselves may prescribe exposure limits to manage concentration risks or put certain collateral constraints on borrowers or prescribe stringent covenant to manage the risks. In addition, financial institutions may also deploy permitted credit risk mitigants such as loan guarantees, collateralised transactions, on balance-sheet netting, *etc.* to mitigate credit risks.
- **Migration:** This involves taking the risk out of the bank's books. There could be several tools available for transfer or migration of credit risk, but I am going to touch upon two of them. First and probably the most popular way is to simply transfer the asset (loan) and associated risk to another entity. In this method, the financial institution

concerned may prefer to transfer a single loan or pool of loans to a willing eligible party through bilateral arrangement or otherwise. The economic risk gets transferred from the books of transferor to transferee. The second option is by way of securitisation. In this arrangement, the originator of loans select a pool of loans and transfers it to a special purpose vehicle (SPV) which securitises the loans and sells the securitisation notes to a diverse set of investors. This method diversifies the nature and concentration of credit risk in the system.

In case of most of the credit risk management tools, especially for credit risk transfer or migration, the role of markets is extremely important. If the lender concerned prefers to transfer its risk, it will invariably require a deep and vibrant market in which it can offload its exposure. Transferring the economic interests along with risks or securitising the assets through SPVs requires participation from a broad base of institutions on the other side of transaction. A deep market will not only facilitate this transaction smoothly, it will also assist in fair pricing of such assets. Therefore, developing market enabling frameworks to facilitate smooth migration of credit risk from one entity to another has been an area of focus of the Reserve Bank. Let me briefly touch upon some of these initiatives undertaken in this regard.

III. Recent initiatives and way forward:

While the methods of credit risk management described above will not be exhaustive, they broadly cover different themes of the risk management practices in India and the World. The Reserve Bank has been making concerted efforts to provide enabling frameworks for our regulated entities across these themes. The regulations around the management and mitigation of credit risk are already quite robust and have stood the test of time. However, as a part of our recent regulatory initiatives, we have been focussed on policy measures to improve the mechanics of migration or transfer of credit risk.

In September 2021, we came up with a revised set of guidelines for transfer of loan exposures and securitisation of standard assets. These frameworks were developed after a wide consultative process to incorporate market expectations and these policy measures are aligned with global standards to ensure that the credit risk is managed effectively in the system. As we also need to ensure that such important initiatives are flexible in their design, we have also established an internal mechanism to review these frameworks at regular intervals, to assimilate market feedback and comments from various participants.

Similarly, the guideline on credit default swap (CDS), have been comprehensively revised in 2022, to facilitate the development of market for CDS by expanding the participant base. Besides banks and foreign portfolio investors, the regulations permit selling of protection through CDSs by all major non-bank regulated entities.

It is pertinent to emphasise here that while our guidelines on transfer of loan and securitisation cover loans in general, CDS guidelines cover money market instruments and certain corporate bonds. This makes it a complementary tool of risk management for two different and important credit instruments- loans and corporate bonds.

Let me also share some perspectives on the possible way forward. The credit market of the future is likely be nimbler than what it is at this point in time. We would also need to have a dynamic secondary market for loan instruments, a wider base of participants and asset classes in the market, and a robust framework for risk assessment. Based on these enablers, it may be possible to ensure smooth interaction between the different players and provide financial entities avenues to de-risk their balance sheets.

Development of an active secondary loan market

An efficient market also reduces frictions in financial system. The growth of market in an orderly manner is necessary to address the twin challenges of ensuring smooth credit flow and robust risk management. To develop credit markets for trading of loans, the Reserve Bank facilitated the formation of a Secondary Loan Market Association (SLMA) in 2020. The SLMA platform, which became operational in 2022, has onboarded many major banks and is in process of onboarding other major players including NBFCs. The basic idea of this platform is to enable easy transfer of loan(s) at a fair price devised through market-based auction mechanism where quotes are obtained from all interested parties, rather than selling the loan through a bilateral arrangement. A deep and active secondary market, which is envisaged to be developed through SLMA, would be crucial to impart fairness and transparency to transfer of loans and credit risk among market participants.

Expanding the type of players in loan markets

Conventionally, the credit market in India has been tightly regulated, primarily driven by the need to ensure banking and financial stability. However, it has been acknowledged that permitting a diverse set of participants in the market may actually help it become more vibrant and efficient. Therefore, the Reserve Bank took the first step for liberalising the credit markets by allowing entities outside our regulatory purview, but regulated by other financial sector regulators, to acquire stressed loans under the transfer of loan exposure framework. Similarly, for standard assets, the securitisation framework permits diverse set of investors to subscribe to the securitisation notes of underlying loans. By having a wider set of participants, it is envisaged that credit markets will become more vibrant, effective, and transparent.

Permitting securitisation of currently restricted asset classes

The market for securitisation products is quickly catching up in India and is poised to grow manifold in years to come. Our framework on securitisation issued in 2021 carries a negative list restricting a few asset classes from being securitised. But this is not a fixed exclusion. We constantly monitor the growth and maturity of market and are ready to take a well-thought-through call if some restricted assets could be securitised in current environment.

Conclusion

To sum up, while credit is an important driver for the growth of economy from the financialisation perspective, we need a robust risk management framework to manage credit risk. The array of tools for credit risk management have evolved with prudential limits providing the regulatory backstops . To facilitate transfer of credit risks between entities in a fair and transparent manner several policy enablers have been put in place by the Reserve Bank with the objective of developing robust credit markets.

As you may have observed the discussion of 'risk' was at the core of my deliberation today. As a regulator, we do acknowledge that risk cannot be avoided. After all, risk-and-reward dynamics is the soul of entire edifice of finance! It may be appropriate to recall a few lines of a famous poem "Risk" by the poet William Arthur Ward-

…. To hope is to risk despair,
To try is to risk failure.
But risks must be taken because
the greatest hazard in life is to risk nothing…

So, some risks must be taken. However, it is in our collective interest that we know the risk we are taking, assess it adequately, and acquire the capabilities to manage it.

Thank you, everyone.

FinTech Innovation and Approach to Regulation *

T. Rabi Sankar

Mr. Gopalakrishnan, Mr. Padmanabhan, organisers of the Global Fintech Festival, delegates from both India and abroad, ladies and gentlemen. I am delighted to be present in the fourth edition of the Global FinTech Festival (GFF) a platform which provides space for a meaningful interaction and sharing of ideas amongst stakeholders of the FinTech ecosystem. The deliberations help all participants in identifying common objectives and also provide inputs for potential policy actions. The elements of the theme of this year's GFF *viz.*, inclusion, resilience, and sustainability, succinctly capture the attributes of the sort of fintech ecosystem that one would like to see in India.

The role of innovation in increasing the productive capacity of the economy is well understood. But where does innovation itself come from? Economists following the tradition of Joseph Schumpeter concluded that innovations are overwhelmingly the fruits of long-term investments that build on each other. Innovation rarely occurs in isolation. It is by its very nature deeply cumulative: innovation today is often the result of pre-existing ideas. Innovation is also collective, with long lead-times: what might appear as a radical discovery today is actually the fruit of years of hard work by different researchers[1]. In the Indian context, the theory certainly holds true. For example, UPI which clocks more than 340 million transactions a day, is the outcome of cumulative efforts and investments in institutions and technologies by the RBI and the government over the past decade and a half. India's fintech players and the traditional financial institutions have all seized the opportunities offered by these public-sector initiatives and created the thriving ecosystem that we see today.

To be sure, innovation in the finance space is not a recent phenomenon. Wire transfers or ATMs are also instances of technological innovation, as are modern stock exchanges with their anonymous order matching systems, or algorithmic trading. All these changes were gradual and enabled the financial system to adapt to the new technologies in a by and large a non-disruptive manner. What is different about the recent financial innovations is the speed and scope of such changes making them potentially much more disruptive. So much so that they merited the status of a separate industry and a new name 'Fintech'. It would be useful to remember that, apart from the difference in speed and scope, neither the older innovations nor the current fintech innovations change the basic nature and functions of the financial system.

The major transformation that characterises the FinTech ecosystem is the increased efficiency with which financial products and services are delivered and consumed. This efficiency is driven largely by (a) digitisation of information which can then be accessed, processed and transmitted with ease, (b) more direct interface between buyers and sellers, between borrowers and lenders and between payers and receivers, which optimises transaction chains, and (c) democratisation of fast communication channels that expands the reach of the financial system. Put together, these efficiencies lead to lower cost, quicker transactions and better inclusion. This is clearly a desirable outcome and one that should be actively encouraged and promoted, which is what the focus of policy making and regulation currently is. But innovative developments raise different issues, not undesirable in themselves, but which need to be addressed nonetheless. One issue is the relative roles

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* Keynote address delivered by Deputy Governor Shri T. Rabi Sankar at the Global Fintech Festival in Mumbai on September 5, 2023.

[1] Chapter 7: *Extracting Value Through the Innovation Economy in The Value of Everything* by Mariana Mazzucato (2018).

of traditional financial institutions, especially banks, *vis-à-vis* the fintech entities. Should their interaction be driven by motives of collaboration or competition? The second issue is what should be the approach of financial regulators. How is fintech ideally regulated, same as traditional finance or differently. I shall try and talk about these two issues briefly in what follows.

Collaborate or Compete

Traditional financial players (let us use the term 'banks' for simplicity) have come to acknowledge the impact of FinTechs on their functional roles and they are reacting in one of two ways. The first way is by internalising innovations, thereby placing themselves in competition with fintech entities. The second way is by collaborating with FinTechs – either by engaging in one-to-one partnerships or by purchasing the services of FinTech players. The latter kind of collaboration can be functional, in the sense that fintech entities can perform functions where they have the competitive advantage and banks focusing on areas of their expertise. While customers benefit from an improved experience with curated products and services at competitive prices, regulators also draw comfort in these arrangements as traditional financial entities like banks/ NBFCs which are well regulated and continue to discharge the primary responsibility of risk management through their balance-sheets.

Perhaps the sweet spot lies in fintechs acting as both competitors as well as collaborators. The existence of competition is necessary to create incentives for fintechs to invest in innovations as well as pushing traditional entities to stay on their toes. At the same time, collaboration is essential for innovations to be absorbed into the financial systems. Traditional players with their robust balance sheets, capital base and risk management practices can provide the strength and stability while Fintechs with their agility and innovative capabilities can deliver on customer experience, drive down costs and expand access. What should be the areas of collaboration and what should be the fields of competition will eventually be determined by market forces. But this is also an area that regulators need to focus on creating a regulatory framework that continues to spur innovation.

Regulatory Perspective of FinTech Innovation

The Reserve Bank is deeply engaged in this process of technological transformation of the financial system. Its role has largely been to create an enabling environment for innovation to thrive by creating mechanisms such as Regulatory Sandbox, Hackathons, creation of Fintech Department within the RBI and setting up of our own Reserve Bank Innovation Hub (RBIH). Recently, we announced the development of a Public Tech Platform for Frictionless Credit. The Platform is being developed by Reserve Bank Innovation Hub (RBIH), to enable delivery of frictionless credit by facilitating a seamless flow of required digital information to lenders from multiple sources of information. The platform will serve as a public good and exemplifies RBI's approach to fostering innovation. This is the developmental role that RBI plays.

At the same time, RBI also plays the role of regulating the evolving financial system to maintain financial stability. Rapid technology changes can outpace regulatory frameworks, and raise issues about market integrity, consumer protection, data privacy, and fair market practices. The agility of new age fintech firms can challenge traditional regulatory models, making it difficult to ensure compliance at all times and maintain stability. The reliance on digital platforms also amplifies vulnerabilities to cyber threats and data breaches. As FinTechs amass sensitive financial data, ensuring robust cybersecurity measures and maintaining data privacy becomes paramount to safeguarding consumer information and financial systems. The rush to roll out new products and services

could potentially undermine market integrity and compromise customer protection. Therefore, while fintech innovation holds immense promise, a balanced evolution, where innovation is responsible and inclusive, is essential for the sustained positive impact of Fintechs on financial services.

The regulations for P2P in 2017, the guidelines for Account Aggregator (AA) in 2016, are examples RBI's proactive developmental role. The focus of the Digital Lending Guidelines (DLG) on fair treatment of customers demonstrate the prioritisation of innovation with suitable guardrails. It is important to recognise that regulation plays a crucial role in managing the pace of change and allows the financial system to adapt to new innovations without threatening the stability of the system.

Self-Regulation

As regulators continue to contemplate, implement, and refine regulations for the orderly development of the FinTech sector, self-regulatory organisations (SROs) could play a pivotal role in the fintech industry by promoting responsible practices and maintaining ethical standards. These industry-led bodies establish guidelines and codes of conduct that foster transparency, fair competition, and consumer protection. SROs can facilitate collaboration between fintech firms, regulators, and stakeholders, creating a framework for innovation with guardrails. By proactively addressing issues like market integrity, conduct, data privacy, cybersecurity, and risk management, SROs help build trust among consumers, investors, and regulators. Their voluntary compliance mechanisms contribute to a more sustainable and reputable fintech ecosystem, ensuring growth while minimising potential risks and negative outcomes. In the context of a new and evolving sector like FinTech, it is the industry participants who possess the deepest understanding of the processes and practices within the trade. Therefore, they are best-suited to establish common rules, enforce them, and effectively handle disputes that may arise from non-compliance with these rules.

Conclusion

In conclusion, it is crucial for FinTechs to continue collaborating and innovating to enhance the effectiveness of the financial sector. Collaborating and competing with FinTechs is essential for traditional financial entities too, in order to adapt. While innovation is vital, it should also support social and economic goals. Regulation should play the role of guiding the sector to those goals. Self-regulation needs to play a far more active role too. Together, industry participants – fintech and banks alike-, regulators, and self-regulatory organisations can work harmoniously to shape a vibrant and resilient financial landscape that promotes inclusivity and progress for all.

Thank you for your attention and wish you all the best.

ARTICLES

*State of the Economy**

India's G20 Presidency and its outcomes with the ethos of Vasudhaiva Kutumbakam as the vision of global progress assume significance in an environment where global economic activity is experiencing a loss of momentum with a dichotomy in macroeconomic conditions across regions. Amidst weakening global prospects, the Indian economy is gaining strength led by domestic drivers – private consumption; and fixed investment with strong public sector capex. Supply responses are improving and headline inflation has softened in August from the previous month's peak.

Introduction

In September 2023, the earth's centre of gravity shifted to India as leaders of the most powerful nations, country groupings and international organisations converged to New Delhi. Under India's presidency of the G20, nations set aside centrifugal differences pulling them apart in a fragmenting world. Standing shoulder to shoulder, their leaders committed to global solutions to global challenges. Multilateralism got a shot in the arm as consensus was built around 12 commitments: sustainable development; debt vulnerabilities; climate resilience; health emergencies; financing for sustainable development goals; access to digital services and public infrastructure; the Paris Agreement; reform of multilateral development banks; gender equality; improving employment conditions; and ensuring that the voice of the global south is heard. The Delhi declaration became a historic movement in which no one gets left behind - the African Union took its permanent place at the G20 high table – in the endeavour to accelerate strong, sustainable, balanced and inclusive growth.[1] The G20 declaration marked in no less a manner India's ascent on the world stage, with the ethos of *Vasudhaiva Kutumbakam* as our vision of global progress. The world stood up and applauded India's transformation into a leader, its cultural and geographical diversity, and the meshing of its national priorities into global goals. The world also commended our philosophy of *Atithi Devo Bhava* – the tradition of revering guests like divinity, as set out in the *Upanishads."*

Under the G20's Finance track specifically, other major achievements include a way forward for regulating crypto assets; two pillar taxation solutions; scaling up sustainable finance for social sectors like health and education; and global conversations on transition policies. On climate change, the declaration notes the need for US$ 5.8 -5.9 trillion in the pre-2030 period for developing countries as well as US$ 4 trillion per year for clean energy technologies by 2030 to reach net zero by 2050.

Among several initiatives that were committed to on the sidelines, two initiatives stand out as momentous in shaping the world of tomorrow. First, an India-Middle East-Europe economic corridor was announced that will enhance connectivity and economic integration across continents. It will include railway projects, a reliable and cost-effective cross-border ship-to-rail transit network to supplement existing maritime and road transport routes, linking of energy grids, internet, and telecommunication lines through undersea cables. The project aims to develop commercial hubs, support existing trade

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[1] G20 New Delhi Leaders' Declaration, New Delhi, India, 9-10 September 2023

and manufacturing synergies, and strengthen food security and supply chains. It is a giant and historic step forward towards building sustainable, resilient and high quality infrastructure for a better future.

Second, the Global Biofuels Alliance (GBA) was launched with the goal of driving the development and deployment of these fuels across the world to sustain energy transition to a zero-emissions environment. The Global Biofuel Alliance (GBA), an initiative by India as the G20 President, intends to facilitate technology advancements for intensifying utilization of sustainable biofuels, with robust standard setting and certification through the participation of a wide spectrum of stakeholders. The alliance will also act as a central repository of knowledge and an expert hub. It will place emphasis on strengthening markets, facilitating global biofuels trade, development of concrete policy lesson-sharing and provision of technical support for national biofuels programs worldwide. It will also emphasize the already implemented best practices and success cases.

The G20 declaration could not have been more timely. High frequency indicators point to some loss of momentum in global economic activity in the third quarter of 2023 and divergent paths across geographies. The outlook is complicated by structural shifts in the global economy amidst unusual uncertainty.[2] The turn warranting immediate policy attention is inflation, which is still elevated. Central banks indicate, therefore, that it is too early to declare victory. Interest rates are expected to remain higher for longer before the world can adapt to a regime of low inflation and sustainable growth. Second, the global economy has to brace up to living with extreme shifts ranging from lockdowns to geopolitical conflicts. Labour markets are contending with labour participation slowly recovering from a reluctance or inability to return to work. There is also a persisting shortfall in private investment and new capacity creation, and this is also evident in a structural downturn in foreign direct investment. All this is coinciding with monetary policy seeking to squeeze aggregate demand to fight inflation. Third, fiscal policy is coming off its pandemic bulge but remains much too loose, with public debt levels highly elevated. Fiscal consolidation is simultaneously being challenged by demographic and climate changes. Fourth, the sources of global growth are shifting eastwards. Amidst this shift, the world must contend with the slowing down of China and the emergence of east Asia and India as the new growth centres of the world in the current decade itself. Fifth, the world is getting to be a smaller place as multilateralism gives way to fragmentation and as countries erect barriers to trade and investment and promote resilience over efficiency. In such an environment, global growth may slow secularly – "3 per cent is the speed limit"[3]; productivity will fall and improvements in living standards will become more sluggish. It has been pointed out that "there is no existing playbook for the situation we are facing today – and so our task is to create a new one."[4] It is in this context that India's G20 Presidency and its outcomes assume significance.

The looming concern is that global growth is likely to slow in 2024 after outperforming expectations in 2023 so far, which will act like a negative base

[2] Charles Giles "The five economic shifts happening now". https://www.ft.com/content/85c4bd8d-84a2-4008-b86a-946c14706b2e.

[3] Charles Giles "The five economic shifts happening now". https://www.ft.com/content/85c4bd8d-84a2-4008-b86a-946c14706b2e

[4] 'Policymaking in an age of shifts and breaks' Speech by Christine Lagarde at the annual Economic Policy Symposium "Structural Shifts in the Global Economy"

effect. This is premised on the belief that inflation could remain stubbornly above target and r-star or neutral interest rates higher, forcing central banks to maintain disinflationary stances well into 2024. The upheavals over the past three years may likely bring about persistent price pressures that will be unpredictable and harder to root out. Hence tighter financial conditions may continue to prevail. The global economy could slowly be approaching an inflection point beyond which things will change to local growth booms but production inefficiencies worldwide.[5] This has led to a view that there will be a recession; it is just getting pushed into 2024.[6]

Even as the debate intensifies about whether the recession will be big or small, and whether it will be faced sooner or later, international trade is showing signs of deep distress - the UNCTAD nowcasts world merchandise trade volume growth at just 0.37 per cent for the third quarter of 2023. The pandemic time surge is ebbing while expenditure switching from goods to less traded services is in evidence, and confidence in China as a locomotive of global trade is shaken. The outlook for trade is downcast due to the gloomy outlook for global demand, as pointed out in the preceding paragraph. Moreover, it faces a more hostile environment than before as countries re-shore and friend-shore supply chains and the world becomes less open. According to the World Trade Organization, the growth of global trade is likely to fall below GDP growth from 2023.[7]

Global financial markets are caught up in this churn. A surge in bond yields has shaken stock markets worldwide by undermining support for riskier assets like stocks and their valuations. Although some lost ground has been clawed back, the outlook for stocks remains fragile. Real yields, *i.e.*, adjusted for inflation, also provide a gauge of the borrowing costs in an economy, have risen to their highest levels since 2009. In knock-on effects, borrowings in the corporate bond market and refinancing of existing debt, are getting costlier. Already new issuances have fallen off drastically. It is in this context that the Financial Stability Board has issued warnings of further challenges and shocks facing the global financial system in the months and years to come[8], warranting full implementation of global capital standards by banks and tighter regulation of non-bank financial institutions. In fact, hedge funds have been cited as a potential source of market instability due to elevated levels of synthetic and hidden leverage that can amplify liquidity risks. This has prompted calls for higher requirements for haircuts and margins on derivatives and securities financing transactions as well as measures for brokers' risk management and stronger liquidity buffers.[9]

A new risk to global financial stability stems from the commodity markets as crude prices ruling above US $ 90 per barrel challenge 10-month highs due to Saudi Arabia and Russia extending voluntary production cuts to the end of 2023. The strength of the US dollar on safe haven demand is also making crude prices higher. Global inflation is once again under siege as deep deficits in global oil balances become persistent unless global demand is hit by a sharp economic downturn.

Dispelling this global gloom, the Indian economy is picking up steam and strength. Real GDP growth for the first quarter of 2023-24 came in exactly at the nowcast presented in the August edition of the

5 'Globalization at an inflection point' Remarks by Kazuo Ueda at the annual Economic Policy Symposium "Structural Shifts in the Global Economy" organised by Federal Reserve Bank of Kansas City in Jackson Hole.

6 Mark Zandi "Economists grow gloomier on 2024 as central banks delay rate cuts". https://www.ft.com/content/a9a4301d-5b6a-432e-849e-1f5d6e904da3

7 Global Trade Outlook and Statistics, World Trade Organization, April 5, 2023.

8 Klaas Knot, Financial Stability Board Chair, Letter to G20 Leaders, September 5, 2023.

9 Enhancing the Resilience of Non-Bank Financial Intermediation: Progress report, Financial Stability Report, September 6, 2023.

State of the Economy – at 7.8 per cent year-on-year (y-o-y) and just a shade below the projection of the MPC. Significantly, this was led by domestic drivers – private consumption and fixed investment – which offset the negative spill from net exports. In the second quarter, available indicators point to a gain in quarter-on-quarter (q-o-q) momentum on the back of domestic demand. Clothing and lifestyle retailers and shopping malls are experiencing a sharp recovery in sales across price points in the past few weeks. This has raised hopes of a pick-up in demand through the rest of the festival season that began with Raksha Bandhan and Onam, and cheers for discretionary retail spending. On watch are electronics and autos, which may be the next segments to attract festival spend. There are also indications that rural demand for fast moving consumer goods has swung back into positive territory after being under pressure for over a year. A key lead indicator will be how inflation evolves, with expectations of a sharp decline in September, on top of the August ebbing, fanning optimism. Looking ahead, India's consumer market is expected to become the world's third largest by 2027, with household per capita spending outpacing all other developing economies in Asia.[10]

On the investment side, capex by large central public sector enterprises (CPSEs) is strong at above 42 per cent of the annual target of Rs 100 crore, keeping pace with the emphasis on capital spending by the central government. Highways, the petroleum sector and railways are leading the surge in CPSE capex in the first five months of 2023-24. States have also boosted their capital outlays by close to 50 per cent year-on-year. On the other hand, the private corporate sector is reported to be continuing to go slow on capex[11], although sectoral improvements are also being reported, based on projects sanctioned by banks/financial institutions.[12]

Supply responses are also improving. In spite of August turning out to be the driest and warmest since 1901, *kharif* sowing has kept pace with last year's activity. According to the India Meteorological Department (IMD), precipitation in September is expected to be normal, ranging between 91 and 109 per cent of the long period average (LPA), which should restore reservoir levels and soil moisture content. In addition, the Indian Ocean Dipole has risen above the positive threshold (0.4 degrees Celsius), according to the Australian Bureau of Meteorology; and if sustained, it may boost the performance of the monsoon. Purchasing managers' indices (PMIs) relating to manufacturing and services expanded on new orders and output in the case of the former and on exports and lower input costs in the latter. In August, India's composite PMI turned out to be the highest among major economies.

Providing a somewhat silver lining to domestic developments, headline inflation softened in August from the peak it had reached a month ago. As in the case of the upswing, the ebbing was driven by a reversal in the prices of vegetables. Hearteningly, the correction is not complete, and more is expected to drive down retail inflation in its September reading. Furthermore, there are early indication of corrections in a broad range of vegetable prices going beyond the TOP[13] group. An important development for the conduct of monetary policy is the stabilizing of core inflation, which also reflects a broad-based easing of price pressures across its constituents, both goods and services. Both rural and urban CPI inflation have eased, each tracking the magnitude of easing of the headline.

[10] https://www.livemint.com/opinion/quick-edit/consumer-boom-11694110366970.html

[11] Motilal Oswal Financial Services, https://www.business-standard.com/economy/news/corporate-capital-expenditure-declined-in-q4fy23-and-q1fy24-shows-data-123091201029_1.html

[12] Bhan, S., Chavhan, R.N., and Kavediya, R.B. (2023). 'Private Corporate Investment: Performance and Near-term Outlook', RBI Bulletin, August 2023.

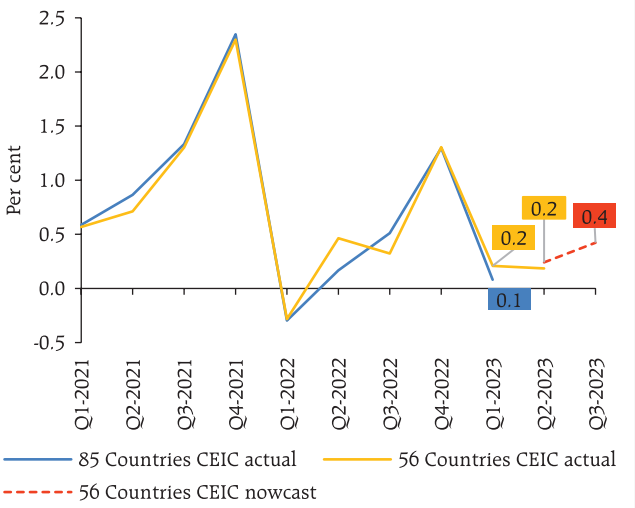
[13] Tomatoes, onions and potatoes.

Set against this backdrop, the remainder of the article is structured into four sections. Section II sketches the rapidly evolving developments in the global economy. The evolution of the domestic economy is laid out in Section III. Section IV evaluates the domestic financial conditions, while the last Section sets out concluding remarks.

Global Setting

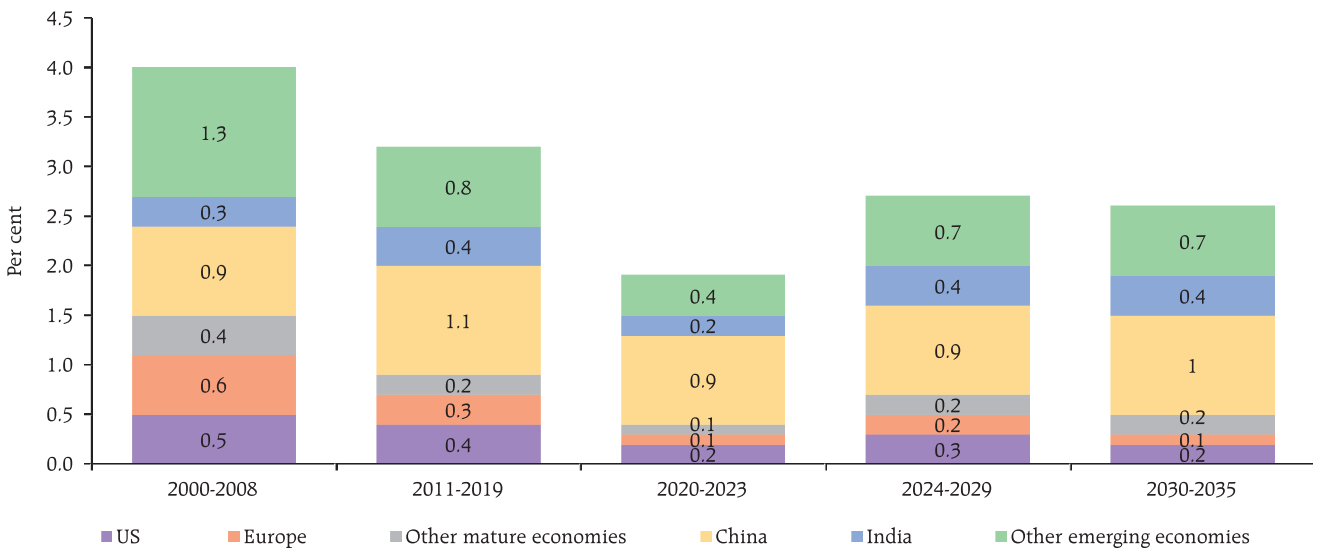
The outlook for the global economy remains ambivalent, driven by a dichotomy in macroeconomic conditions across regions. While expectations of a 'Goldilocks' soft landing in the US are strengthening, concerns about slowdowns in China and Europe are rife. The impact of aggressive monetary tightening is spreading, with the services sector joining housing, bank lending and industrial production in a loss of momentum. Our model-based nowcast for global GDP points towards muted global growth in Q3:2023 (Chart 1), which may extend into the latter half of 2023 and early 2024.[14] During the rest of the current decade as well as the next, global growth is projected to be lower than in the previous two decades, especially amongst the Advanced Economies (AEs) [Chart 2]. Emerging economies, on the other hand, are likely to become a key engine of the global economy.

Chart 1: Global GDP Growth Nowcast (Adjusted Series, Q-o-Q)



Sources: CEIC; and RBI staff estimates.

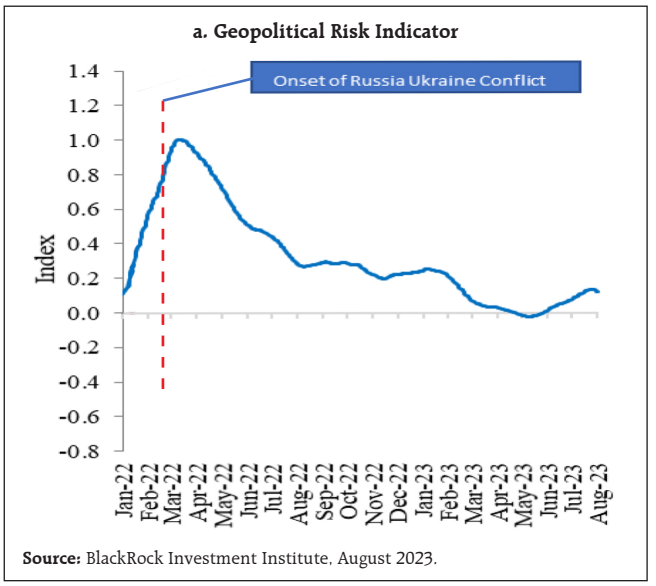
Chart 2: Regional Contribution to Global GDP Growth



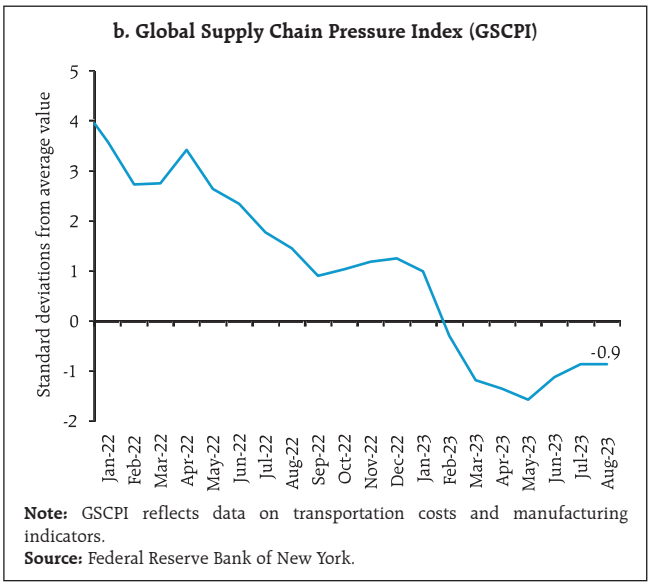
Source: The Conference Board Global Economic Outlook, August 2023.

[14] The Conference Board, Global Economic Outlook, August 2023.

Chart 3: Trends in Geopolitical Risks and Supply Chain Pressures



Source: BlackRock Investment Institute, August 2023.



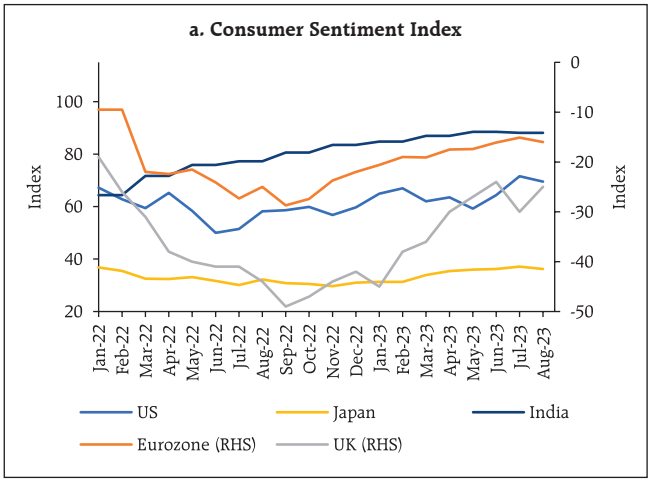
Note: GSCPI reflects data on transportation costs and manufacturing indicators.
Source: Federal Reserve Bank of New York.

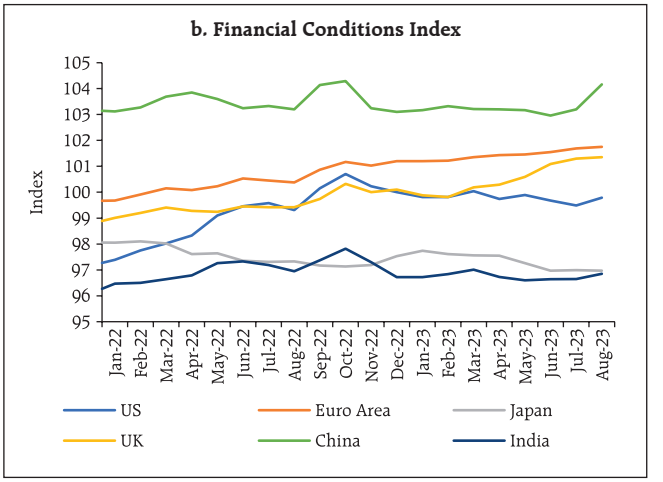
The balance of risks around the global outlook has tilted to the downside, with geopolitical risks having risen in recent months (Chart 3a), although global supply chain pressures remain below their historical average level in August (Chart 3b).

Consumer sentiment is mixed across jurisdictions, reflecting uncertainty about households' future financial situation and general economic conditions (Chart 4a). Financial conditions have tightened across economies such as China, the EU, the UK and the US (Chart 4b).

The global composite purchasing managers' index (PMI) fell to 50.6 in August from 51.6 in July, pulled down by service sector business activity, which was at

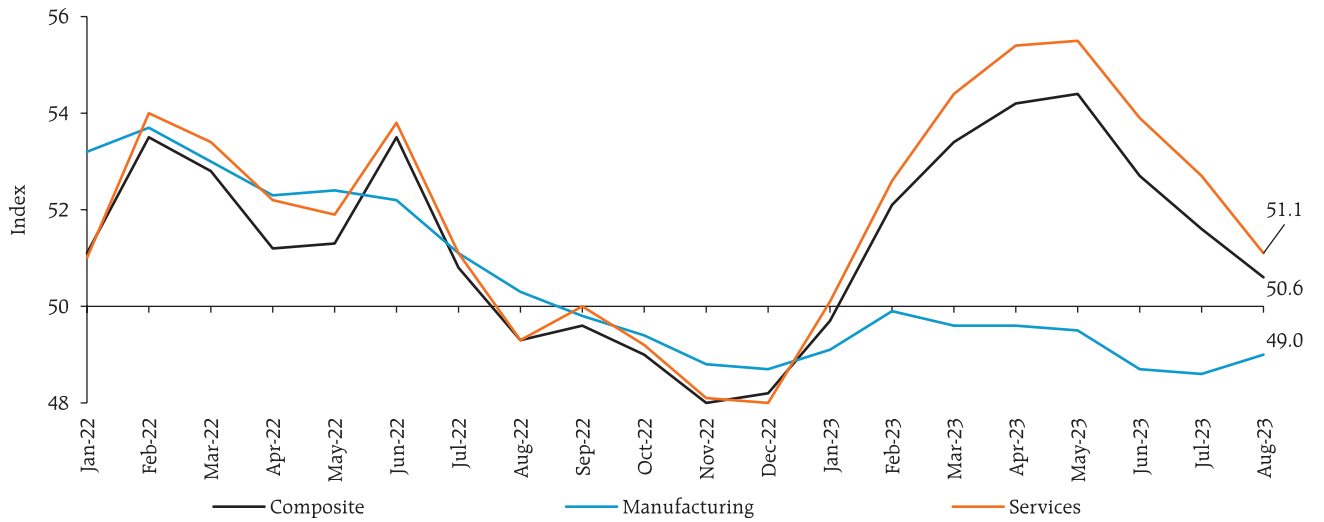
Chart 4: Sentiment and Financial Conditions





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

Chart 5: Global PMI



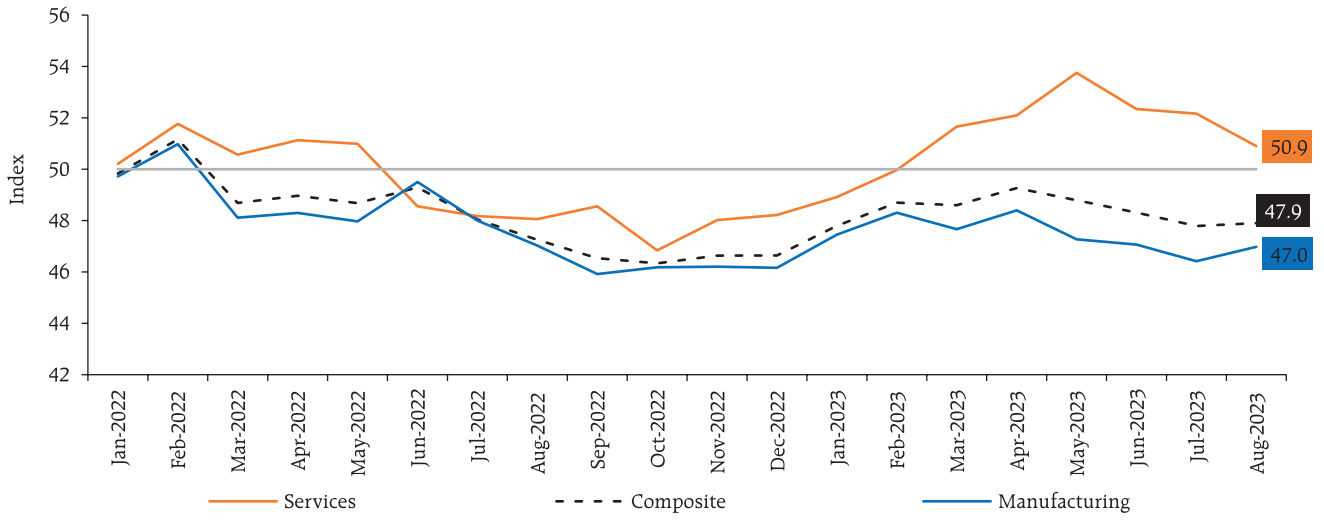
Note: A level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and *vice versa*.
Source: S&P Global.

its weakest since February 2023. The manufacturing PMI exhibited a sequential pick-up, *albeit* in the contraction zone as it remains weighed down by declines in production, new orders, and slowdown in export business (Chart 5).

Global trade activity continues to face significant headwinds. Export orders for manufacturing, as evident from PMIs, remained in contraction in August, in spite of a modest sequential improvement (Chart 6). Export orders for services, however, remained in the expansionary zone, partly offsetting the drag from manufacturing.

Global commodity prices generally softened in August and the Bloomberg commodity price index

Chart 6: Global PMI: Export Orders

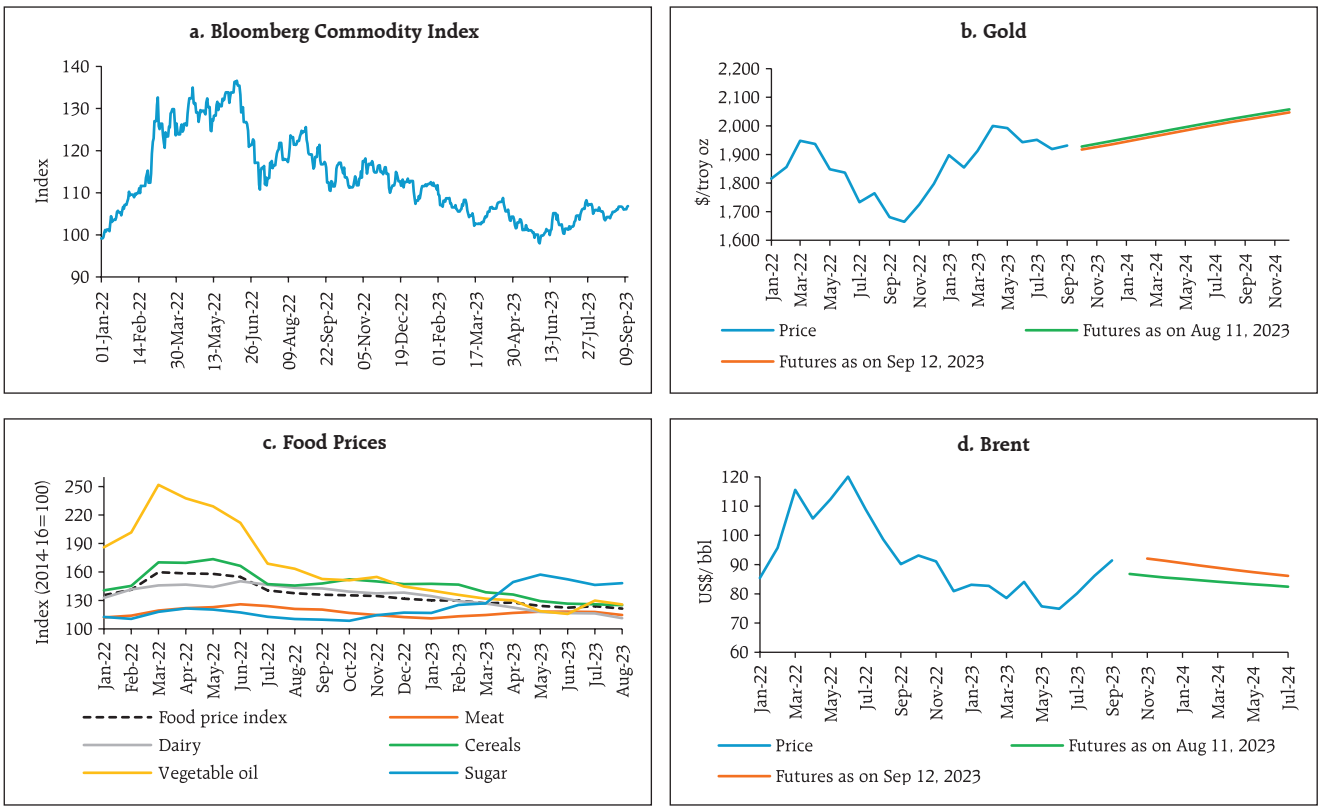


Note: A level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and *vice versa*.
Source: S&P Global.

eased by 3.6 per cent month-on-month (m-o-m) [Chart 7a]. Gold prices declined in tandem with a stronger dollar and higher treasury yields (Chart 7b). The Food and Agriculture Organization's (FAO's) food price index declined by 2.1 per cent (m-o-m) in August as prices of dairy products, vegetable oils, meat and cereals declined (Chart 7c). Food grain prices, which had surged after Russia pulled out of the Black Sea Grain deal in June, have since retreated partly. Supply cuts from OPEC+[15] in early August and signals of further reductions drove crude oil prices up to average US$ 86.2 per barrel in August and further in September to US$ 91.8 per barrel (as on September 14, 2023) [Chart 7d].

Headline inflation, which receded from multi-year peaks over the course of last year, recorded a marginal uptick or a slowdown in the pace of its decline in most economies during July-August. As per flash estimates, Euro area inflation remained steady at 5.3 per cent (y-o-y) in August 2023 (Chart 8a). In the US, CPI inflation increased to 3.7 per cent in August from 3.2 per cent in July. Inflation based on the US personal consumption expenditure (PCE) price index edged up to 3.3 per cent in July from 3.0 per cent in June. CPI inflation eased in the UK, to 6.8 per cent in July 2023, the lowest since February 2022, and in Japan (CPI excluding fresh food) to 3.1 per cent in July (3.3 per cent in June). Core and services inflation continue to rule above headline inflation in major AEs (Chart 8b and 8c). Among the emerging market economies (EMEs), inflation edged up in Brazil, China, and Russia in August (Chart 8d).

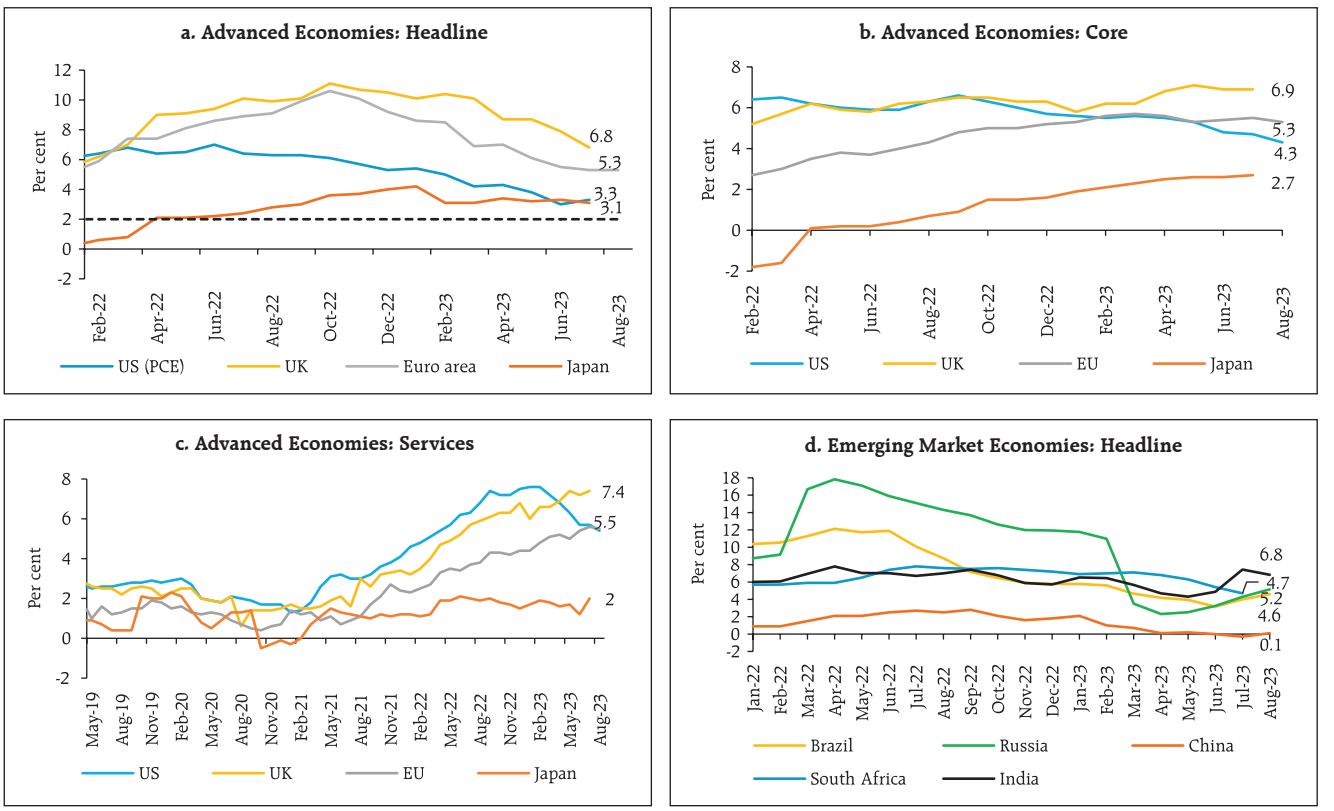
Chart 7: Commodity and Food Prices



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

[15] Saudi Arabia's decision to extend its supply cut of one million barrels per day (bpd) through September and Russia's announcement on August 3rd to curb exports by 300,000 bpd in September propelled prices even higher.

Chart 8: Inflation

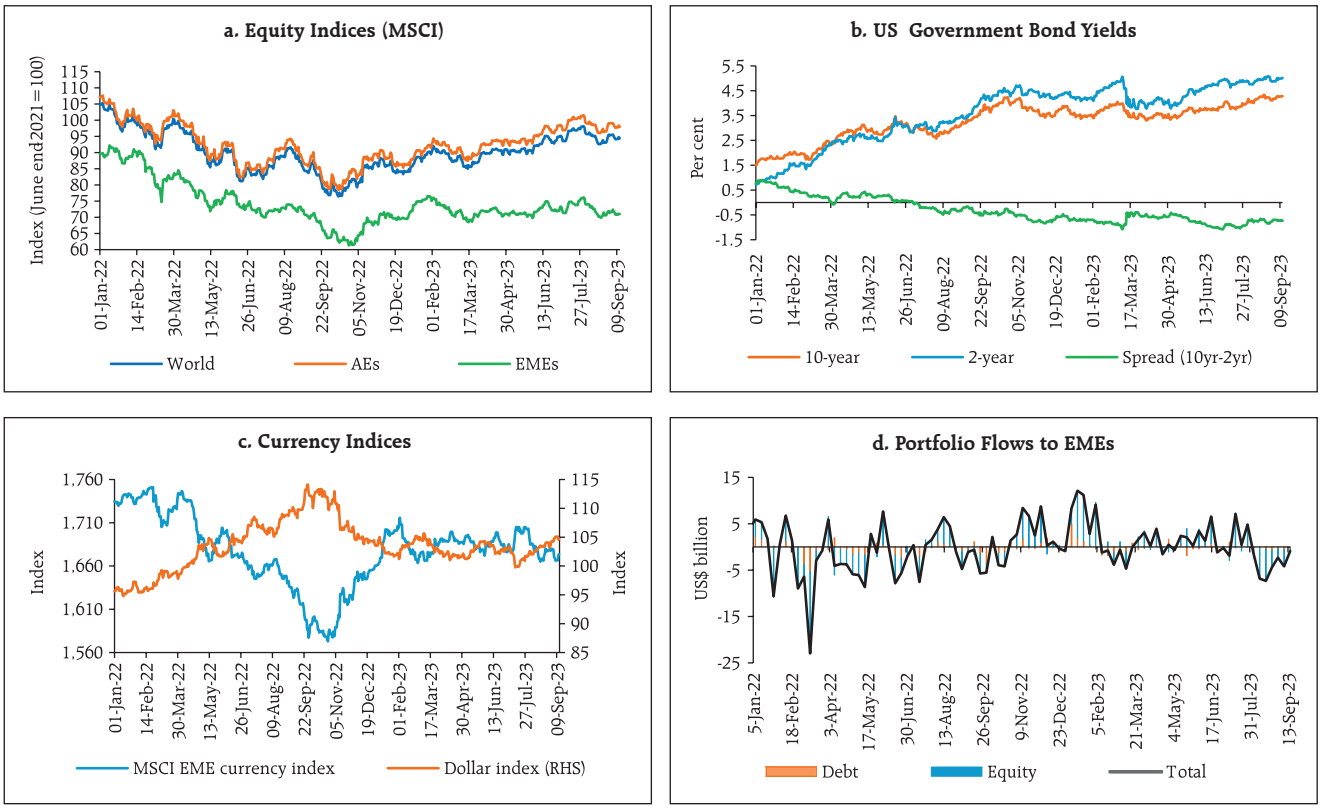


Sources: Bloomberg; and OECD.

Global equity indices declined in August and early September as hawkish minutes from the Federal Reserve's July policy meeting and subsequent resilient economic data releases led to expectations of a prolonged period of higher policy rates (Chart 9a). Bond yields hardened following the announcement of large debt issuance worth US$ 1 trillion by the US Treasury in Q3:2023 and the sovereign rating downgrade by Fitch Ratings. In the US, yield curve inversion has persisted since July 2022 (Chart 9b). In the currency markets, the US dollar maintained its appreciating bias on expectations of prolonged monetary policy tightening, especially in the wake of higher inflation readings. Concomitantly, the Morgan Stanley Capital International (MSCI) currency index for EMEs shed gains by 1.5 per cent in August as capital outflows continued (Chart 9c and 9d).

AE central banks continued to tighten policy rates while some opted for a pause (Chart 10a). In their August policy meetings, the Bank of England and Norges Bank raised their key rates by 25 bps. The European Central Bank (ECB) raised its key interest rate by 25 bps to a record high of 4 per cent on September 14, 2023 and assessed that maintaining the current levels of interest rates for an extended period will significantly aid in timely return of inflation to the target. On the other hand, Canada, Australia, New Zealand and South Korea held their policy rates unchanged in their latest meeting. Most EME central banks also kept their policy rates unchanged in their August meetings. The central bank of Brazil, however, cut its benchmark interest rate by 50 bps in August after almost a year-long pause and Poland embarked on a rate cutting cycle, lowering its policy rate by 75 bps

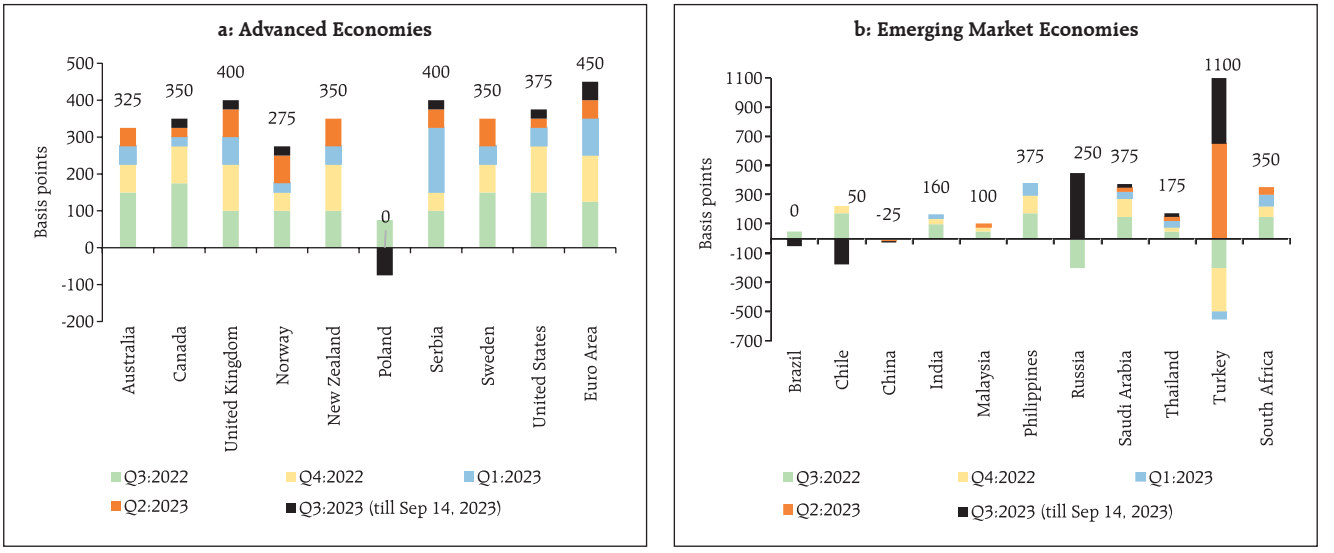
Chart 9: Global Financial Markets



Sources: Bloomberg; and IIF.

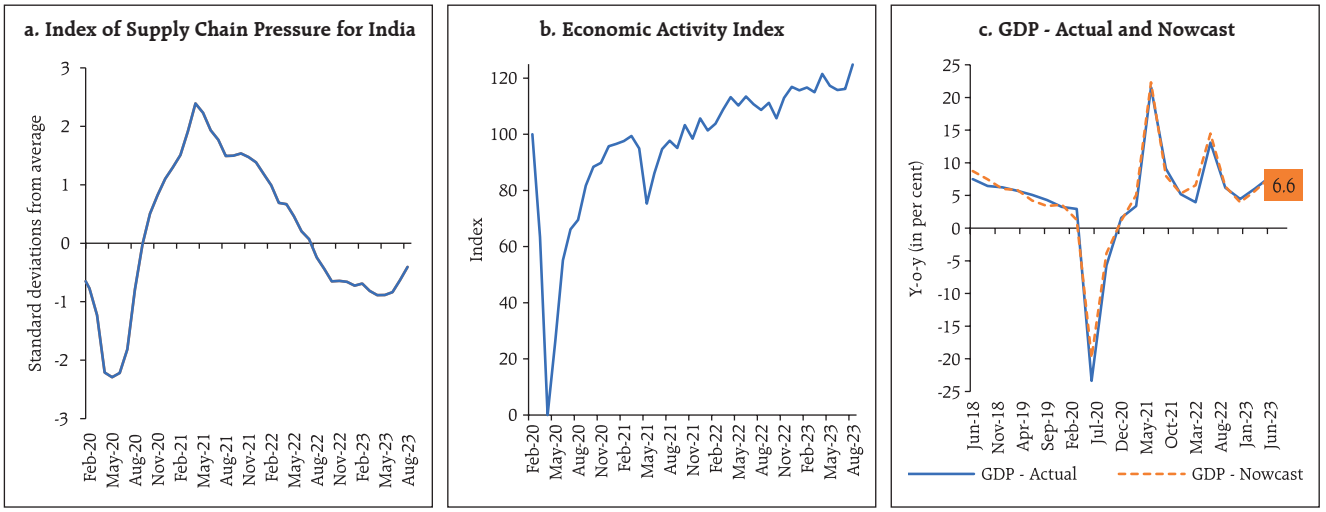
in its September meeting after staying on hold since October 2022. The People's Bank of China (PBoC) cut its one-year loan prime rate (LPR), one-year medium-term lending facility (MLF) rate and the seven-day reverse

Chart 10: Monetary Policy Actions



Source: Bloomberg.

Chart 11: Economic Activity and GDP Growth Nowcast



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

repo rate by 10 bps, 15 bps and 10 bps, respectively. On the other hand, the Bank of Russia, in its off-cycle meeting in August 2023, increased its key rate by 350 bps and by another 100 bps in its scheduled September meeting (Chart 10b).

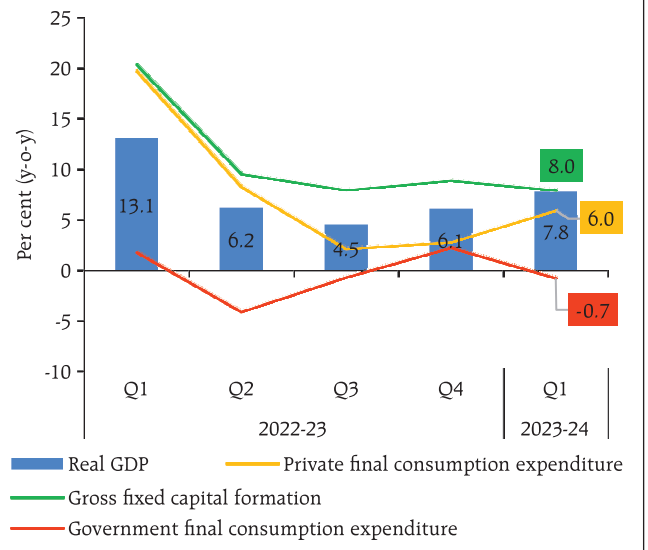
III. Domestic Developments

The Indian economy remains an outlier amidst darkening global prospects. Supply chain pressures in India remain below historical average levels despite a pick-up since May 2023 (Chart 11a). Our economic activity index (EAI) nowcasts GDP growth for Q2:2023-24 at 6.6 per cent (Chart 11b and 11c).

Aggregate Demand

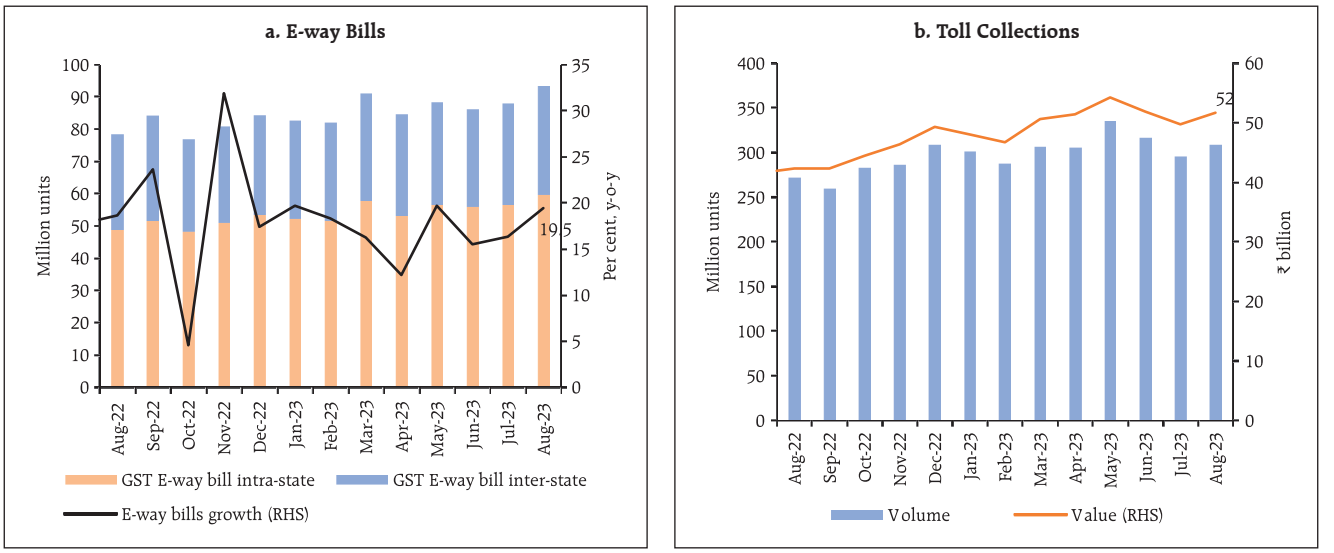
According to the quarterly estimates released by the National Statistical Office (NSO), the Indian economy grew solidly on a year-on-year basis in Q1:2023-24 (Chart 12). Private final consumption expenditure, the mainstay of aggregate demand with a share of 57.3 per cent in gross domestic product (GDP), recorded a growth of 6.0 per cent. Buoyed by the government's thrust on infrastructure and exuberant real estate activity, gross fixed capital formation (GFCF) grew by 8.0 per cent, maintaining its share at 34.7 per cent of GDP. Acceleration in investment activity is also corroborated by robust growth in steel consumption, cement production, as well as capital goods production and imports. With import growth exceeding that of exports, net exports dragged real GDP growth by 4.6 percentage points in Q1.

Chart 12: Real GDP Growth



Source: NSO.

Chart 13: E-way Bills and Toll Collections



Sources: GSTN; RBI; and RBI staff estimates.

Among lead indicators of demand conditions, e-way bill volumes touched a historical high of 93.4 million units in August 2023 due to stockpiling of goods by businesses in the run-up to the festival season[16] and increased compliance obligations (Chart 13a). Toll collection expanded in August after witnessing a decline over the preceding two months consecutively (Chart 13b).

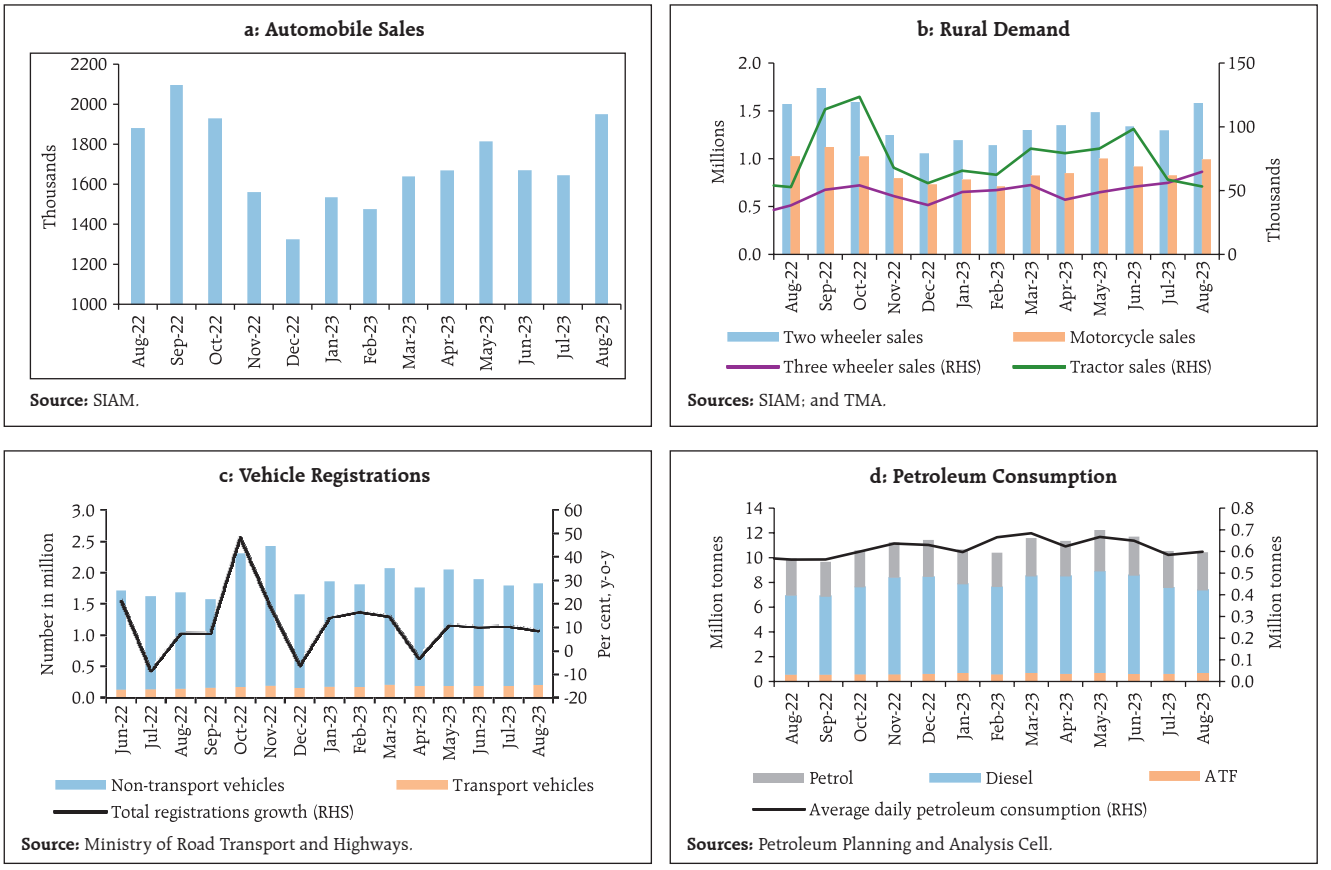
Automobile sales registered a y-o-y expansion of 3.6 per cent in August 2023, with passenger vehicle sales rising to an all-time high on robust demand for sports utility vehicles (Chart 14a). Three-wheeler sales were the highest since October 2019. Two-wheeler sales reverted to positive y-o-y growth, led by scooters, after a sharp contraction in the previous month (Chart 14b). Retail sales growth as reflected in vehicle registrations moderated sequentially (Chart 14c). As per the Federation of Automobile Dealers Association (FADA), inventory levels for passenger vehicles hit an all-time high in August ahead of the festival season. The daily average consumption of petroleum products accelerated in August as manufacturing and construction activity remained robust[17] and mobility increased (Chart 14d).

The all-India unemployment rate (UR) edged up to 8.1 per cent in August 2023 on account of higher UR in urban areas while rural unemployment fell (Chart 15a). The labour force participation rate (LFPR) and the employment rate (ER), recorded an increase, with the urban LFPR rising to its highest level since the onset of the pandemic (Chart 15b). The employment outlook in the organised sector, as polled by the PMI for manufacturing and services, remained in the expansionary zone, with services

[16] https://www.livemint.com/news/india/eway-bill-generation

[17] Reuters (2023). India's August fuel consumption perks up on strong manufacturing. September 6. manufacturing

Chart 14: Automobile Sector Indicators



Source: SIAM.

Sources: SIAM; and TMA.

Source: Ministry of Road Transport and Highways.

Sources: Petroleum Planning and Analysis Cell.

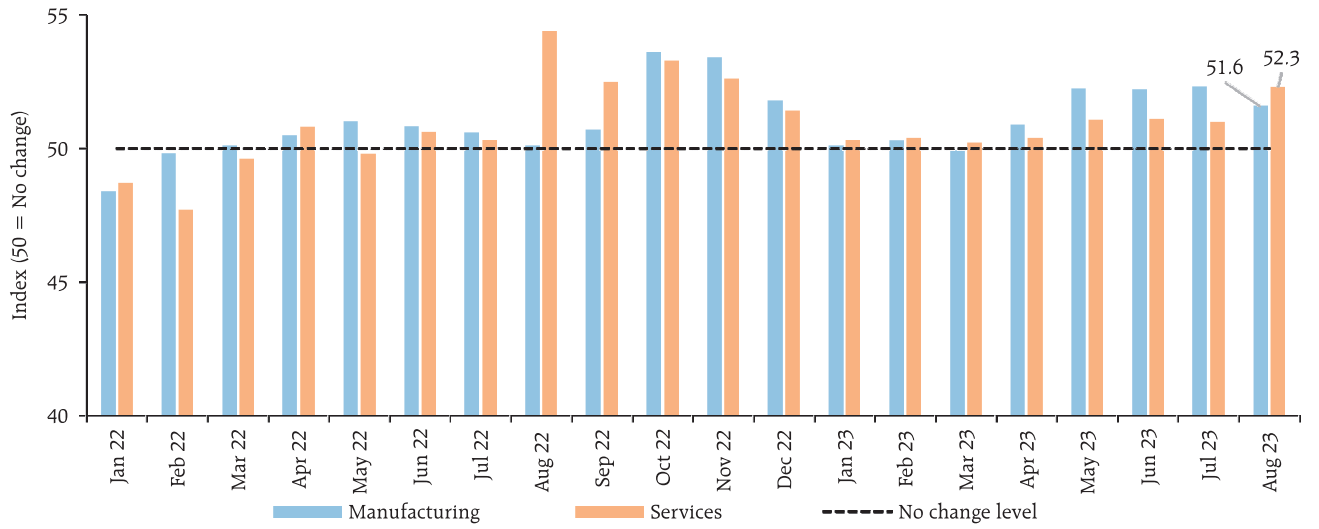
employment expanding at its fastest pace in nine months (16).

The demand for work under the Mahatma Gandhi National Rural Employment Guarantee Scheme

Chart 15: Labour Market Conditions

Source: CMIE.

Chart 16: PMI Employment Indices

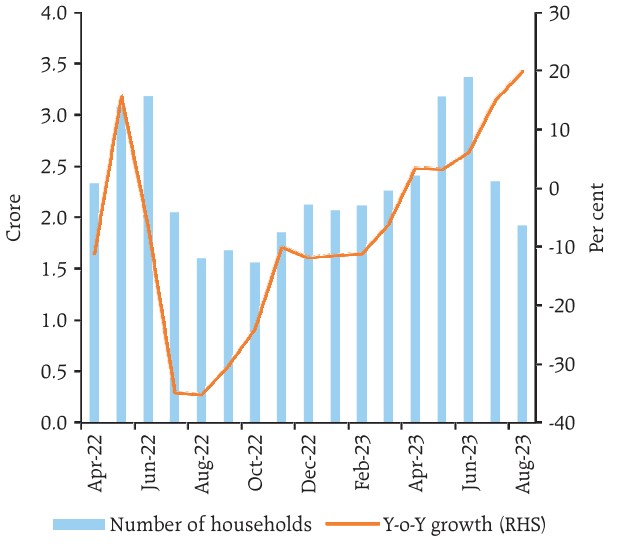


Note: PMI value of above 50 indicates expansion.
Source: S&P Global.

(MGNREGS) continued to decline in August, reflecting increasing labour demand for *kharif* crop operations in the rural parts of the country (Chart 17).

India's merchandise exports at US$ 34.5 billion in August 2023 remained in contraction for the seventh consecutive month. The pace of decline, however, moderated to single digit rate of 6.8 per cent (y-o-y) for the first time since March 2023, aided by favourable base effect (Chart 18). More than two-fifth of the export basket (15 out of 30 major commodities) registered a y-o-y decline.

Chart 17: Demand for Work under MGNREGS

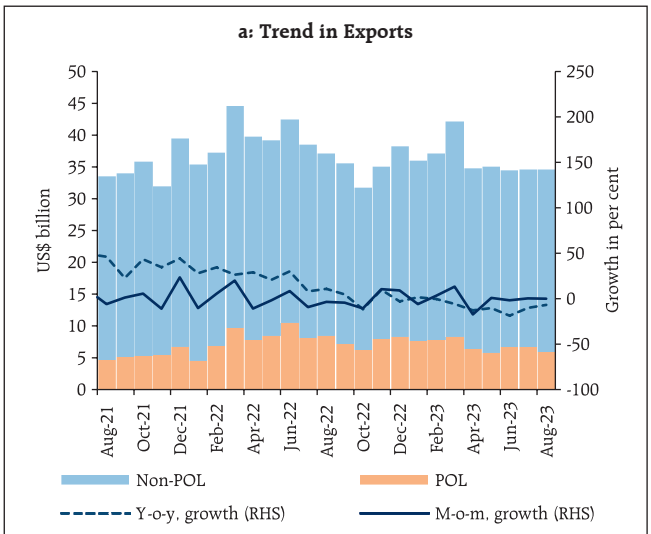


Source: Ministry of Rural Development.

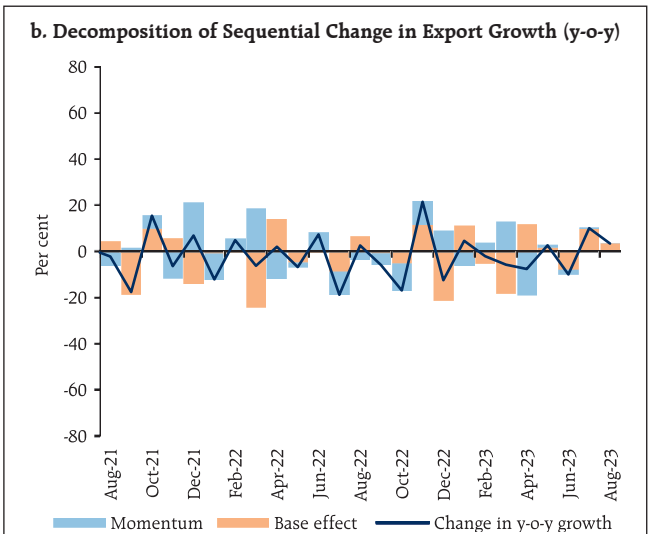
Petroleum products, gems and jewellery, chemicals, rice and ready-made garments (RMG) of all textiles dragged exports down whereas engineering goods, electronic goods, cotton yarn, fabrics, iron ore, and drugs and pharmaceuticals supported export growth in August 2023. Petroleum products export fell for the sixth consecutive month. After witnessing contraction for eight consecutive months, engineering goods, which account for more than one-fourth of the export basket, grew by 7.7 per cent on a y-o-y basis (Chart 19).

Following the prohibition of exports of non-basmati white rice on July 20, 2023 the Government introduced an export duty of 20 per cent on parboiled rice on August 25, 2023 (for exports till mid-October to curb rising domestic prices and ensure adequate domestic availability), and a minimum export price of US$ 1200 per metric tonne of basmati rice on August 27, 2023 to check illegal exports of non-basmati rice,

Chart 18: India's Merchandise Exports



Sources: PIB; and DGCI&S.

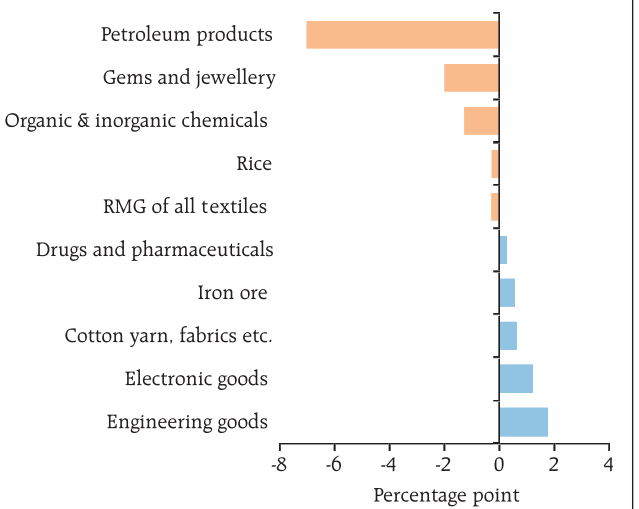


Sources: DGCI&S; PIB; and RBI staff estimates.

misclassified as parboiled or basmati rice.[18] In volume terms, parboiled and basmati rice together accounted for two-third of overall rice exports in June 2023 (Chart 20a).

Additionally, the Government imposed a 40 per cent duty on onion exports on August 19, 2023 (effective till the end of 2023) to increase the domestic availability of onions. Onion exports have witnessed a sharp rise in 2022-23 and 2023-24 so far (up to June) [Chart 20b].

Chart 19: India's Merchandise Exports – Relative Contribution (August 2023 over August 2022)



Sources: PIB; and RBI staff estimates.

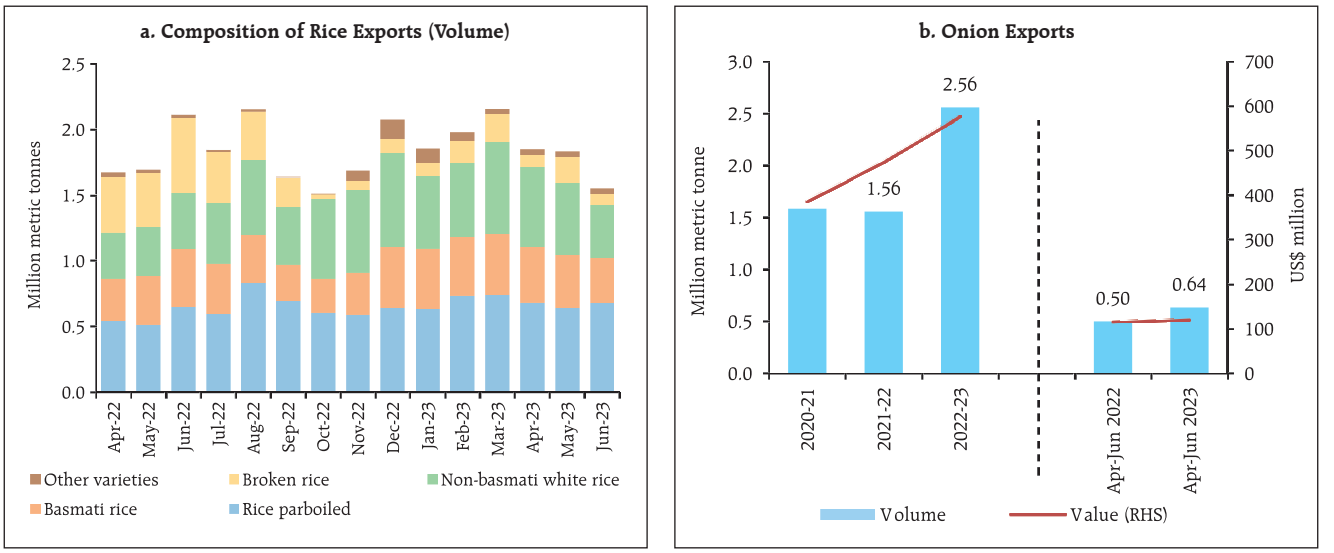
Merchandise imports at US$ 58.6 billion registered a contraction of 5.2 per cent (y-o-y) in August 2023, the seventh consecutive month of contraction. The pace of decline, however, moderated from 17.0 per cent in the previous month due to a favourable base effect and a positive momentum. More than two-fifth of the import basket (15 out of 30 major commodities) registered a decline on a y-o-y basis (Chart 21).

Petroleum, oil and lubricants (POL), coal, fertilisers, organic and inorganic chemicals and silver were the main items that dragged imports down while gold, chemical material and products, dyeing, tanning and colouring materials, machinery and electronic goods contributed positively in August 2023 (Chart 22).

With higher momentum in imports than in exports, the merchandise trade deficit in August increased by US$ 5.7 billion on a sequential basis to reach a ten-month high of US$ 24.2 billion. The oil

[18] https://pib.gov.in/PressReleaseIframePage. aspx?PRID = 1952629 # :~:text =Export%20of%20 non % 2 Dbasmati % 20white % 20rice %2C%20which%20 had%20an%20export,1.89%20MMT%20during%20previous%20year.

Chart 20: Agricultural Export Restrictions

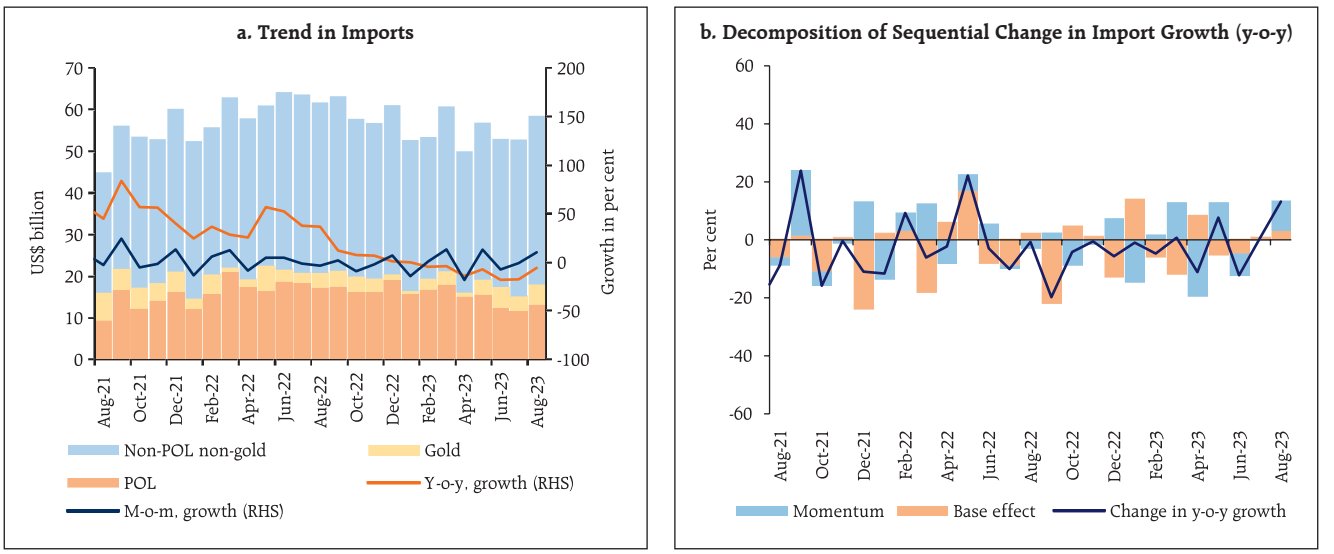


Source: DGCI&S.

deficit also widened to a 3-month high, accounting for about 30 per cent of the overall deficit (Chart 23).

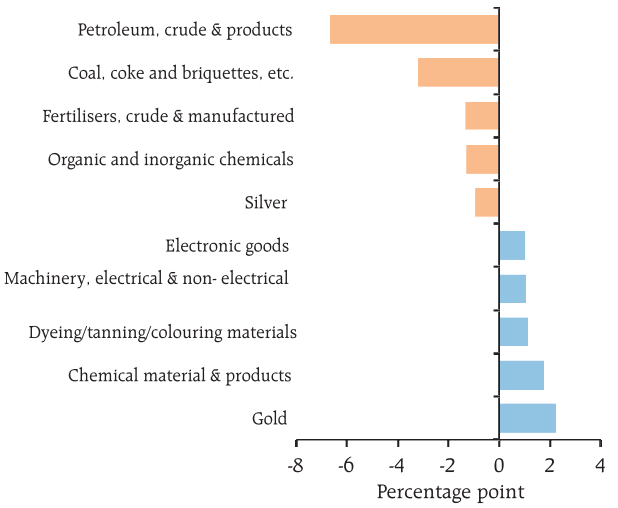
During April-August 2023, India's merchandise exports at US$ 172.9 billion contracted by 11.9 per cent (y-o-y). Merchandise imports at US$ 271.8 billion declined by 12.1 per cent (y-o-y). Consequently, the merchandise trade deficit narrowed to US$ 98.9 billion from US$ 112.9 billion during the corresponding period a year ago. Petroleum products were the major source of the trade deficit, followed by electronic

Chart 21: India's Merchandise Imports



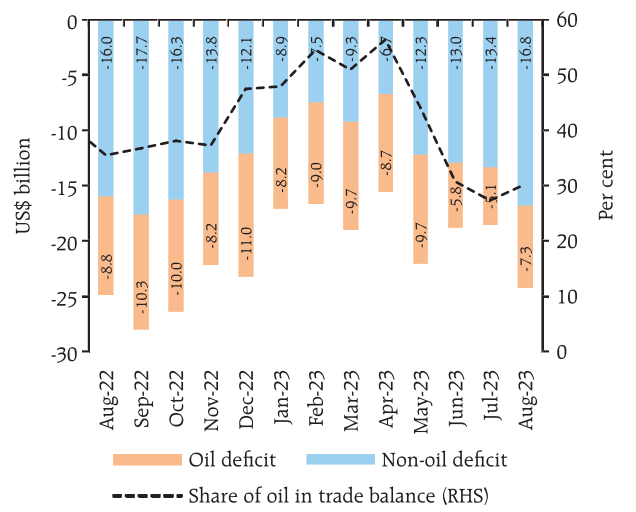
Sources: PIB; DGCI&S; and RBI staff estimates.

Chart 22: India's Merchandise Imports – Relative Contribution (August 2023 over August 2022)



Sources: PIB; and RBI staff estimates.

Chart 23: Decomposition of India's Merchandise Trade Deficit

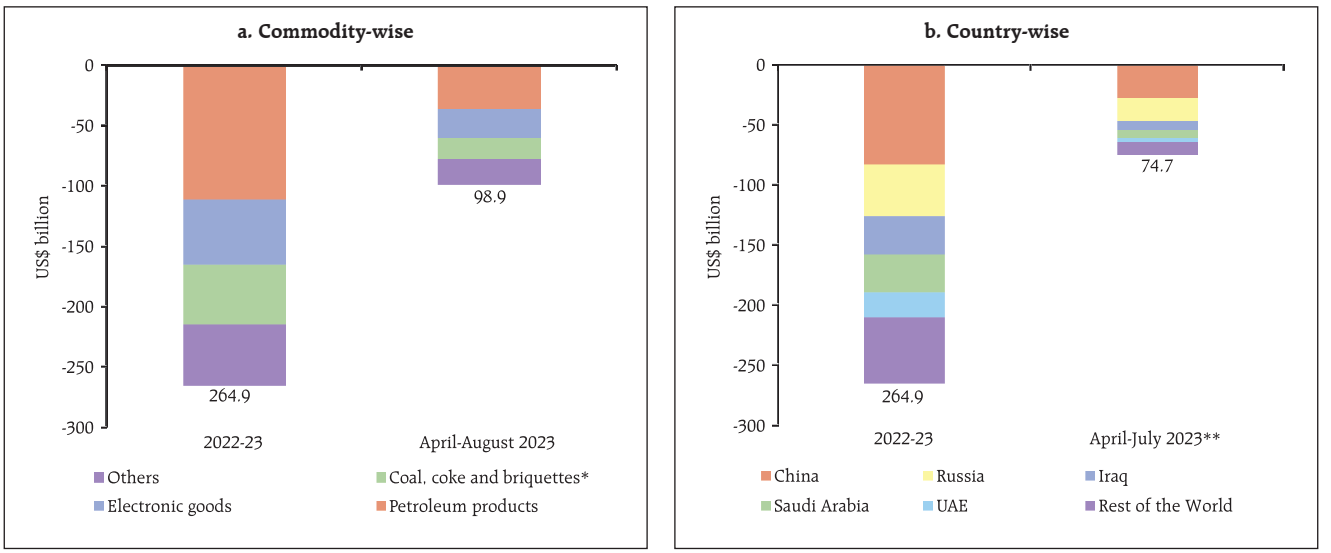


Sources: DGCI&S; and PIB.

goods (Chart 24a). Country-wise, China and Russia remained the major sources of the trade deficit for the April-July period (Chart 24b).

India's services exports at US$ 26.2 billion in July 2023 recorded a growth of 8.1 per cent (y-o-y), mainly due to an increase in software services and business services receipts (Chart 25).

Chart 24: Analysis of India's Merchandise Trade Deficit



Notes: *: Export value of coal, coke and briquettes for August 2023 is taken the same as July 2023.
**: Country-level trade data available only up to July 2023.
Sources: DGCI&S; and PIB; and RBI staff estimates.

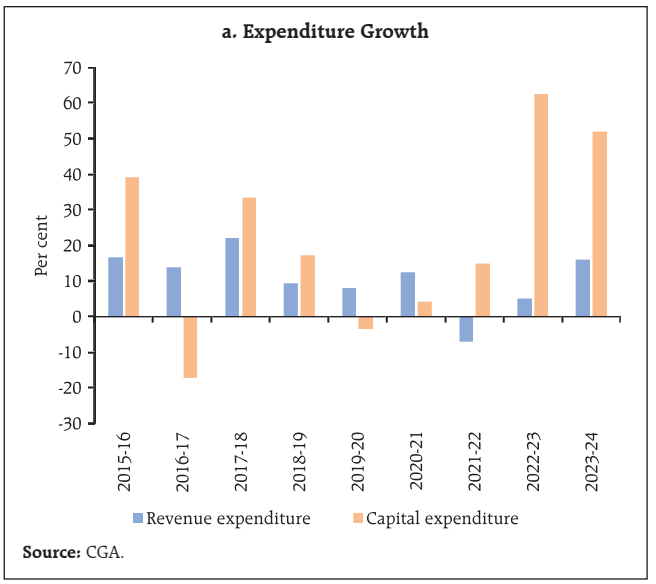
Chart 25: Services Exports and Imports

Source: RBI.

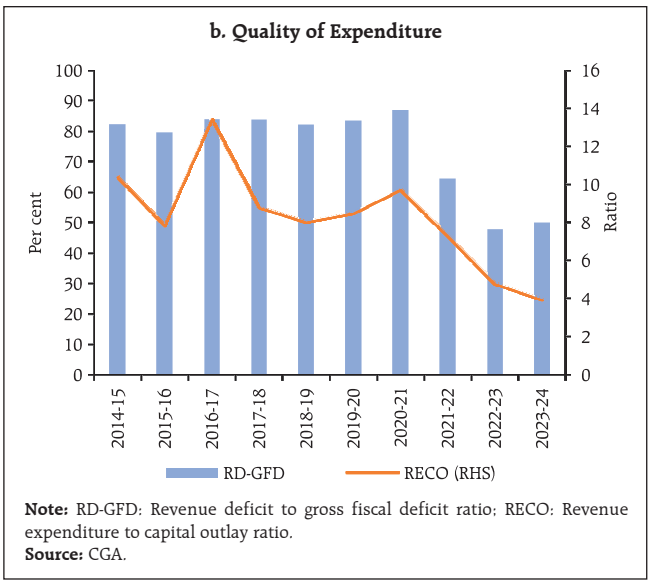
As per the Controller General of Accounts (CGA), the gross fiscal deficit (GFD) of the Central government during April-July 2023 stood at 33.9 per cent of the budget estimates (BE) for 2023-24, higher than 20.5 per cent of BE during the corresponding period last year. This is attributable to an increase in capital expenditure by 52.0 per cent (y-o-y) and revenue expenditure by 15.9 per cent (y-o-y) [Chart 26a]. Notably, revenue expenditure when netted out for interest payments and major subsidies (comprising food, fertilisers and petroleum) also grew by 18.7 per cent (y-o-y). Capital outlay recorded an increase of 40.7 per cent, resulting in a marked improvement in the quality of spending (Chart 26b).

On the receipts side, during April-July 2023-24 direct tax collections contracted by 1.7 per cent (y-o-y) owing to a 10.4 per cent decline in corporate tax collections, while income tax receipts recorded a growth of 6.4 per cent. Indirect tax collections grew by 7.6 per cent (y-o-y), with the growth in goods and services tax (GST) and customs revenues outweighing the contraction in excise duties.[19] While gross tax revenue grew by 2.8 per cent (y-o-y), net tax revenue contracted by 12.6 per cent due to higher tax devolution to State governments in June and July

Chart 26: Government Expenditure (April – July 2023)



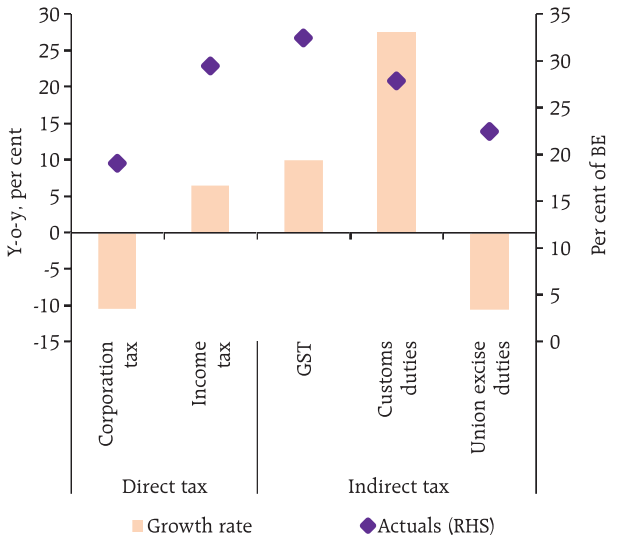
Source: CGA.



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

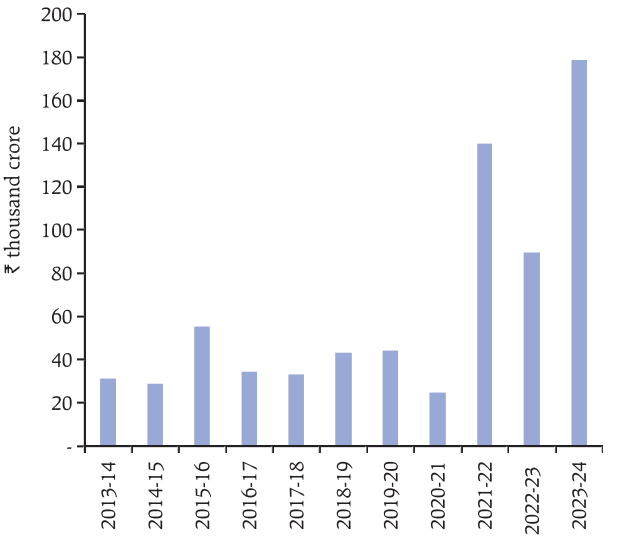
[19] The contraction in union excise duties during April-July 2023-24 is primarily attributable to reduction in duties on fuel (*viz.*, petrol and diesel) in May 2022. The excise duty was cut by ₹8 per litre and ₹6 per litre, for petrol and diesel, respectively, effective from May 22, 2022.

Chart 27: Tax Revenue (April – July 2023)



Sources: CGA; and Union budget documents.

Chart 28: Non-Tax Revenue (April - July)



Source: CGA.

2023 with the release of one advance instalment of tax devolution to States in June 2023 to enable them to expedite capital spending[20] (Chart 27).

Non-tax revenue collection grew by 99.6 per cent (y-o-y) on account of more than budgeted surplus transfer from the Reserve Bank[21], compensating for sub-par tax collections and non-debt capital receipts[22] (Chart 28). Total receipts recorded a contraction of 1.4 per cent on a y-o-y basis

GST collections (Centre *plus* States) grew by 10.8 per cent (y-o-y) to ₹1.59 lakh crore in August 2023. The average monthly gross GST collection during April-August 2023-24 stood at ₹1.66 lakh crore, up from ₹1.49 lakh crore a year ago.

As per the accounts data for April - July 2023-24, states' GFD[23] as a proportion of the full year BE was marginally higher than a year ago (Chart 29a). Growth in revenue receipts, though lower than a year ago, was higher than revenue expenditure, leading to a surplus in the revenue account (Chart 29b). On the other hand, a sharp pick up in capital expenditure offset the revenue surplus, resulting in a marginal increase in the GFD.

Out of the budgeted ₹1.3 lakh crore 50-year interest free loan for States' capital expenditure in the 'Scheme for Special Assistance to States for Capital Investment', ₹29,518 crore was released by the Centre during April-July 2023. Among the 12 States which received these loans[24], 8 States witnessed a growth of 69 per cent in their capital expenditure.

[20] The Union government had released 3rd instalment of tax devolution to State governments amounting to ₹1,18,280 crore on June 12, 2023 as against normal monthly devolution of ₹59,140 crore.

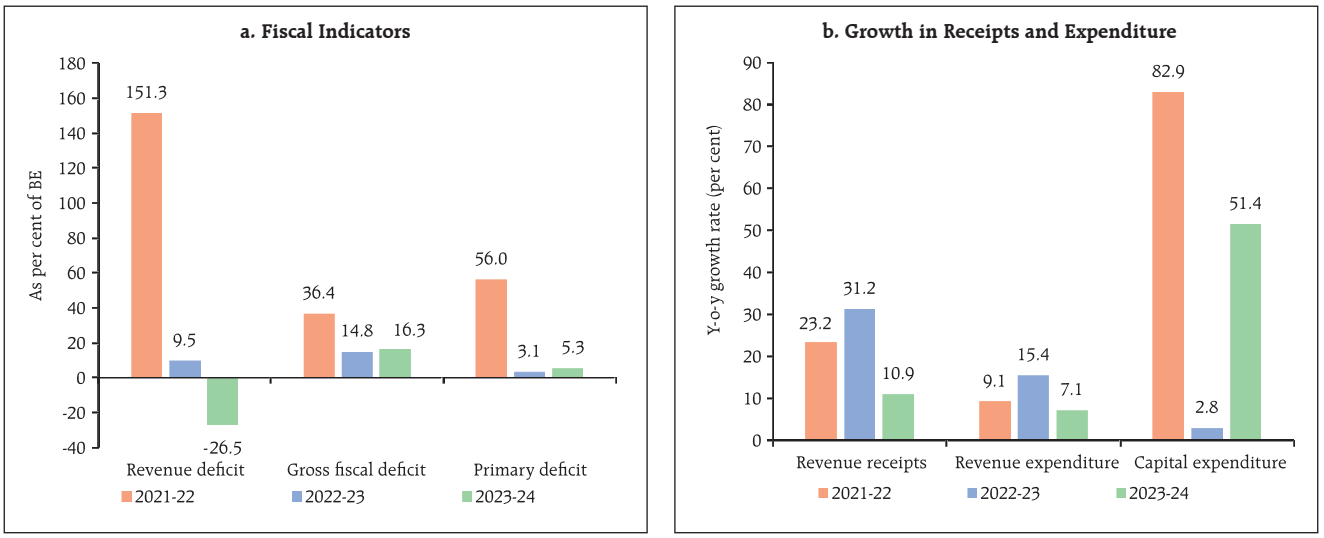
[21] During 2023-24, the Reserve Bank transferred a surplus of ₹87,416.22 crore to the central government which is higher than both the amount transferred last year (₹30,307.45 crore) and the budgeted amount under Dividend/Surplus transfer of Reserve Bank of India, Nationalised Banks and Financial Institutions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

[22] During April-July 2023-24, the government mobilised ₹5,465 crore in the form of disinvestment receipts as compared with ₹24,560 crore during the corresponding period of the previous year.

[23] The data pertains to 21 states.

[24] https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/jul/doc2023731231001.pdf

Chart 29: States' Fiscal Indicators (April – July 2023)

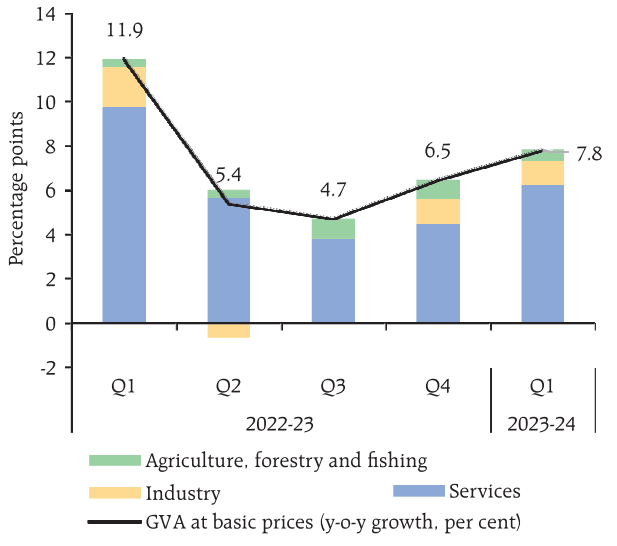


Note: Data pertains to 21 states.
Source: CAG.

Aggregate Supply

Real gross value added (GVA) at basic prices – a measure of aggregate supply – grew by 7.8 per cent in Q1:2023-24 *vis-a-vis* 11.9 per cent a year ago. Services remained the primary contributor to growth, while agriculture and industrial sector activity remained steady (Chart 30).

Chart 30: Weighted Contribution to GVA Growth



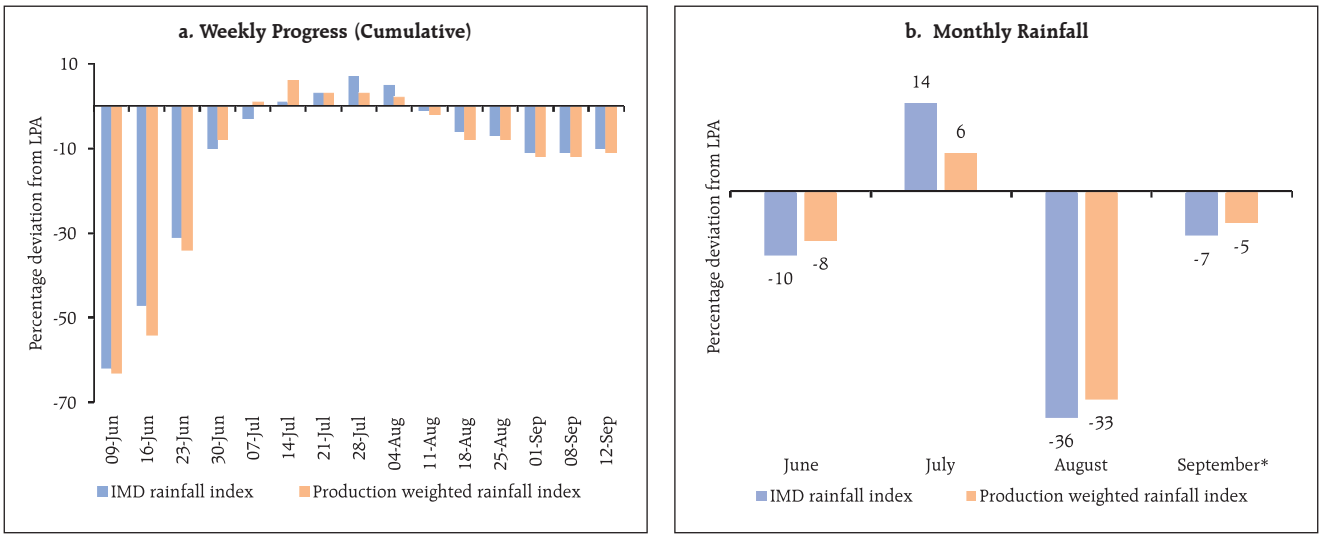
Source: NSO.

Agriculture, forestry, and fishing registered a robust growth of 3.5 per cent in Q1, driven by record *rabi* production. Manufacturing – the dominant component of the industrial sector – exhibited robust growth of 4.7 per cent in Q1, driven by improved corporate profit margins as input cost pressures tapered. Within the services sector, financial, real estate and professional services growth surged to 12.2 per cent in Q1, with continued exuberance in credit and deposit growth, and robust profit margin and salary growth in information technology (IT) companies.

The cumulative south-west monsoon (SWM) season rainfall, which was highly deficient in June 2023, recovered and exceeded the LPA by 5 per cent by end-July. The subsequent period, however, witnessed a large deficit in rainfall, resulting in the cumulative SWM rainfall (June 1 to September 12, 2023) being 10 per cent below LPA. The production weighted rainfall index (PRN) was also short by 11 per cent of its LPA during this period (Chart 31).

Adequate rainfall in July led to most of the States recording normal rainfall on a cumulative

Chart 31: Progress of SWM - 2023

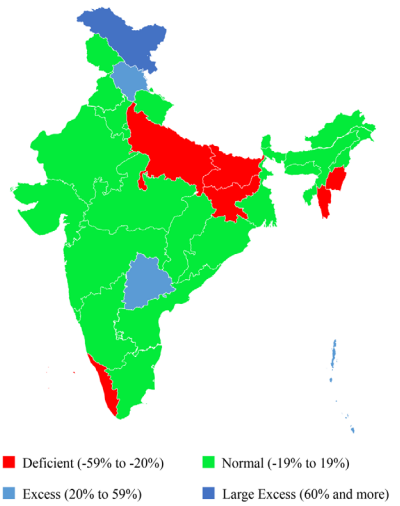


* Data up to September 12.
Sources: IMD; and RBI staff estimates.

basis, barring a few in south peninsula and east and northeast region (Chart 32). The reservoir position as of September 06, 2023 indicates that the current storage level is lower than in the previous year as well as the decadal average (Chart 33).

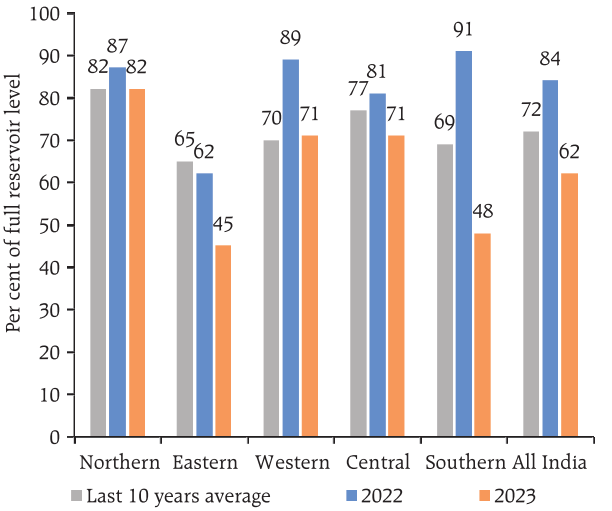
As on September 08, 2023, the total *kharif* sown area stood at 1,088.5 lakh hectares (99.7 per cent of full season normal area), almost at the previous year's level (Chart 34). While area under rice, coarse cereals and sugarcane remained higher than last year, acreage under pulses, oilseeds and cotton lagged. Rice, which accounts for 37 per cent of *kharif* full season normal area, progressed steadily despite the erratic and uneven SWM. Sown area in the major States

Chart 32: State-wise Cumulative SWM – 2023
(June 01 – September 08, 2023)



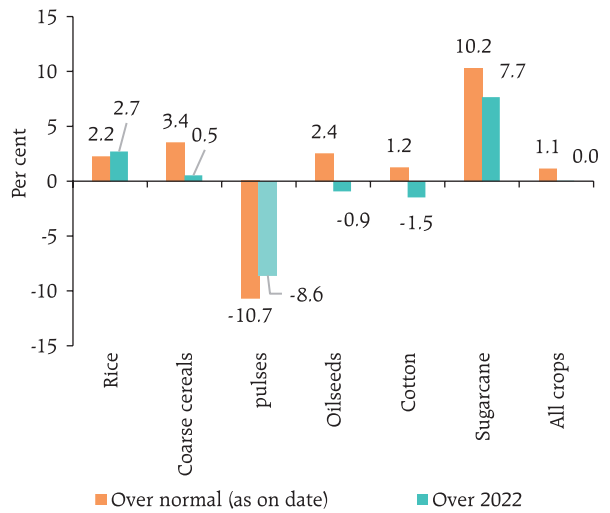
Note: Maps are for illustrative purposes only.
Source: IMD.

Chart 33: Reservoir Level
(As on September 06, 2023)



Source: Central Water Commission (CWC).

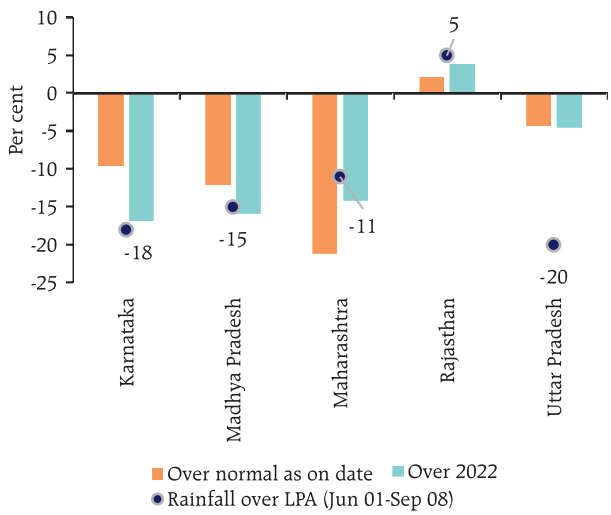
Chart 34: *Kharif* Acreage (As on September 08, 2023)



Source: Ministry of Agriculture and Farmers' Welfare.

producing *kharif* pulses, except Rajasthan, registered a decline over a year ago's coverage due to delayed and deficient monsoon (Chart 35). As per the 3rd advance estimates (AE) of agriculture production for 2022-23, *kharif* pulses constitute 28.5 per cent of total pulses

Chart 35: *Kharif* Pulses Sowing in Five Major Producing States (As on September 08, 2023)



Source: Ministry of Agriculture and Farmers' Welfare.

production in the country, with crops such as *tur*, and *urad* majorly being sown during the *kharif* season.

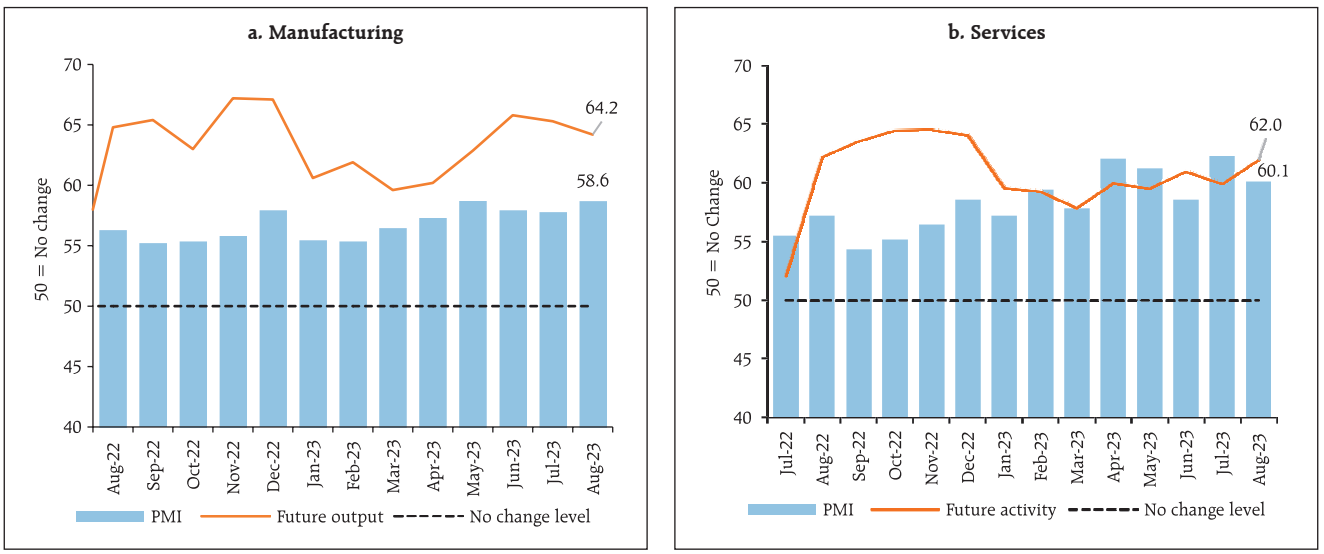
As on August 15, stock of rice and wheat with Food Corporation of India (FCI) and other public agencies remained comfortable at 355.7 lakh tonnes (2.6 times the buffer norm) and 273.7 lakh tonnes (1.0 times the norm), respectively. To ensure domestic availability in the wake of growing uncertainty towards *kharif* production in an *El Nino* year, the Government has undertaken a number of supply-side initiatives, in addition to the trade related measures discussed earlier. On August 09, the government announced that 50 lakh metric tonnes (LMT) of wheat and 25 LMT of rice would be offloaded in the open market in a phased manner under Open Market Sale Scheme (Domestic) [OMSS(D)] through e-auctions. So far (up to August 30), the government has sold 12.8 lakh tonnes of wheat and 0.33 lakh tonnes of rice in the e-auctions conducted since the announcement on June 12, 2023.[25]

The headline PMI for the manufacturing sector expanded to 58.6 in August 2023, recording the second highest acceleration since October 2020 (Chart 36a). The PMI for services moderated in August from a 13-year high last month due to moderation in new business, although the index remains in the expansionary zone, well above its historical average (Chart 36b).

Transport indicators remained upbeat in August 2023. Cargo traffic at major ports continued to show resilient y-o-y growth (Chart 37a). Railway freight traffic recorded an uptick in August y-o-y growth as compared to previous month, driven by an increase in freight of iron ore and containerised cargo (Chart 37b).

[25] https://www.financialexpress.com/policy/economy-govt-sells-1-28-mt-of-wheat-in-open-market-since-june-3228029/

Chart 36: Purchasing Managers' Index (PMI)

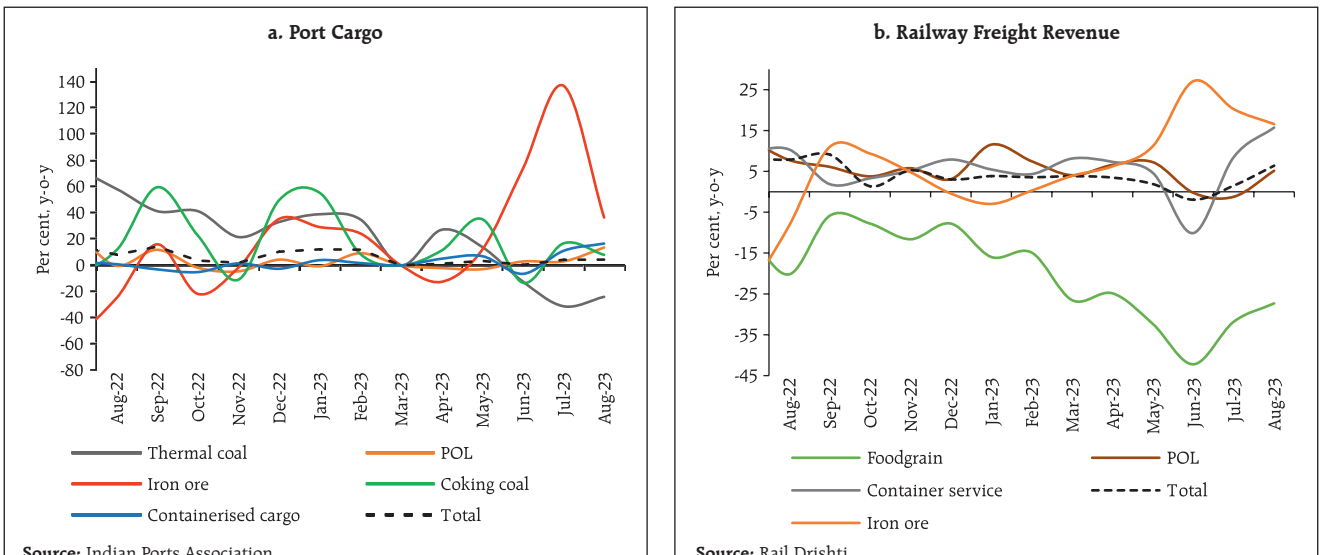


Source: S&P Global.

Coincident indicators of the construction sector remain strong in August. Steel consumption increased by 16.9 per cent (y-o-y) in August owing to continued impetus from the government's infrastructure spending while cement production increased by 7.1 per cent (y-o-y) in July 2023 (Chart 38).

High-frequency indicators for the services sector reflects a broad-based uptick in overall economic activity in August 2023, as shown by higher y-o-y growth in steel consumption, GST e-way bills, railway freight and port cargo traffic (Table 2).

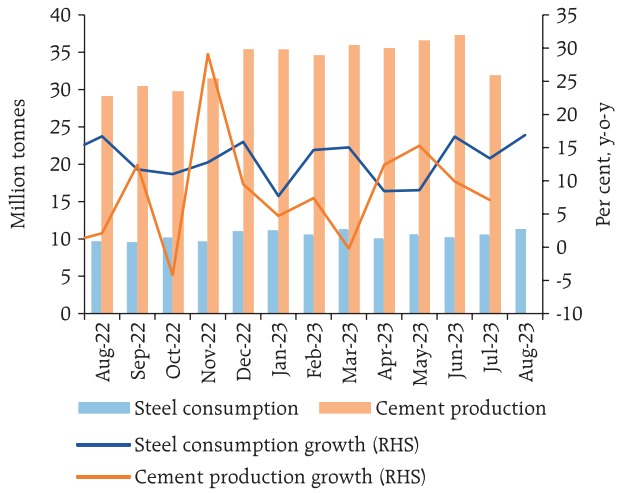
Chart 37: Railway and Port Cargo Traffic



Source: Indian Ports Association.

Source: Rail Drishti.

Chart 38: Steel Consumption and Cement Production



Sources: Joint Plant Committee; and Office of the Economic Adviser, Ministry of Commerce and Industry.

In terms of regional policy initiatives, Odisha is set to open customer service point (CSP) Plus banking outlets in unbanked gram panchayats (GPs) that offer rent-free banking spaces for five years and cover one-time fixed and recurring expenses. Chhattisgarh initiated the Gramin Awas Nyay Yojana-Rural (GANY) to provide homes to the homeless and offer one year unemployment allowances through the *Berojgari Bhatta Yojana*, which can be extended for an additional year if employment is not secured. Servotech Power Systems Ltd. has entered into a Memorandum of Understanding (MoU) with Uttar Pradesh to establish an EV charger manufacturing plant. Madhya Pradesh approved the disbursement of ₹6,000 each to eligible farmers under the *Kisan Kalyan Yojana* for 2023-24.

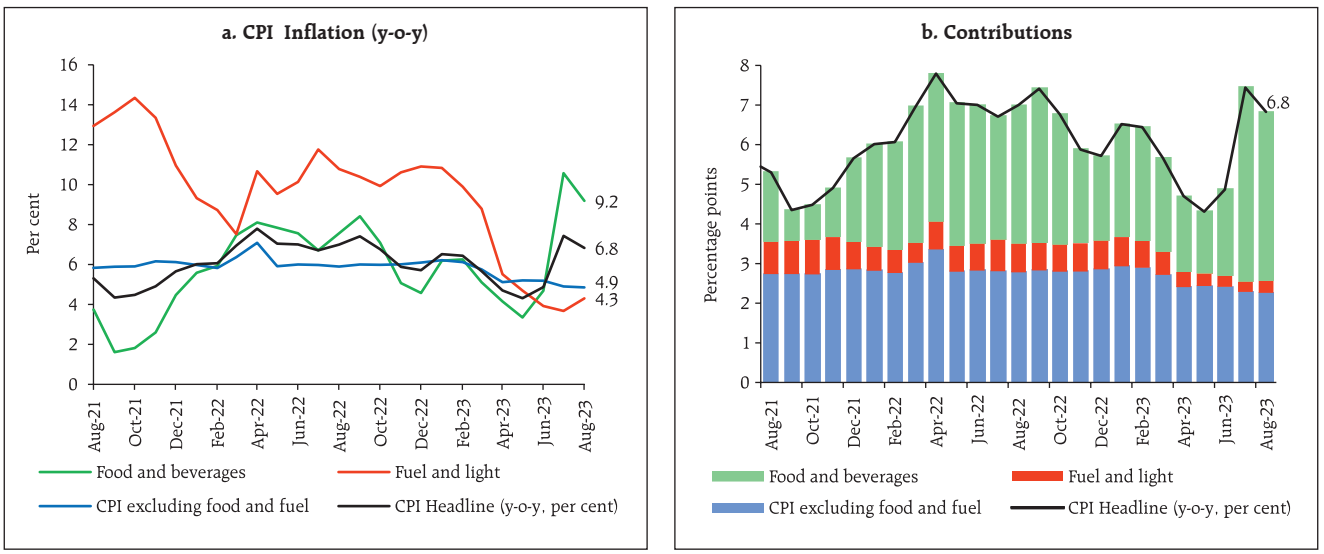
Table 2: High Frequency Indicators – Services

Growth (y-o-y, per cent)

Sector	Indicator	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23
Urban demand	Passenger Vehicles Sales	17.2	11.0	4.5	31.6	33.1	18.7	2.9	9.4
Rural demand	Two Wheeler Sales	5.0	7.6	7.7	15.1	17.4	1.7	-7.2	0.6
	Three Wheeler Sales	103.0	86.1	69.2	104.2	70.4	98.6	78.9	68.8
	Tractor Sales	24.4	20.0	13.7	-11.1	1.2	4.2	6.1	1.1
Trade, hotels, transport, communication	Commercial Vehicles Sales	11.8			-3.3				
	Railway Freight Traffic	3.8	3.6	3.8	3.5	1.9	-1.9	1.51	6.4
	Port Cargo Traffic	12.2	12.0		1.3	3.2	-2	4.2	4.4
	Domestic Air Cargo Traffic*	-7.5	0.0	-4.4	-1.7	-12.7	-12.2	-14.0	-2.6
	International Air Cargo Traffic*	-4.3	-8.1	0.8	-3.0	-0.5	5.8	-2.7	11.6
	Domestic Air Passenger Traffic *	95.3	50.2	22.9	23.2	15.9	21.1	25.5	23.2
	International Air Passenger Traffic *	115.1	98.0	62.4	43.9	35.8	24.1	21.1	21.0
	GST E-way Bills (Total)	19.7	18.4	16.3	12.2	19.7	15.5	16.4	19.5
	GST E-way Bills (Intra State)	24.1	22.2	20.7	16.2	23.0	18.8	20.8	22.6
	GST E-way Bills (Inter State)	12.8	12.4	9.3	5.9	14.3	9.9	9.1	14.4
	Hotel occupancy rate	81.9	32.2	3.0	-2.4	-3.4	-1.8	-3.2	
	Average revenue per room	53.1	62.0	39.6	21.2	15.8	14.0	14.2	
	Tourist Arrivals	330.8	259.4	132.5	53.7				
Construction	Steel Consumption	7.7	14.6	15.0	8.5	8.6	16.7	13.4	16.9
	Cement Production	4.7	7.4	-0.2	12.4	15.3	9.9	7.1	
PMI Index#	Services	57.2	59.4	57.8	62.0	61.2	58.5	62.3	60.1

Note: #: Data in levels. *: Data are based on the monthly average of daily figures.
Sources: CMIE; CEIC; IHS Markit; SIAM; Airports Authority of India; and Joint Plant Committee.

Chart 39: Trends and Drivers of CPI Inflation



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

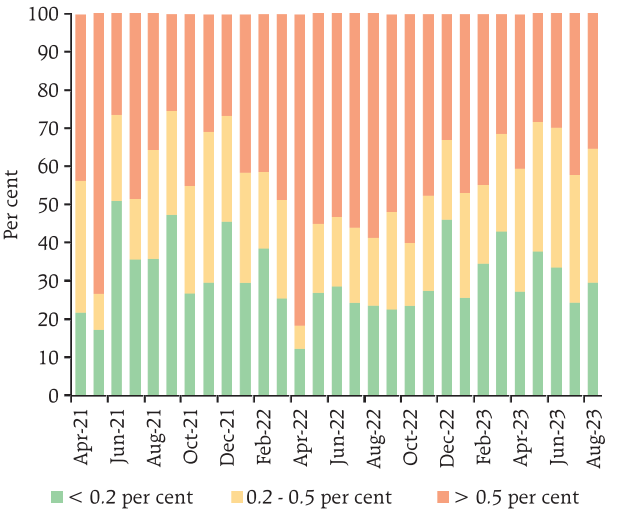
Inflation

Headline inflation, as measured by y-o-y changes in the all-India consumer price index (CPI)[26], moderated to 6.8 per cent in August 2023 from 7.4 per cent in July (Chart 39). The 60 bps softening in inflation came from a negative momentum of around 10 bps which was supported by a favourable base effect of about 50 bps. The negative momentum was on account of a m-o-m decline of about 50 bps in food prices, which was partially offset by positive momentum of around 15 bps in fuel prices, and 40 bps in the core group (*i.e.*, excluding food and fuel).

At a disaggregated level, the decline in price pressures was broad-based – the combined weight of items in the CPI basket which recorded below 0.5 per cent momentum went up to 64.8 per cent in August 2023 from 57.9 per cent in July (Chart 40).

Food inflation (y-o-y) fell to 9.2 per cent in August from 10.6 per cent in July as the negative momentum was reinforced by a favourable base effect. In terms of sub-groups, inflation in vegetables softened sharply, though it remained elevated (Chart 41). Inflation moderated in cereals, milk, pulses and prepared meals, while it edged up in spices, fruits, eggs, meat and fish. Edible oils continued to record deflation, *albeit* at a lower rate.

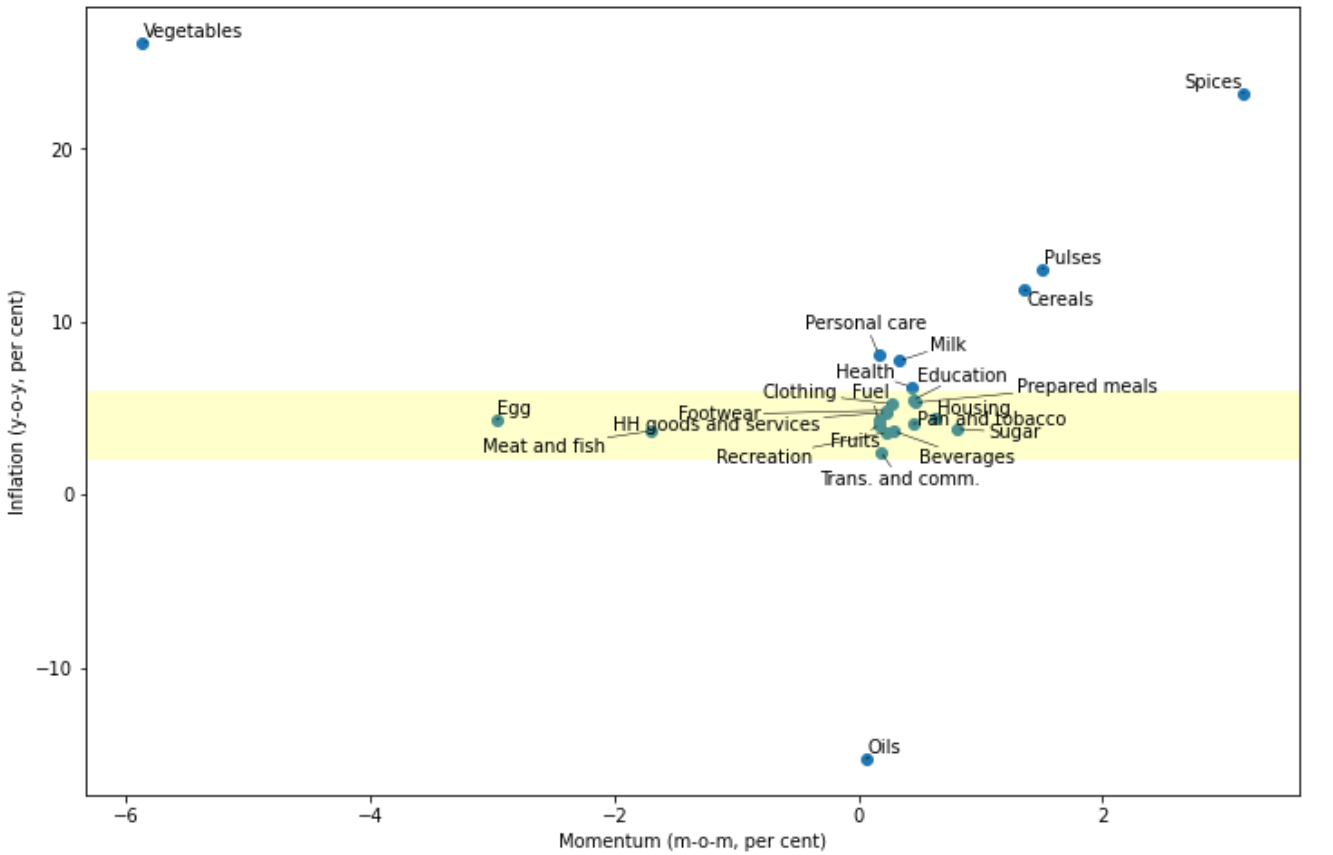
Chart 40: CPI Momentum Distribution (Combined weight of items with m-o-m change)



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

[26] As per the provisional data released by the National Statistical Office (NSO) on September 12, 2023.

Chart 41: Annual Inflation (y-o-y) and Momentum (m-o-m) across Sub-groups



Sources: NSO; and RBI staff estimates.

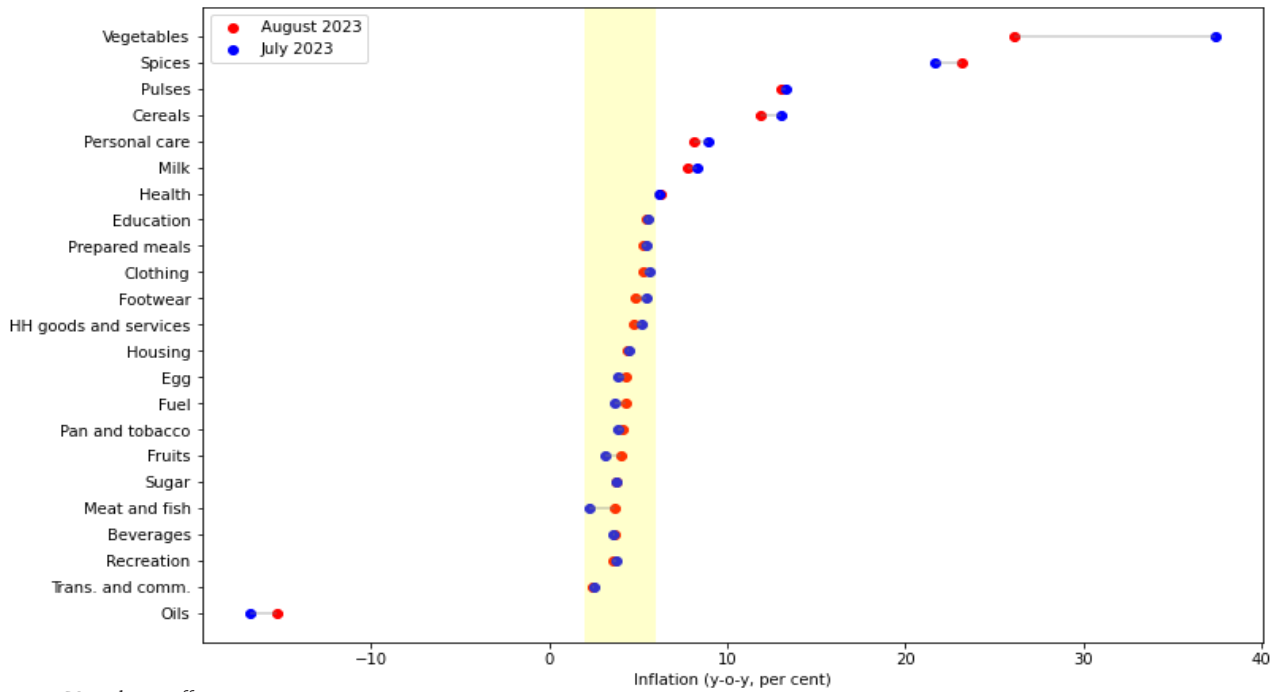
Inflation in the fuel and light group increased to 4.3 per cent in August from 3.7 per cent in July. Electricity prices recorded double-digit inflation (13.5 per cent y-o-y). While inflation in LPG prices softened in line with a sequential decline in prices, kerosene prices recorded a lower rate of deflation.

Core inflation remained steady at 4.9 per cent in August. While inflation in clothing and footwear, housing, household goods and services, recreation and amusement, and personal care and effects moderated, it increased in pan, tobacco and intoxicants (Chart 42).

In terms of regional distribution, rural inflation at 7.02 per cent was higher than urban inflation at 6.59 per cent in August 2023. Majority of the States registered inflation in the range of 6-8 per cent. Arunachal Pradesh, Goa and Delhi experienced inflation of less than 4 per cent (Chart 43).

High frequency food price data for September so far (up to 12th) show that cereal prices exhibited further increases, mainly driven by rice and pulses prices rose mainly for tur and gram (Chart 44). Among edible oils, mustard and sunflower oil prices continued to decline.

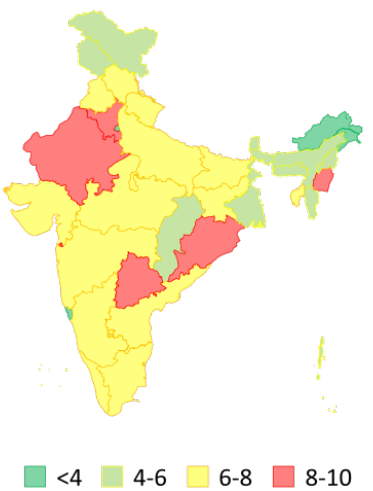
Chart 42: Annual Inflation across Sub-groups (August 2023 versus July 2023)



Sources: NSO; and RBI staff estimates.

Within key vegetables, tomato prices continued their precipitous fall as fresh harvest arrivals strengthened and logistics improved during the monsoon break phase (Chart 45). Onion prices started moving upward owing to seasonal shortage during July-August and storage losses in rabi crops following unseasonal rains during the pre-monsoon phase in Maharashtra and Karnataka.

Chart 43: Spatial Distribution of Inflation August 2023 (CPI-Combined, y-o-y, per cent)

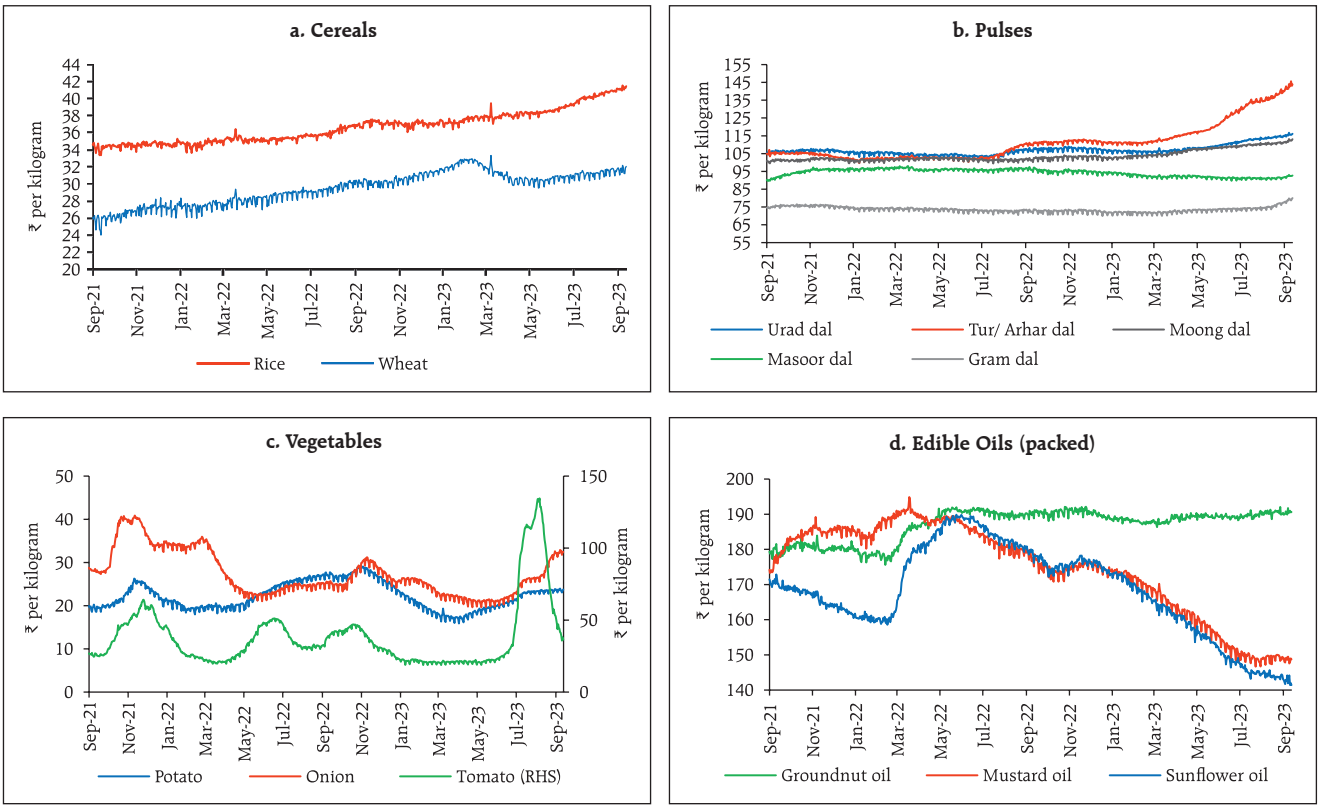


Note: Map is for illustrative purposes only.
Sources: NSO; and RBI Staff estimates.

Retail selling prices of petrol and diesel in the four major metros remained steady in September so far (up to 12th). While kerosene prices increased further, LPG prices were cut by ₹200 per cylinder on August 30, 2023 and have been kept unchanged in September so far (Table 3).

The PMIs for August 2023 indicate a further uptick in input cost in the manufacturing sector while softening for services. Selling prices, on the other hand, moderated in manufacturing while they increased for the services sector (Chart 46).

Chart 44: DCA Essential Commodity Prices



Sources: Department of Consumer Affairs, GoI; and RBI staff estimates.

The all-India house price index (HPI)[27] increased by 5.1 per cent (y-o-y) during Q1:2023-24, its highest increase in the last eighteen quarters (Chart 47). On a sequential (q-o-q) basis, HPI increased by 2.6 per cent,

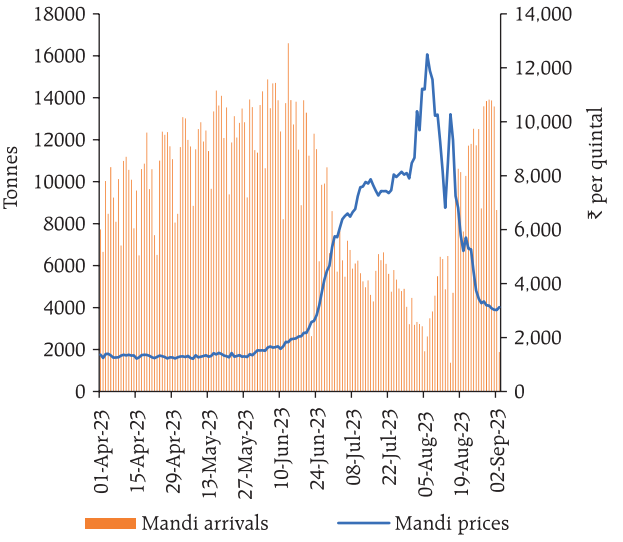
Table 3: Petroleum Products Prices

Item	Unit	Domestic Prices			Month-over-month (per cent)	
		Sep-22	Aug-23	Sep-23^	Aug-23	Sep-23^
Petrol	₹/litre	102.92	102.92	102.92	0.0	0.0
Diesel	₹/litre	92.72	92.72	92.72	0.0	0.0
Kerosene (subsidised)	₹/litre	60.13	47.65	54.89	7.7	15.2
LPG (non-subsidised)	₹/cylinder	1063.25	1100.35	913.25	-1.2	-17.0

^: For the period September 1-12, 2023.
Note: Other than kerosene, prices represent the average Indian Oil Corporation Limited (IOCL) prices in four major metros (Delhi, Kolkata, Mumbai and Chennai). For kerosene, prices denote the average of the subsidised prices in Kolkata, Mumbai and Chennai.
Sources: IOCL; Petroleum Planning and Analysis Cell (PPAC); and RBI staff estimates.

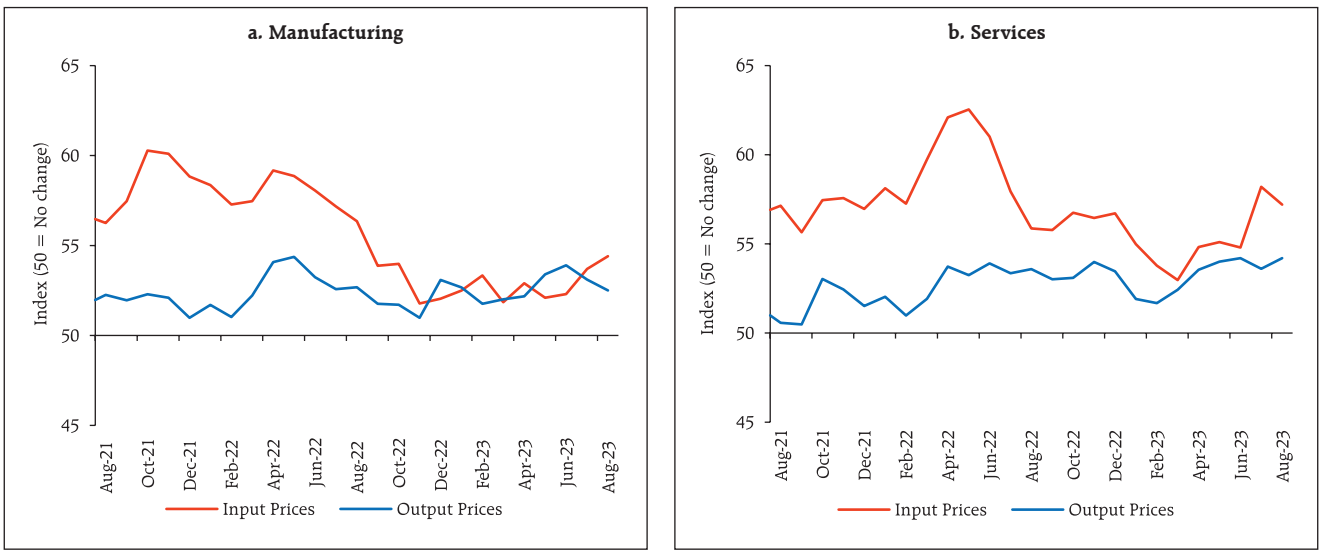
[27] House price index (base: 2010-11=100) is compiled based on transaction-level data received from the registration authorities in ten major cities (*viz.*, Ahmedabad, Bengaluru, Chennai, Delhi, Jaipur, Kanpur, Kochi, Kolkata, Lucknow and Mumbai).

Chart 45: Tomato Daily *Mandi* Arrivals and Prices



Source: Centre for Monitoring Indian Economy.

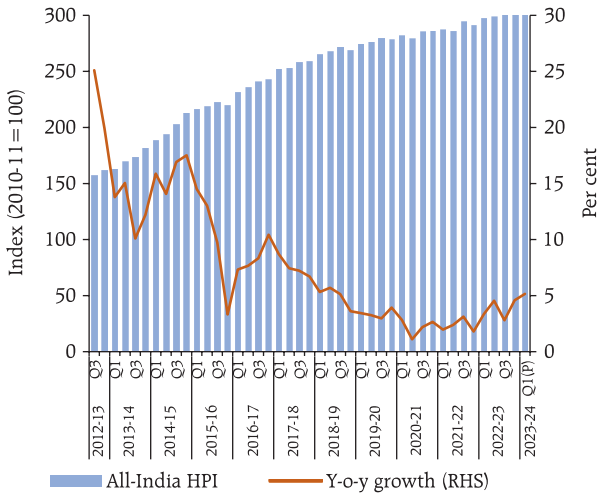
Chart 46: PMI: Input and Output Prices



Source: S&P Global

with eight of the ten cities recording a rise in house registration prices.

Chart 47: Movement of House Price Index

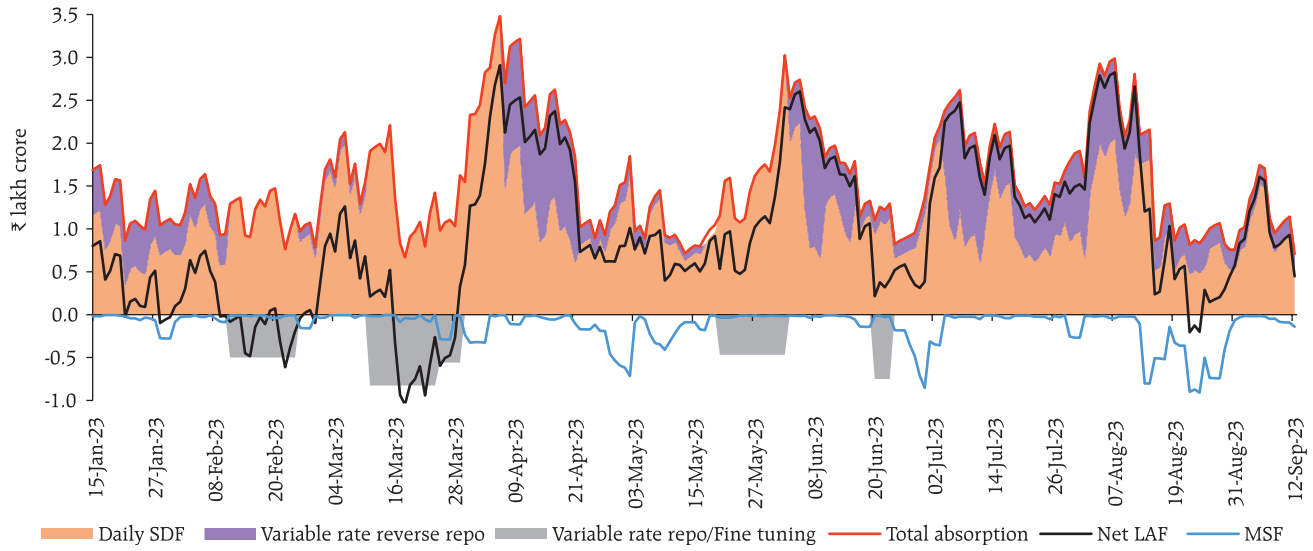


Note: P – Provisional.
Sources: House prices data from registration authorities of State governments; and RBI staff estimates.

IV. Financial Conditions

In consonance with the strategy of calibrated withdrawal, surplus liquidity in the banking system moderated considerably since August 12, 2023 following the imposition of the incremental CRR (I-CRR) which impounded liquidity of about ₹1.13 lakh crore from the banking system. Liquidity increased towards the end of the month and in early September in response to larger government spending but moderated thereafter. Reflecting these developments, average total absorption under the liquidity adjustment facility (LAF) declined sharply to about ₹1.0 lakh crore during August 16 to September 12, 2023 from ₹1.9 lakh crore during July 16 - August 15 (Chart 48). Of the total average surplus liquidity, placement of funds under the standing deposit facility (SDF) averaged ₹0.8 lakh crore while the remaining amount was mopped up through variable rate reverse repo (VRRR) operations.

Chart 48: Liquidity Operations



Sources: RBI; and CCIL.

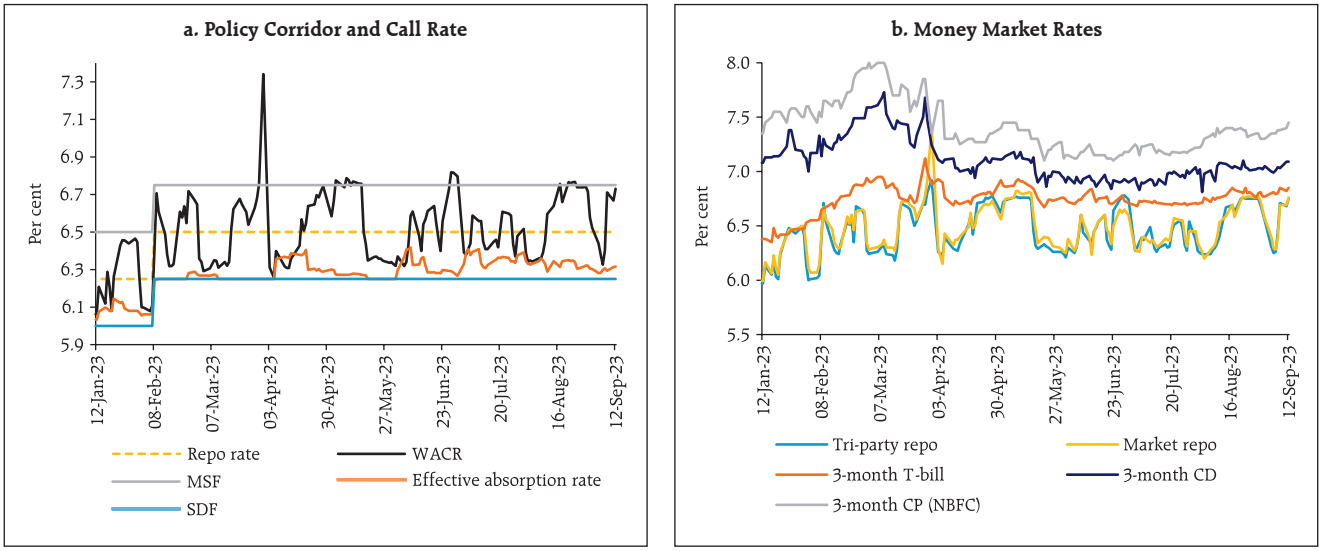
With moderation in surplus liquidity, net absorption under the LAF came down to ₹0.6 lakh crore during August 16 to September 12, 2023 from ₹1.7 lakh crore during July 16 - August 15, 2023. During this period, net LAF slipped into deficit (first time in the current financial year) for three consecutive days, *i.e.*, August 21-23, when average recourse to the marginal standing facility (MSF) was in excess of ₹0.89 lakh crore. Drawals under the MSF peaked at ₹0.91 lakh crore on August 23 and averaged ₹0.31 lakh crore during August 16 to September 12, 2023 (₹0.13 lakh crore during July 16 - August 15).

The shrinkage in surplus liquidity was also reflected in overnight money market conditions. During August 17 to September 12, the weighted average call rate (WACR) firmed up and breached the ceiling of the LAF corridor on 5 occasions. On average, the WACR, triparty repo and market repo rates traded 14 bps, 12 bps and 14 bps, respectively, above the policy repo rate (Chart 49a).

Across the term money segment, the yield on 3-month certificates of deposit (CDs) and commercial paper (CP) for non-banking financial companies (NBFCs) stayed elevated, while the yield on 3-month treasury bills (T-bills) was broadly aligned with the MSF rate (Chart 49b). In the primary market, fund mobilisation through issuances of CDs remained robust at ₹2.39 lakh crore during 2023-24 (up to August 25) on account of higher growth in credit *vis-a-vis* that of deposits. Furthermore, the I-CRR also prompted banks to resort to fresh CD issuances for their funding requirements – ₹5.88 lakh crore (up to August 31) they were marginally higher than ₹5.50 lakh crore in the corresponding period of the previous year.

After easing in the second half of August, domestic bond yields firmed up in tandem with US treasury yields but softened on September 13, taking cues from the lower than expected CPI inflation reading for August. The yield on the old 10-year benchmark G-sec (7.26 per cent GS 2033) remained almost unchanged at 7.20 per cent on September 13, 2023 as against 7.21 per cent on August 14 (Chart 50a). The yield on the new 10-year benchmark (7.18 per cent 2033) eased

Chart 49: Policy Corridor and Money Market Rates

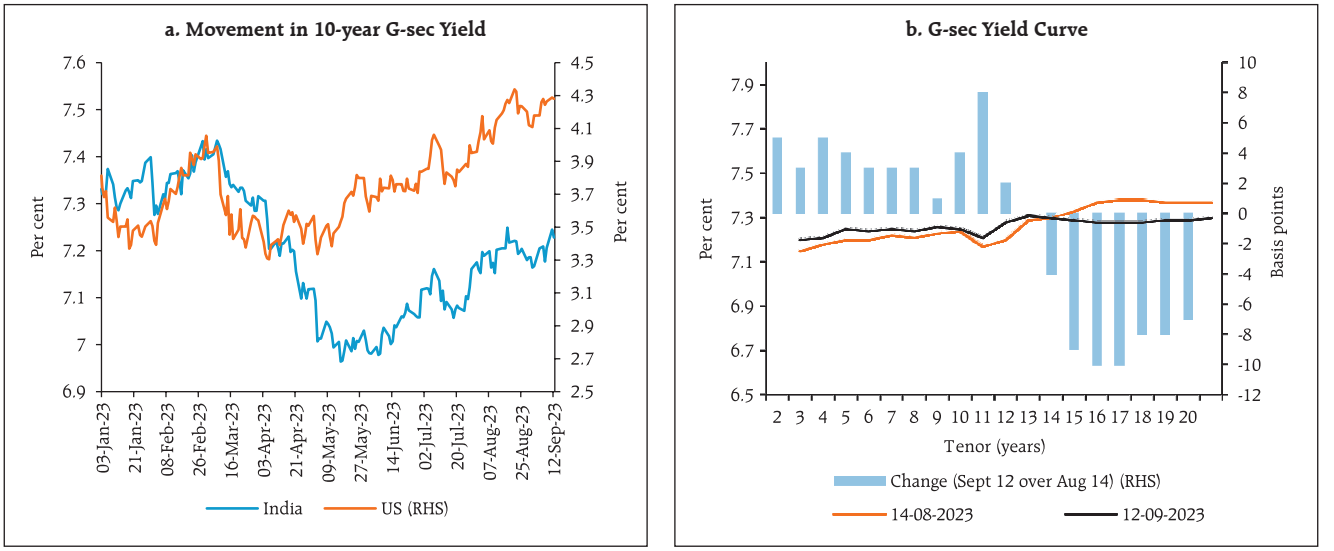


Sources: RBI; Bloomberg; and RBI staff estimates.

to 7.17 per cent from 7.18 per cent on August 14. Although the yield on the 10-year US treasury eased from a high of 4.34 per cent on August 21 consequent upon benign employment and inflation data releases, it hardened thereafter as resilient economic data and higher inflation prints fuelled expectations of a prolonged period of elevated interest rates. Overall, the domestic yield curve flattened as the short to mid-end of the curve hardened while long term bond yields softened (Chart 50b).

Corporate bond yields and associated risk premia generally increased during August 17 to September 12, 2023; however, the average risk premia in the bond market (5-year AAA *minus* 5 year G-sec) declined by

Chart 50: Developments in the G-sec Market



Sources: Bloomberg; CCIL; and RBI staff estimates.

Table 4: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (basis points) (Over Corresponding Risk-free Rate)		
	Jul 17, 2023 – Aug 14, 2023	Aug 17, 2023 – Sept 12, 2023	Variation	Jul 17, 2023 – Aug 14, 2023	Aug 17, 2023 – Sept 12, 2023	Variation
1	2	3	(4 = 3-2)	5	6	(7 = 6-5)
Corporate Bonds						
(i) AAA (1-year)	7.57	7.68	11	56	55	-1
(ii) AAA (3-year)	7.79	7.90	11	56	58	2
(iii) AAA (5-year)	7.69	7.71	2	44	38	-6
(iv) AA (3-year)	8.39	8.50	11	116	118	2
(v) BBB-(3-year)	12.00	12.18	18	478	486	8

Note: Yields and spreads are computed as monthly averages.
Sources: FIMMDA; and Bloomberg.

6 bps, indicating healthy investor appetite in this segment (Table 4). Favourable market conditions on the back of stable long term-yields and a cost advantage over bank loans increased the preference for corporate bonds. Overall, corporate bond issuances during the year so far (up to July) at ₹2.9 lakh crore was nearly twice ₹1.5 lakh crore during the same period last year.

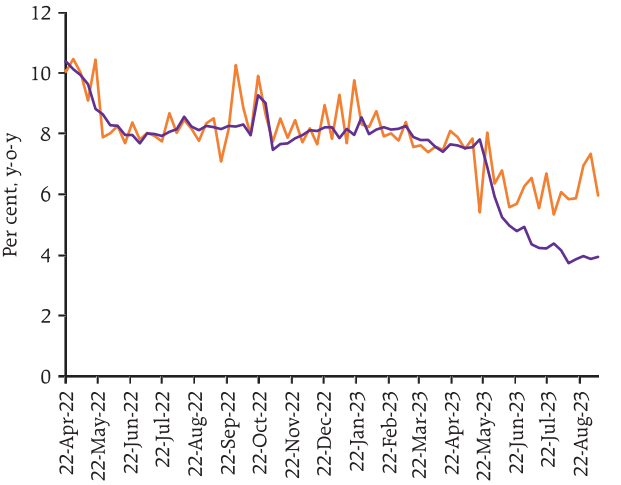
Reserve money (RM), excluding the first-round impact of change in the CRR[28] recorded a growth of 6.0 per cent (y-o-y) as on September 8, 2023 (8.5 per cent a year ago) [Chart 51]. Currency in circulation (CiC), the largest component of RM, decelerated to 4.0 per cent from 8.2 per cent a year ago, reflecting the withdrawal of ₹2000 banknotes[29] – 93 per cent has been returned to the banking system, mostly in the form of deposits (as on August 31, 2023).

Excluding the impact of the merger of a non-bank with a bank (with effect from July 1, 2023), money

[28] This takes into account the impact of imposition of I-CRR.

[29] Announced on May 19, 2023.

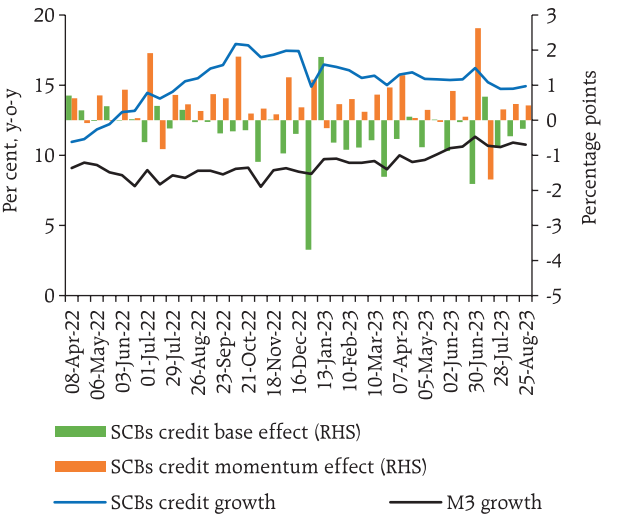
Chart 51: Reserve Money and Currency in Circulation



Sources: RBI.

supply (M_3) growth, as on August 25 was higher at 10.8 per cent (y-o-y) than 8.9 per cent in the corresponding period last year. Aggregate deposits with banks, the largest component of M_3, increased by 11.8 per cent (9.0 per cent a year ago). SCBs' credit (excluding the impact of the merger) growth registered a slight moderation amidst ongoing deposit mobilisation efforts by the banking sector (Chart 52). The incremental credit-

Chart 52: M_3 Growth and Credit Growth of SCBs - Base and Momemtum Effect



Sources: RBI.

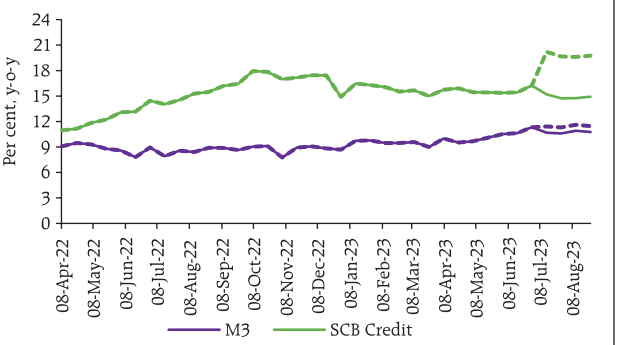
Box 1: Merger of HDFC Ltd with HDFC Bank: Implications on Money Supply

The impact on monetary aggregates from the recent merger[31] of a non-bank (HDFC Ltd.) with a bank (HDFC Bank) is different from the merger of two banks as there is an expansion of the balance sheet of the banking system in the former case than in the latter case. As money supply (M_3) is a lateral aggregation of liabilities of the banking system, monetary aggregates remain unaffected in the case of a merger of two banks. On the other hand, in the case of a merger of a non-bank with a bank, time deposits of the non-bank will be included in the money supply though its major liabilities, *viz.*, borrowings and capital market instruments are excluded. Consequently, on the components side, there is an accretion to the time and hence aggregate deposits.

On the sources side, lending by the bank to the erstwhile non-bank is now considered as intra-bank lending and cancels out; but the entire loan portfolio of the non-bank becomes a part of the merged bank's assets and as such, the overall bank lending to the commercial sector increases.

Accordingly, a difference of 70 bps (as on August 25, 2023) has been observed between growth rates of M_3 including and excluding the impact of the merger. The divergence is sharper for SCBs' credit, a major source of variation in M_3, which registered a growth of 19.8 per cent including the impact of merger, as the large loan portfolio of HDFC Ltd. is now part of the banking system (Chart B1).

Chart B1: Money Supply (M3) and SCBs' Credit



Note: Dotted line indicates the impact of merger.
Source: RBI.

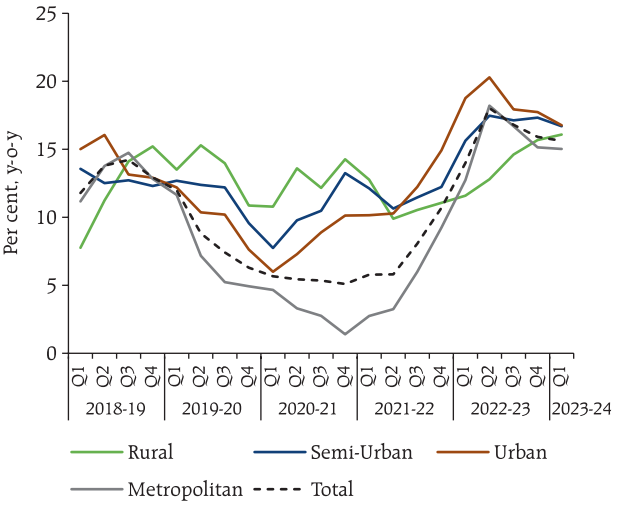
deposit ratio moderated further to 88.9 per cent, net of merger, from the peak of 142.2 per cent as on November 4, 2022.[30] The merger had a larger impact on SCBs' credit than on deposits (Box 1).

Metropolitan branches of SCBs, which accounted for around 60 per cent of bank credit in June 2023, exhibit larger fluctuations in sync with business cycles. As post-pandemic business activity normalised, credit growth across geographies (*viz.*, rural, semi-urban, urban and metropolitan regions) has converged (Chart 53).

Personal loans (housing and non-housing), which have supported overall credit expansion in the recent years, recorded some deceleration but continue to grow well above the headline credit growth (Chart 54).

Export credit by SCBs has been declining and its y-o-y growth turned negative for the last four quarters

Chart 53: Annual Growth in Bank Credit - Geographies

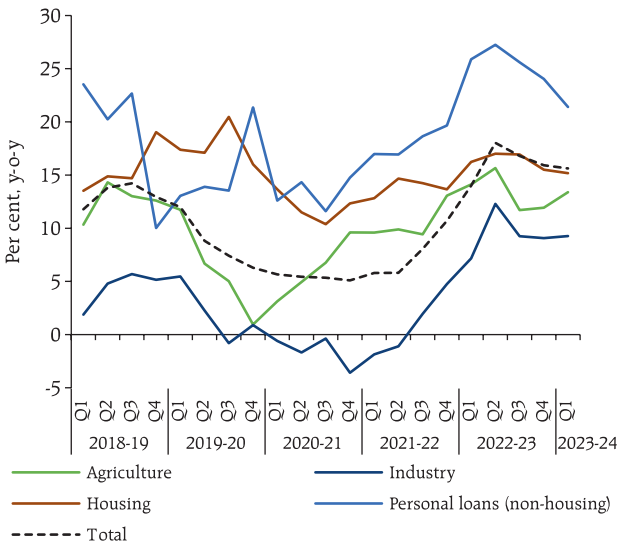


Source: Basic Statistical Return, RBI.

[30] Incremental credit-deposit ratio, however, increased to 110.0 post merger of the non-bank with SCB.

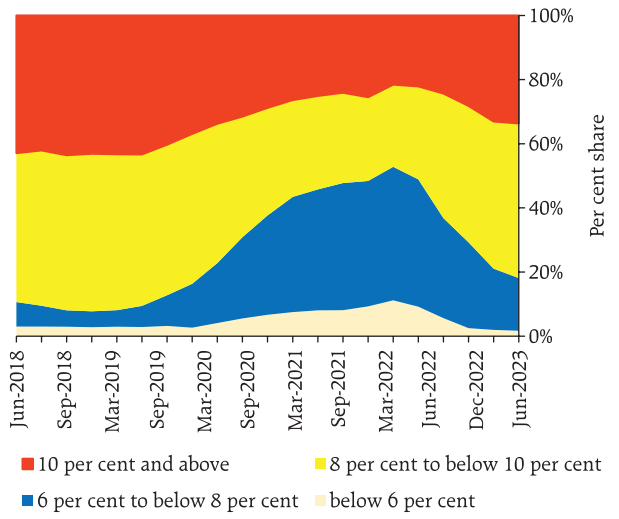
[31] with effect from July 1, 2023.

Chart 54: Annual Credit Growth - Major Sectors



Source: Basic Statistical Return, RBI.

Chart 56: Bank Loans and Advances - Interest Rates



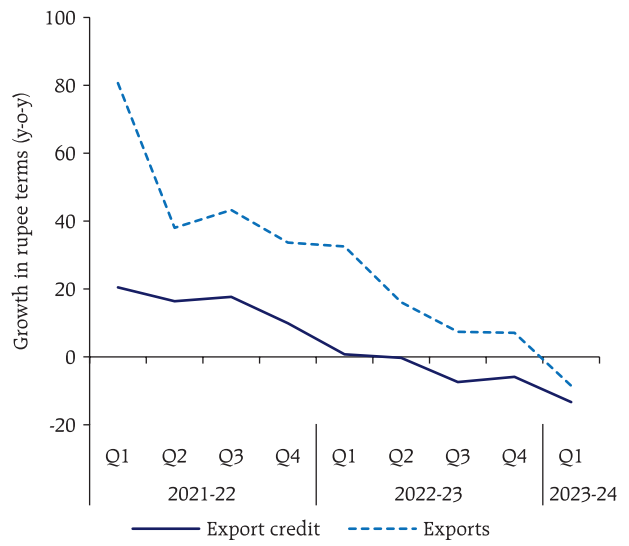
Source: Basic Statistical Return, RBI.

(up to Q1:2023-24), reflecting the overall moderation in exports (Chart 55).

With a rise in the policy rate, the share of loans below 8 per cent interest rate has come down from 53 per cent in March 2022 to 18 per cent in June 2023. The share of bank loans at interest rate of 10 per cent or above increased from 22 per cent to 34 per cent over this period (Chart 56).

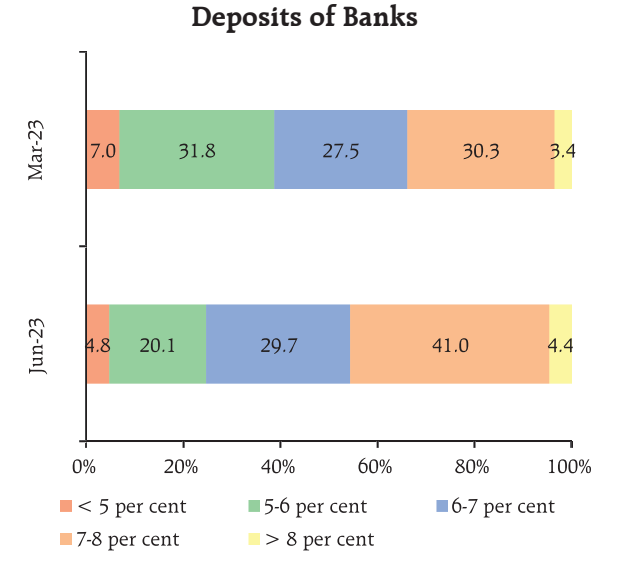
There has been an increase in the share of term deposits offering 7 per cent and above returns in the recent period (Chart 57). As a result, growth of term deposits picked up while savings deposits decelerated,

Chart 55: Commodity Exports and Export Credit



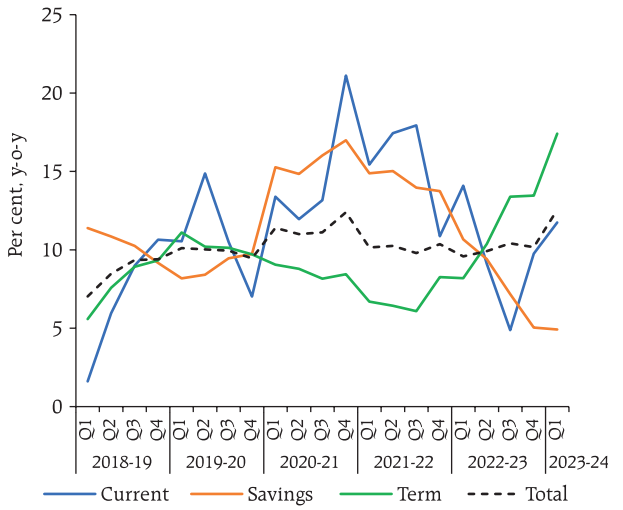
Source: Basic Statistical Return, RBI.

Chart 57: Interest Rate wise Share of Term Deposits of Banks



Source: Basic Statistical Return, RBI.

Chart 58: Growth in Aggregate Deposits - Type of Deposits



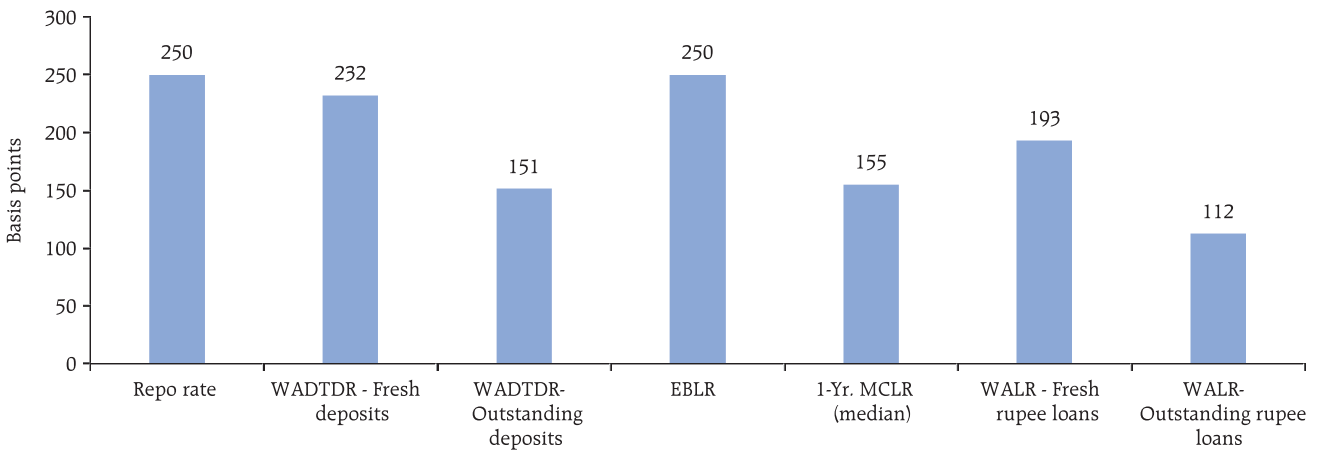
Source: Basic Statistical Return, RBI.

reflecting the relative attractiveness of term deposits in an increasing interest rate environment (Chart 58).

In response to the 250 bps hike in the policy repo rate since May 2022, 32 domestic banks have revised their repo-linked external benchmark-based lending rates (EBLRs) upwards by a similar magnitude. The 1-year median marginal cost of funds-based lending rates (MCLRs) of SCBs increased by 155 bps during May 2022 – August 2023 (Chart 59). Concomitantly, the weighted average lending rates (WALRs) on fresh and outstanding rupee loans increased by 193 bps and 112 bps, respectively, during the period May 2022 – July 2023. On the deposit side, the weighted average domestic term deposit rates (WADTDR) on fresh and outstanding deposits increased to 232 bps and 151 bps, respectively, during the same period. During July 2023, the SCBs increased their WALR on fresh rupee loans by 24 bps, whereas the WADTDR on fresh deposits remained broadly unchanged.

Transmission across bank groups from May 2022 to July 2023 indicates that the increases in the WADTDR on fresh rupee deposits and WALR on fresh rupee loans were higher in the case of public sector banks, while the increases in WADTDR on outstanding deposits and WALR on outstanding loans were higher for private banks (Chart 60).

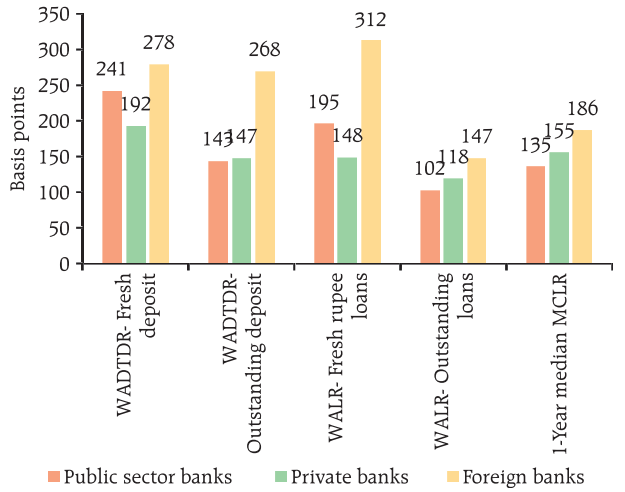
Chart 59: Transmission to Banks' Deposit and Lending Rates (May 2022 to August 2023)



Note: 1. Data on WALRs and WADTDRs pertain to July 2023.
2. Data on EBLR pertain to 32 domestic banks.
3. WALR: Weighted Average Lending Rate; WADTDR: Weighted Average Domestic Term Deposit Rate; MCLR: Marginal Cost of Funds-based Lending Rate; EBLR: External Benchmark based Lending Rate.

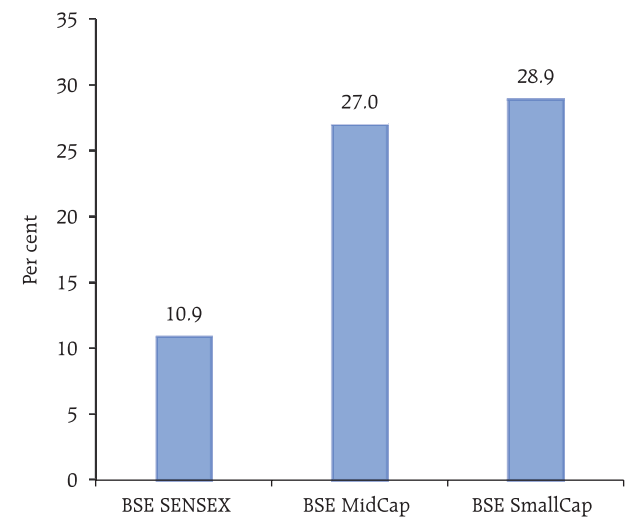
Source: RBI.

Chart 60: Transmission across Bank-groups (May 2022 to July 2023)



Note: Data on 1-year median MCLR pertain to May 2022 to August 2023 period.
Source: RBI.

Chart 61: Market Indices in 2023



Note: Data up to September 13, 2023.
Source: Bloomberg.

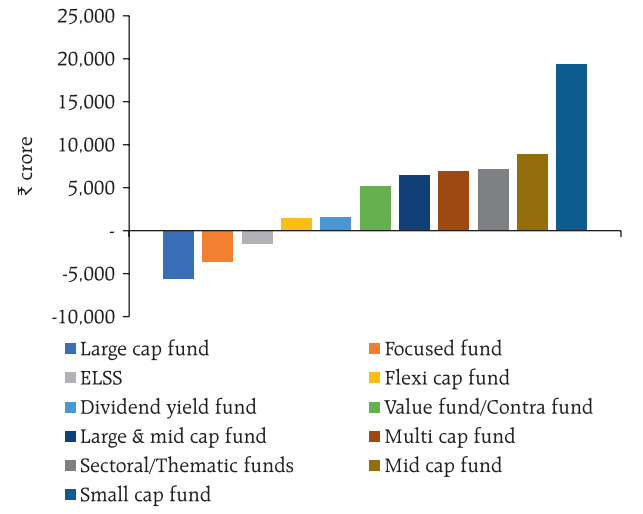
Domestic equity markets declined in the second half of August 2023 amidst rising concerns of a prolonged period of high global interest rates to control inflation as markets digested hawkish indications in the Federal Open Market Committee (FOMC) minutes from the July 2023 meeting and the Jackson Hole address of the Federal Reserve Chairman. However, markets recovered in early September following the release of strong domestic Q1:2023-24 GDP data and robust manufacturing and services PMIs. Equities gained further with the moderation in headline inflation in August, and a surge in industrial output also boosted investor sentiments. Overall, the BSE Sensex increased by 3.7 per cent since August 14, 2023 to close at an all-time high of 67,839 on September 15, 2023.

The broader indices (BSE MidCap and BSE SmallCap) have outperformed the benchmark indices in the recent period (Chart 61). SmallCap and MidCap funds have also recorded significant inflows in 2023-24 so far (up to August 2023) [Chart 62].

In comparison with the cash market, a more pronounced expansion has been recorded in the derivatives segment of the equity market (Chart 63). Furthermore, there has been a renewed surge in fresh demat account openings, with over 1.8 crore additions in 2023 so far (up to August) taking the total number of demat accounts in the country to 12.7 crore.

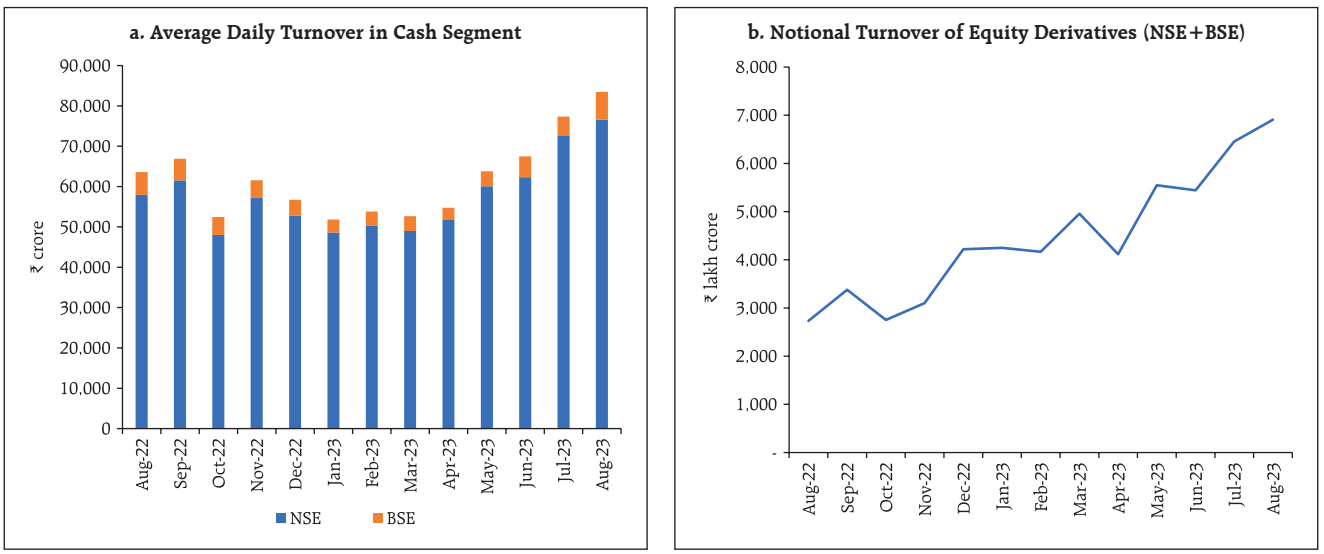
Investments through systematic investment plans (SIPs) crossed ₹15,000 crore for the first time in

Chart 62: Net Inflows in Open-Ended Growth/ Equity Oriented Schemes in 2023-24



Sources: SEBI and AMFI.

Chart 63: Activity in Equity Markets

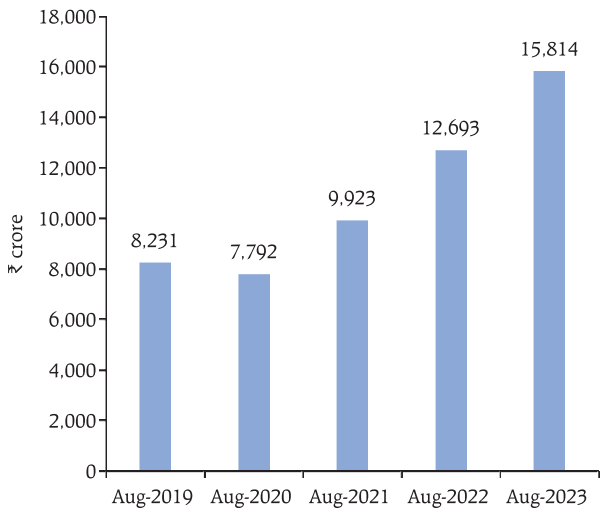


Sources: SEBI; NSE; and BSE.

July 2023 and rose further to ₹15,814 crore in August. The resilience of SIP investments over the last few years amidst volatile market conditions is a testament to the rising financialisation of savings and growing maturity of retail investors (Chart 64). The latter have also taken advantage of the opportunity to invest directly in government securities through the RBI Retail Direct platform amidst attractive interest rates on these securities.[32]

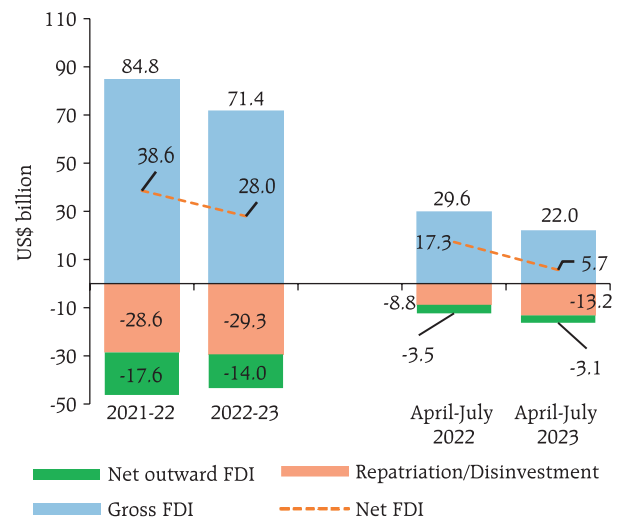
Gross inward foreign direct investment (FDI) moderated to US$ 22.0 billion during April-July 2023 from US$ 29.6 billion a year ago (Chart 65). Around

Chart 64: Monthly Amount Collected through SIPs



Source: Association of Mutual Funds in India (AMFI).

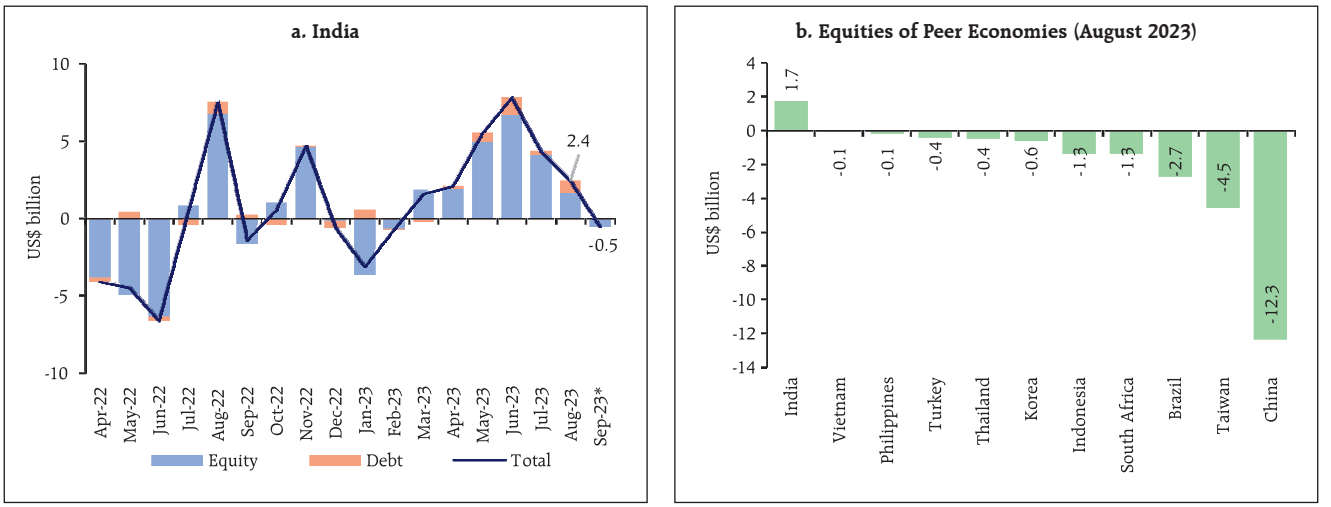
Chart 65: Foreign Direct Investment Flows to India



Source: RBI.

[32] RBI's Retail Direct primary market subscription surges over 42% in 5 months; T-bills see biggest traction (moneycontrol.com)

Chart 66: Net Portfolio Investments



Note: 1. Debt includes investments under the voluntary retention route and hybrid instruments.
2. *: Data for September 2023 is up to September 12, 2023.
Sources: National Securities Depository Limited; and Institute of International Finance.

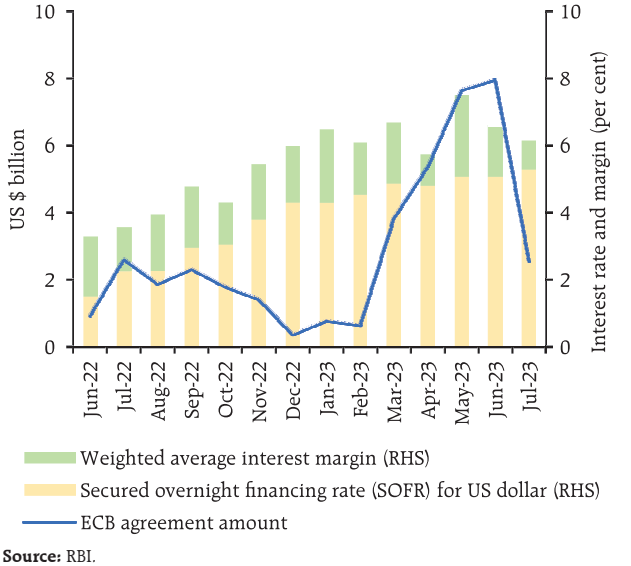
two-third of the FDI equity flows were directed towards manufacturing, financial services, business services, computer services, and electricity and other energy sectors. Singapore, Japan, the Netherlands, the US and Mauritius were major source countries, accounting for more than two-third of the FDI equity flows during the same period. Net FDI declined to US$ 5.7 billion on account of moderating gross FDI and a rise in repatriation.

Foreign portfolio investors (FPIs) remained net buyers for the sixth consecutive month in August 2023, with net inflows reaching US$ 2.4 billion (Chart 66a). India attracted the highest equity flows among emerging market peers with several countries facing outflows on account of flight to safety (Chart 66b). Power, capital goods, information technology and consumer services attracted the largest portion of these investments during August 16-30, 2023. During 2023-24, foreign portfolio investment (FPI) flows witnessed a significant turnaround, primarily driven by equity flows. The net FPI inflows stand at US$ 21.7 billion during the current financial year (up to September 12, 2023) as against net outflows in the preceding two years- US$ 15.3 billion in 2021-22 and US$ 5.9 billion in 2022-23.

Net accretions to non-resident deposits rose to US$ 3.0 billion during April-July 2023, led by significant accretions in Foreign Currency Non-Resident (FCNR(B)) accounts, as compared with US$ 1.4 billion during the same period a year ago.

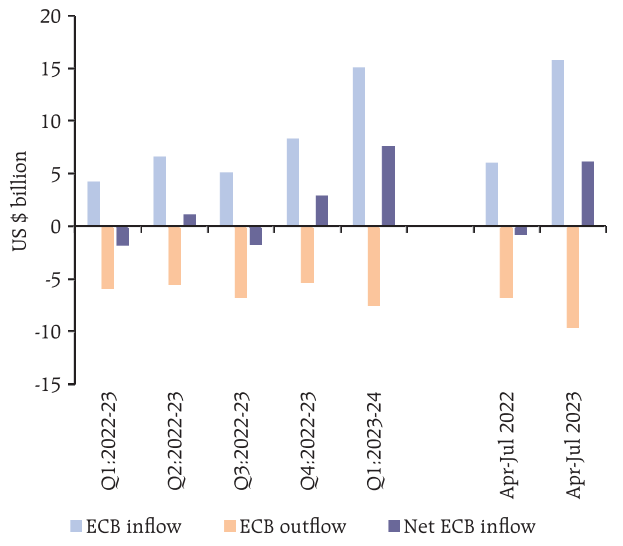
The amount of external commercial borrowing (ECB) agreement registrations moderated in July 2023 from the surge exhibited during the preceding four months (Chart 67).

Chart 67: ECB Agreement Amount and Cost



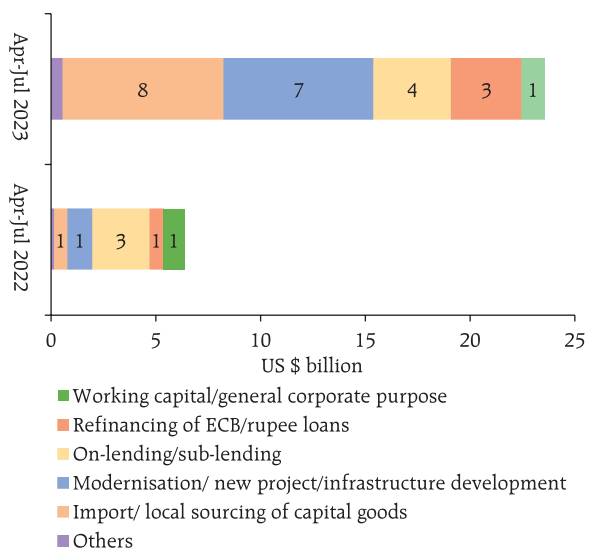
Source: RBI.

Chart 68 : External Commercial Borrowings - Flows



Source: RBI.

Chart 69: End-use of the Registered ECBs



Source: RBI.

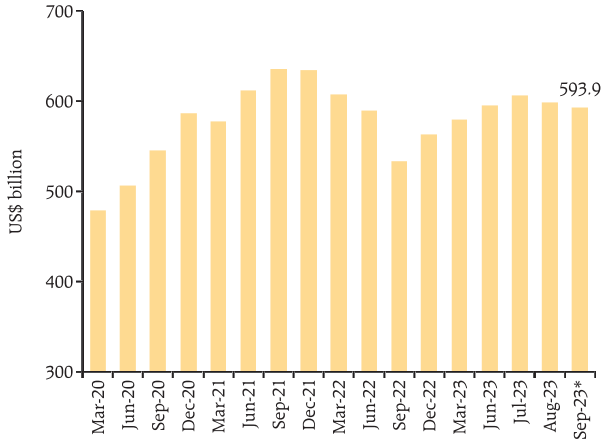
During April-July 2023, both gross and net ECB inflows were higher than during the corresponding period of the previous year (Chart 68). Nearly two-third of new ECBs were raised for capital expenditure (Chart 69).

The foreign exchange reserves at US$ 593.9 billion on September 8, 2023 stood cover for about 10 months of imports projected for 2023-24 or 95 per cent of total external debt outstanding at end-March 2023 (Chart 70a). During the calendar year 2023, Indian foreign exchange reserves increased by US$ 31.2 billion, which is the second highest among major foreign exchange reserves holding countries (Chart 70b).

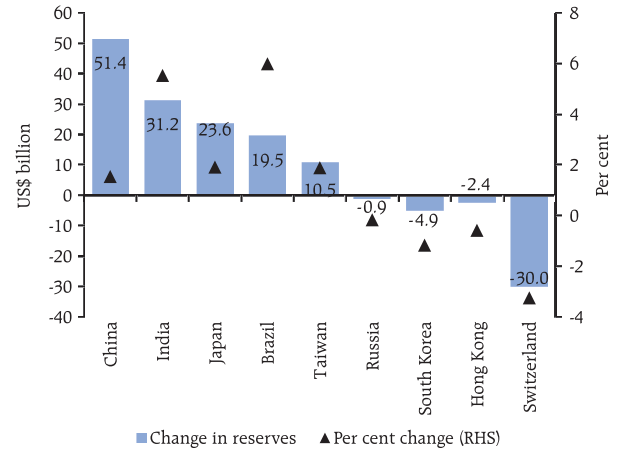
The Indian rupee (INR) depreciated by 0.8 per cent (m-o-m) *vis-à-vis* the US dollar in August 2023, reflecting the strong US dollar and high bond yields in

Chart 70: Foreign Exchange Reserves

a. India's Foreign Exchange Reserves

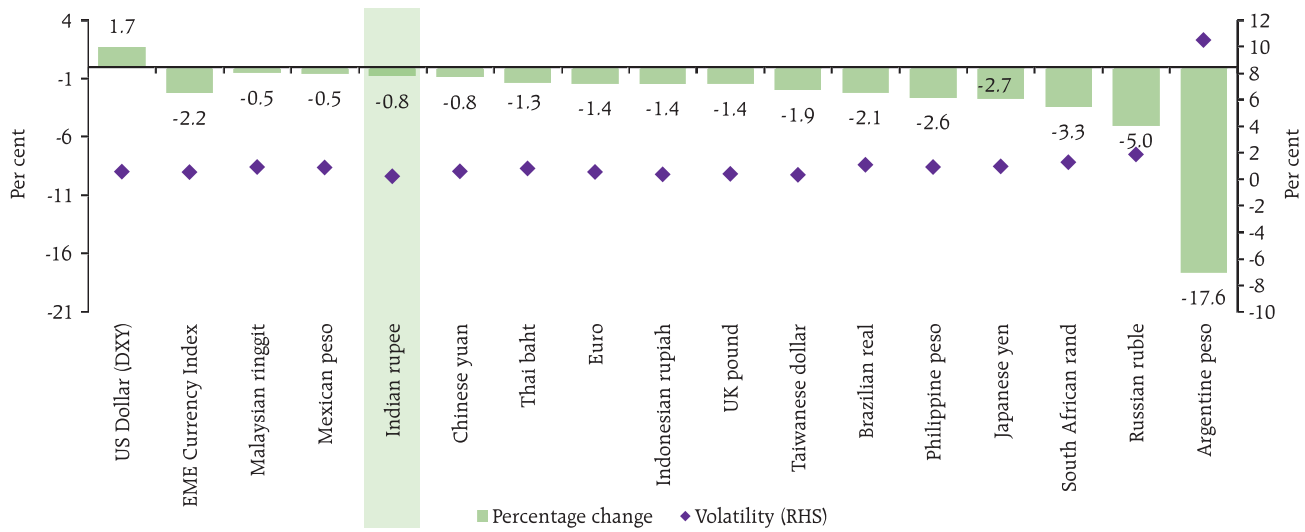


b. Reserve Change during 2023



Note: Data for India and Russia is for September 8, 2023, July for Switzerland and Hong Kong and August for the remaining countries.
Sources: RBI; and respective central bank websites.

Chart 71: Movements of Indian Rupee and Major Currencies against the US Dollar



Note: Data represents m-o-m change (August 2023 over July 2023).
Sources: FBIL; Thomson Reuters; and RBI staff estimates.

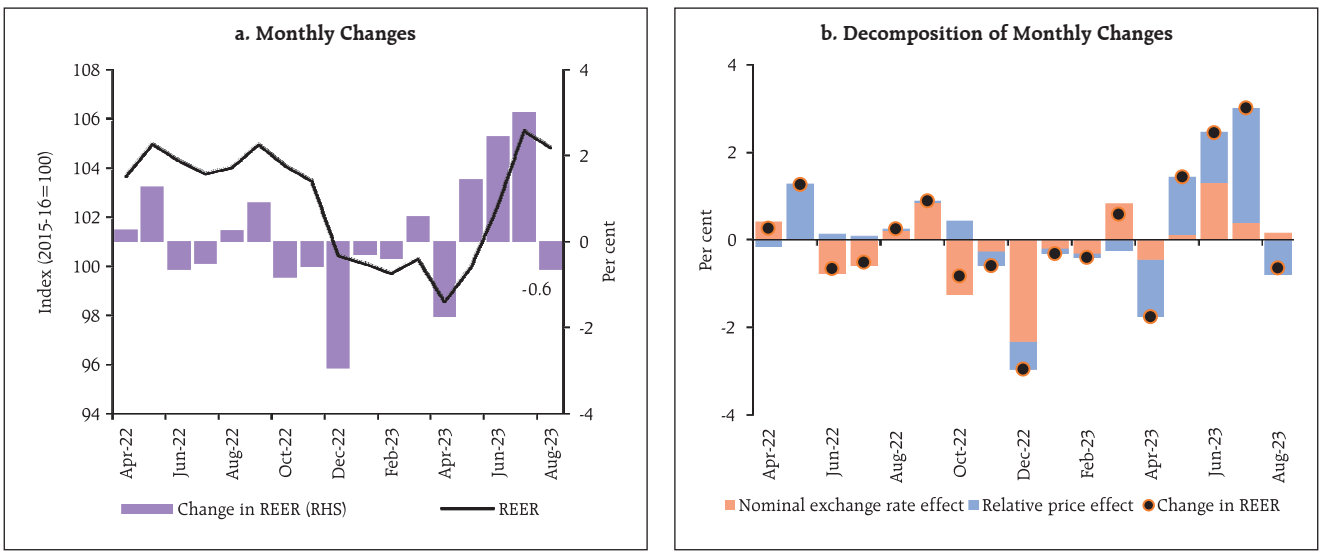
the US. Among the major currencies, the INR remained the least volatile during the month (Chart 71).

The INR depreciated by 0.6 per cent (m-o-m) in terms of the 40-currency real effective exchange rate (REER) in August 2023 as negative relative price differentials more than offset the appreciation of the INR in nominal effective terms (Chart 72).

Payment Systems

Digital payments maintained a strong growth trajectory in volume and value terms across payment modes during August 2023 (Table 5). As a significant milestone for the retail segment, the Unified Payments Interface (UPI) recorded 10 billion transactions (volume), accounting for around 81 per cent of the

Chart 72: Movements in the 40-Currency Real Effective Exchange Rate



Source: RBI.

Table 5: Growth in Select Payment Systems

(y-o-y in per cent)

Payment System Indicators	Transaction Volume				Transaction Value			
	Jul-22	Jul-23	Aug-22	Aug-23	Jul-22	Jul-23	Aug-22	Aug-23
RTGS	12.9	12.0	12.9	16.0	7.5	13.6	14.8	17.8
NEFT	26.8	36.3	29.5	35.6	19.2	16.1	19.1	19.1
UPI	93.8	58.4	85.1	60.8	75.5	44.2	67.9	46.9
IMPS	30.7	6.3	23.0	4.8	42.8	15.2	39.3	15.3
NACH	36.4	30.3	14.3	14.1	29.4	23.3	24.3	17.9
NETC	37.9	11.3	35.2	13.3	39.8	19.7	38.0	21.9
BBPS	67.9	25.9	48.5	23.9	68.7	46.0	56.1	46.5

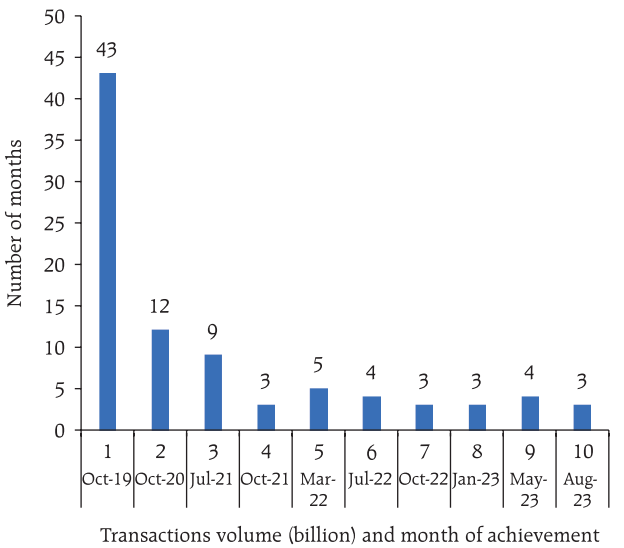
Note: RTGS: Real Time Gross Settlement; **NEFT:** National Electronic Funds Transfer; **IMPS:** Immediate Payment Service; **NACH:** National Automated Clearing House; and **NETC:** National Electronic Toll Collection; **BBPS:** Bharat Bill Payment System.
Source: RBI.

total digital transactions (Box 2). Since its inception in 2016, the UPI has exhibited exponential growth (Chart 73). With a near doubling of the transactions under the person-to-merchant (P2M) category, the UPI facilitates the transaction needs of over 330 million estimated unique users and 70 million merchants.[33]

In the cards segment, credit card transactions continued to gather steam, with the average value of transactions growing by nearly 14 per cent[34] (y-o-y) in August 2023 buoyed by growth in the tier 2 and tier 3 cities.[35] The BBPS exhibited an increase in its usage, driven by loan repayment, payments for liquefied petroleum gas (LPG) and piped gas, and FASTag recharges. Moving forward, as tier 2 and tier 3 cities offer a large e-commerce market estimated at over US$ 240 billion by 2030[36], retail digital payments will accelerate further over time.

On September 6, 2023, Governor Shri Shaktikanta Das unveiled a suite of payment products developed by the National Payments Corporation of India (NPCI) at the Global FinTech Festival 2023[37], and stated that "Technological innovation has unprecedented potential to make finance more inclusive, competitive and robust."[38] The scope of UPI is now being expanded by inclusion of credit lines as a funding account for transactions using the UPI.[39] To bolster digital payment literacy, the NPCI launched the third edition

Chart 73: Months Taken for 1 Billion Transactions



Source: RBI.

[33] MoneyControl, September 2023. "UPI Transactions for August Crosses 10-billion mark for the first time."

[34] Based on Provisional Data.

[35] Live Mint. August 2023. "Festivals Set to Drive Credit Card Spending."

[36] Source: Inc42

[37] These include credit line on UPI, UPI Lite X and Tap & Pay, Hello! UPI (Conversational Payments on UPI) and BillPay Connect.

[38] Governor's Speech, September 06, 2023. "FinTech and the Changing Financial Landscape."

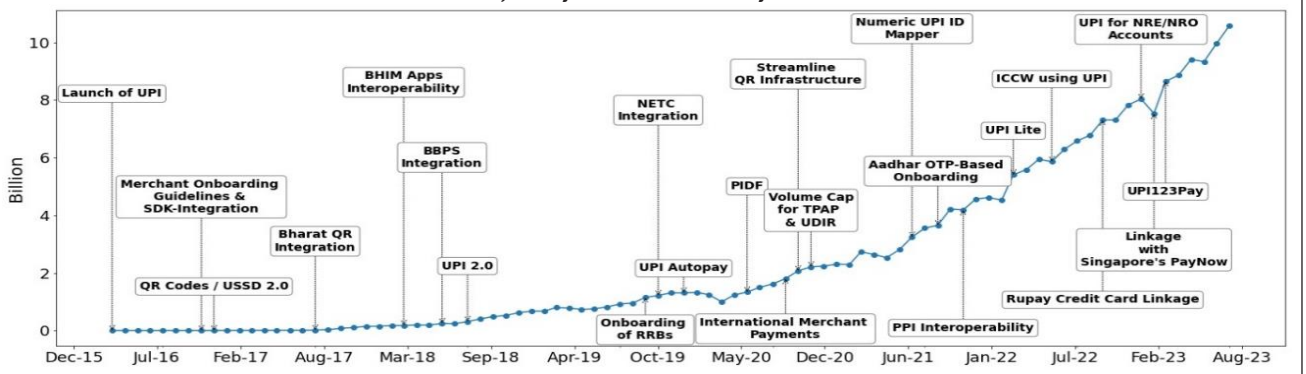
[39] Operation of Pre-Sanctioned Credit Lines at Banks through Unified Payments Interface (UPI), RBI. Notification. September 04, 2023.

Box 2: Unified Payments Interface (UPI) – Journey to 10 Billion Transactions

In August 2023, the UPI reached the milestone of 10 billion transactions in a month, owing to rapid merchant onboarding, increasing digital awareness, and continuous policy support. With features like free instant fund transfers, single-click two-factor authentication, quick-response (QR) code support, interoperability among payment apps and e-mandates for recurring transactions, the UPI has created an ecosystem that integrates multiple operations such as bill payments, e-commerce, IPO transaction, *etc.*, making payments seamless and secure. The journey of the UPI has been spectacular – evolving from a minimalistic feature-oriented platform to a more sophisticated product that caters to frictionless credit disbursals, aided by an enabling policy environment (Chart B1).

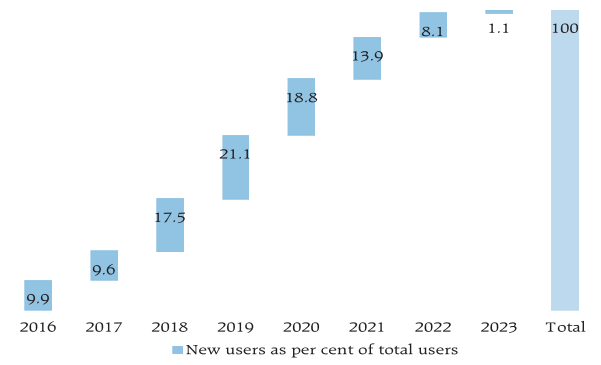
A primary survey was conducted in June 2023 to understand adoption and user preferences across various payment modes. 511 responses were received from diverse age-education-professional-regional groups. While some of the respondents had begun using the UPI before 2019, the pace of adoption increased rapidly during 2019-2021 (Chart B2). The majority of respondents (70 per cent) preferred UPI to other digital modes of transactions, citing ease of use, swift transaction time, non-availability of cash, and zero transaction costs (Chart B3 and B4). For transactions below ₹50,000, the UPI remains the top choice, with over 50 per cent of respondents preferring it. Even for higher value transactions, the UPI maintains its edge with 29 per cent of respondents preferring it.

Chart B1: Journey of the UPI and Policy Initiatives



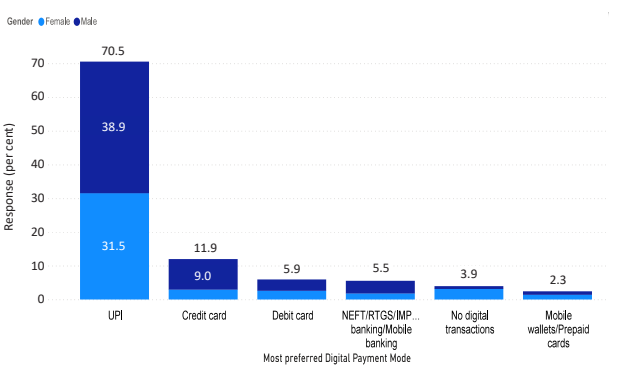
Sources: RBI; and NPCI.

Chart B2: Year of UPI Adoption among Respondents



Source: Jakhotia *et al* (2023)

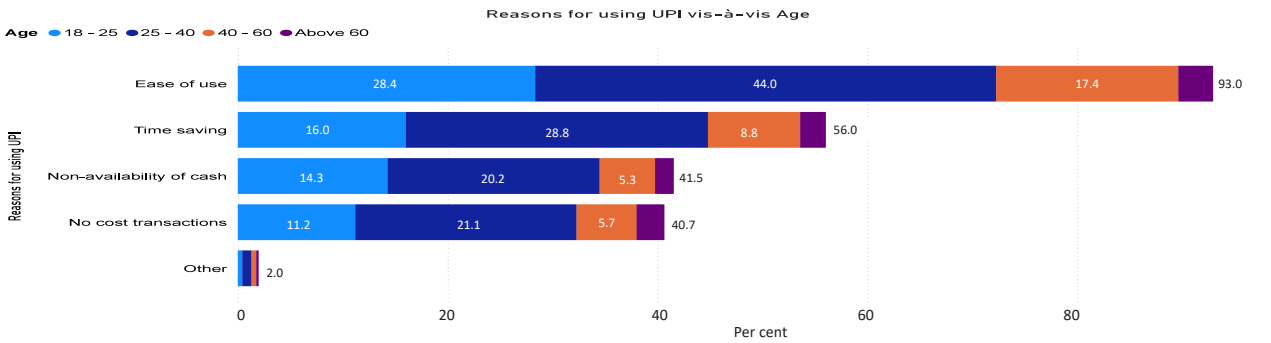
Chart B3: Preference over Alternate Digital Payment Modes



Source: Jakhotia *et al* (2023)

(Contd.)

Chart B4: Reasons for Using UPI



Note: Among the UPI users within the sample, shares of respondents in the age groups of 18-25, 25-40, 40-60 and above 60 were 30 per cent, 47 per cent, 19 per cent and 4 per cent, respectively.
Source : Jakhotia *et al* (2023)

Riding on the success of the UPI, India has emerged as a global payment powerhouse, contributing nearly 50 per cent of global real-time transactions (volume).[41] Recent developments like the linkages with the fast payment systems of other nations, UPI Lite, UPI123Pay, and UPI Autopay are set to further bolster the adoption of the UPI.

Reference:

Jakhotia, Shreya, Subhadhra Sankaran, Shashi Kant, and G. V. Nadhanael (2023). "Exploring India's Payments Landscape: Consumer Preferences and Macroeconomic Implications", RBI *Mimeo*

of UPI Adoption and Safety Awareness Campaign, "UPI *Chalega*".[40]

Additionally, the Reserve Bank and the Bank for International Settlements Innovation Hub (BISIH) announced the winners of the fourth edition of the G20 TechSprint, this month, showcasing how technology solutions can address illicit financing risk, provide settlement solutions in other currencies, and achieve interoperability in multi-lateral CBDC platforms.

Conclusion

To conclude, small steps became a giant leap in a moonshot serenaded around the world when Chandrayaan-3 touched down on the south pole of the moon on August 23. This is an area of intense interest for space scientists because of the presence of water ice in craters, after NASA's instruments carried aboard India's first moon mission in 2008 confirmed the presence of ice in 2018. India became the first country in the world to land a space craft on the moon's lower pole as also on the most frugal budget relative to other moon landing countries (USA, Russia and China). NASA's Laser Retroreflector Array (LRA), the fourth payload on its lander Vikram, will use reflected laser light from orbiting spacecraft to determine its location even after it has gone to sleep after 14 days. This achievement scripts a new chapter in human space odyssey amidst renewed global interest in lunar exploration. It is expected that it would provide strong momentum to India's space collaboration with other countries, especially in the developing world, that aspire to develop their own moon missions.

The impetus from India's successful landing on the moon spurred the Indian Space Research Organisation (ISRO) to launch its first mission on September 02 to study the sun. In a perfect launch, the Aditya-L1[42] satellite was successfully injected into

[40] NPCI. August 11, 2023. Press Releases.
[41] WorldPay. 2023. The Global Payments Report 2023.
[42] L1 is a location in space where the gravitational forces of the earth and the sun are in equilibrium.

an elliptical orbit around the Earth after 63 minutes of the lift-off of the ISRO's workhorse Polar Satellite Launch Vehicle (PSLV). Aditya will commence its journey to its position observing the sun after several earth manoeuvres over 16 days to gain the necessary velocity – a long travel of 125 days. Aditya will stay approximately 1.5 million kilometres away from the earth, directed towards the sun. It has seven distinct indigenously developed payloads. Aditya L1 it will study the solar atmosphere, solar magnetic storms, and their impact on the environment around the earth.

India's space efforts are significant for the country's socio-economic development. The space industry plays a key role across several application areas, including weather forecasting, geological and oceanographic studies, disaster management and agriculture, to name a few. It has also played a crucial role in the country's defence and security. Currently, India accounts for about 2 per cent of the global space economy, but this share is set to grow exponentially with rising private participation. Chandrayaan-3 and Aditya L1 will boost India's capability to undertake complex space missions that contribute to the advancement of space technology for the betterment of humanity.

*Fiscal Cost of Reverting to the Old Pension Scheme by the Indian States – An Assessment**

*by Rachit Solanki^, Somnath Sharma^, R. K. Sinha#, Samir Ranjan Behera^ and Atri Mukherjee^*

As part of the pension reforms initiated in India during the first decade of this century, most of the State governments adopted the National Pension System (NPS) which is a defined contribution scheme. Against the backdrop of the recent decision by some of the States to revert to the Old Pension Scheme (OPS), this article estimates the associated fiscal costs. Results indicate that the cumulative fiscal burden in case of OPS could be as high as 4.5 times that of NPS, with the additional burden reaching 0.9 per cent of GDP annually by 2060. Thus, short-run reduction in States' pension outgo which may be driving decisions to restore OPS, would be eclipsed by the huge rise in future unfunded pension liabilities in the long-run. States' reverting to the OPS would be a major step backwards and can increase their fiscal stress to unsustainable levels in the medium to long-term.

Introduction

In India, ballooning unfunded pension liabilities under the defined benefit (DB) system had spurred much-needed pension reforms starting in 2004. The Central government introduced the National Pension System (NPS) in 2004, which is a defined contribution (DC) scheme. It replaced the Old Pension Scheme (OPS), a DB plan. Since then, most of the State governments in India have also implemented the NPS for their employees. Under the DB scheme, the pensions are paid out from the current revenue of the government rather than the accumulated funds (Barr and Diamond, 2009). As a result, several developed economies with DB schemes in the past have faced rising public expenditure due to the rising life expectancy of its citizens (Palacios and Whitehouse, 2006; Holzmann and Hinz, 2005; Auwera, 2006). With the average global life expectancy projected to reach 77.2 years in 2050 from 72.9 years in 2022 (United Nations, 2022), the share of the global population aged 65 years or above is projected to rise from 10 per cent in 2022 to 16 per cent in 2050. The changing demographic profile and rising fiscal costs have compelled several economies around the world to re-examine their pension schemes and undertake pension reforms with the objective of preserving sustainability of their social security and pension systems.

As a committed expenditure,[1] pension related outgo is highly inelastic to the economic cycles. A burgeoning pension outgo may compel the States to cut down their capital expenditure, affecting long-term growth prospects of the economy (Mukherjee *et al.,* 2022). While pension reforms which took place across the States during the first decade of this century were much needed to assist fiscal consolidation and enhance fiscal flexibility (*viz.,* reallocation of their budget towards growth enhancing expenditures), the recent decisions and announcements by some of the States to revert to the OPS (with a few others contemplating the same), pose significant fiscal risks for the States which could have distortionary effects on the labour market, savings and investments as well as capital market development and dampen the country's medium-term macroeconomic outlook.

The objective of this Study is to use the NPS contribution data of the State government employees to generate projections of pension outgo for the States under two different scenarios, *viz.,* if they choose to continue with the NPS and the counterfactual

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[1] States' Pension expenditure account for around 38 per cent of their total committed expenditure. The other major heads of the committed expenditure are interest payments and administrative expenses.

scenario of them shifting from NPS to OPS. Based on the projections, this paper estimates the likely fiscal costs of States reverting to OPS. Section II describes the merits and demerits of different public pension plans. The cross-country practices relating to public pension plans are analysed in Section III. The pension system followed by the State governments in India is discussed in Section IV. The fiscal costs of reversal to the OPS are estimated in Section V. Section VI puts forth the concluding observations.

II. Classification of Pension Plans

The pension plans of the governments are generally classified into defined benefit, defined contribution and hybrid pension arrangements. In a DB plan, benefits are defined in advance based on the employee's final or average salary and those benefits are guaranteed by the government as the sponsor. In contrast, DC plans do not have a guarantee component. The pension benefits depend upon the market performance of the pension fund and the government's cost is limited to a prespecified rate of contribution. In addition to the DB and DC pensions, hybrid pension arrangements offer a minimum return or benefit guarantee and may also offer a variable (DC-like) benefit over and above the minimum return or benefit guarantee.

In case of Combination schemes, the employee may accumulate two types of benefits simultaneously with a DB element for a portion of income and a DC element on any earnings over that amount. Self-annuitising DC schemes are those which operate identically to DC schemes until retirement, after which the accumulated fund is converted to pension income, not at the market rate for pension costs (*i.e.*, annuity rates), but in accordance with a process set out in the rules of the scheme. The pension is then paid from the scheme. Underpin scheme, are those in which there is both a DB and DC basis for benefits. At retirement, the employee receives a benefit based on whichever calculation provides the better result. In Cash balance scheme, the employee is entitled to a lump sum at retirement, in a similar fashion to a traditional DC scheme, which is then converted into an annuity. The difference is that the amount in the employee's account is not directly related to the returns achieved on the underlying investments. The returns may be guaranteed or smoothed (to offset any high or low peaks) or subject to some form of underwriting by the scheme. As a result, employee benefits may be slightly more predictable. Fixed benefit/benefit unit schemes are DB in nature but without any link to the earnings – an employee usually accumulates a fixed monetary amount of annual pension yearly.

From a sponsor's perspective, the DC plans have several advantages over the DB plans. First, in DC plans, the pension burden is shared by the sponsor and the employee, whereas under the DB plans, the entire pension burden is generally borne by the sponsor. Second, in DC plans, the investment risk – the risk emanating from the poor performance of the assets – is borne by the pension plan member in contrast to the DB plans, where the plan sponsor (*i.e.*, the government) assumes this risk. Third, the longevity risk – the risk of outliving one's assets – is also borne by DC plan members, while in DB plans, the sponsor has to shoulder it. Fourth, in case of DC plans, it is much simpler for the employer to calculate the financial burden, which is limited to the defined contributions to the plan. In contrast, under DB plans, the employers' pension liabilities suffer from significant uncertainties in circumstances where capital market developments turn out worse than expected, or retired employees live longer than foreseen.

An alternative to DB and DC is the 'Collective Defined Contribution' (CDC) or 'Defined-Ambition' plan. These plans seek to achieve defined benefit outcomes but with the flexibility of not having to provide an absolute guarantee. Under them, instead of allocating assets to individuals, assets and risks are managed on a pooled basis. The main advantage of CDC plan is that it smooths out mortality and

longevity risks. For instance, those who die early in their retirement subsidise those who live longer. Moreover, due to defined benefit outcomes, those generations who are 'lucky' enough to retire when markets are rising may not get that benefit, however generations who are 'unlucky' enough to retire when markets are poor may not suffer that risk.

The need for transition from DB-type schemes to DC-type schemes has been felt globally and accordingly, many employers across the economies have implemented this change at suitable/feasible time points. IMF (2019) indicated that the employers could be transiting increasingly from DB plans to DC plans, although its pace and extent may vary across the advanced economies.

III. International Experience

With the share of elderly population (*i.e.,* those aged 65 and above) in the world expected to rise to 16 per cent in 2050 (from 8 per cent in 2015), the average public sector pension cost-to-GDP ratio could rise from 9.5 per cent in 2015 to 12 per cent by 2050 (Citi, 2016; United Nations, 2022). In the public sector, large unfunded pension promises, relying on a 'pay-as-you-go' (PAYG) model, may become unsustainable with rising age dependency ratios and as a result may lead to either drastic cuts in benefits or eventual complete collapse (Citi, 2016). The public sector pension burden, however, will vary across countries based on large divergences in life expectancy and age dependency ratio.

Public Pension System in the OECD Economies

In most Organisation for Economic Co-operation and Development (OECD) economies, the public sector workers are covered by the national social security arrangement. In addition, in many of these OECD economies, there are special pension arrangements for the public sector employees which are substitutes or complementary to the general social security system. These special pension plans for public sector workers are generally like pay-as-you-go (PAYG), and these special DB plans create a pension liability for governments much beyond that, which is already reported in the national social security arrangements. In the OECD economies, the Government workers' pension plans can be classified as (i) funded; (ii) unfunded; (iii) partially funded; and (iv) book reserved arrangements. Funded arrangements are those where an independent legal entity is established to hold the pension plan assets on behalf of the plan members. Unfunded, or pay-as-you-go arrangements are financed directly out of the government coffers, though there may be reserves built up which are the legal assets of the employer (*i.e.,* the government). Some plans are partially funded, wherein the sponsor targets a funding level of less than 100 per cent of the total pension burden. The remainder could be unfunded (pay-as-you-go), or it could be book reserved. Under the book reserved arrangement, the sponsoring government recognises a liability (debt) on its balance sheet, which reflects the accrued pensions of its members. However, there are no legally separated pension assets.

The total value of unfunded or underfunded government pension liabilities for 20 OECD economies – a group of predominantly wealthy countries – is US$78 trillion (Citi, 2016). While unfunded schemes are most common at the federal level, at the local government level, funded schemes are more popular than unfunded PAYG (Table 1). Some federal and local government schemes are book-reserved, whereas a small number of schemes target partial funding (OECD, 2011). With the objective of limiting pension liabilities, public sector workers have been transferred to the main public pension system in some countries (*e.g.,* Austria, Chile, Czech Republic, Greece, Hungary, Mexico, Poland, Spain, and the United States (US)), which in some cases includes a fully funded defined contribution component (*e.g.,* Chile, Denmark, Hungary, Mexico, and Poland). In addition, initiatives have also been taken to introduce some degree of pre-funding of public sector pensions *via* the establishment of reserve funds (*e.g.,* Australia, Belgium, Finland, Germany, Ireland, and Sweden).

Table 1: Pension Plans for Public Sector Workers in select OECD Countries

Country	Public Sector Workers Covered by the General Social Security System	Pension Plan for Central/Federal Government Workers	Pension Plan for State/Provincial/Local Government Workers
Australia	No	The Public-Sector Superannuation Accumulation Plan (PSSap), designed exclusively for current and former Australian Public Service employees, is a DC Plan.	Each State has its own plan for its employees, most of which are funded and based on either DB or hybrid pension formulas.
Canada	Yes	Funded, DB pension plan.	Provincial governments offer specific, DB plans to their personnel. These plans are usually funded, though some are run under the book reserved system.
Chile	Yes	No specific arrangement for public sector workers, except military personnel who are covered under an unfunded, DB pension system.	No specific arrangement for public sector workers.
Finland	No	Unfunded DB pension plan for central government workers. However, a buffer fund has been established and the target funding level is 25 per cent of the pension liabilities.	Unfunded DB plan for local government workers. A fund has been established to cover the plan's annual costs on a short-term basis.
Hungary	Yes	No specific arrangement for public sector workers.	No specific arrangement for public sector workers.
Netherlands	Yes	Funded DB pension plan.	Funded DB pension plan.
Norway	Yes	Partially funded, partially book-reserved DB pension plan.	Funded DB pension plans.
Poland	Yes	No specific arrangement for public sector workers.	No specific arrangement for public sector workers.
Spain	Yes	Central government workers have both an unfunded DB and a funded DC plan.	Some regional governments sponsor funded DB plans.
Sweden	Yes	Pension arrangements for federal employees are funded and include both DB and DC elements.	For local government workers, arrangements are partially funded or book-reserved and partially pay-as-you-go.
Switzerland	Yes	Funded DB pension plan.	Funded DB pension plan.
United Kingdom	Yes	Book-reserved DB plan for civil servants of the central government and separate book-reserved DB plans for employees of the National Health Service, teachers, fire department, armed forces and police.	Funded DB plans for employees of local authorities.
United States	Yes	New U.S. federal civilian employees, hired after 1983, are automatically covered by Federal Employees Retirement System (FERS), a three-tiered system that consists of: (i) social security, (ii) a specific, unfunded DB plan, and (iii) the Thrift Savings Plan, which is a funded, DC plan.	States and local governments offer mainly DB plans, which are often funded.

Source: OECD (2011), "Funding in Public Sector Pension Plans: International Evidence". *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 8, OECD Publishing.

Sub-National Public Pension Plans in the United States

In the US, most State and local government employees (83 per cent of those working full time) participated in a DB pension plan in 2018. These public pension plans typically provide pension based on the members' years of service and average salary over a specified number of years of employment. Many members also receive cost-of-living adjustments that help to maintain the purchasing power of their benefits in retirement. Public pension plans of State and local governments currently receive most of their annual income from investment rather than contribution. In 2017, 69 per cent of total pension plan revenue came from net investment earnings, 22 per cent from employer contribution, and 8 per cent from employee contribution. As investment returns

are volatile, these shares vary widely over time (Urban Institute, 2018).

In the US, State and local government pensions have attracted considerable attention in recent years as inadequate contributions have left pension plans underfunded. The US States owed a total of $1.25 trillion in unfunded pension benefits during 2019, which is equivalent to 6.8 per cent of all states' personal income, up from 3.0 per cent in 2007 (Biernacka-Lievestro and Fleming, 2022). The magnitude of pension challenges has varied widely across the US, with New Jersey's unfunded pension liability being the largest at 20.2 per cent in 2019.

With the objective of reducing their pension liabilities, the US States have enacted major changes to their public pension systems in recent years in the form of: (i) reduced benefit levels; (ii) more extended vesting periods; (iii) increased age and service requirements; (iv) limited cost-of-living adjustments; and (v) increased employer and employee contributions. Some governments have also moved new employees into DC plans or hybrid plans combining aspects of both DB and DC plans, partly because DC plans shift risk from employers to employees.

Public Pension System in Asian Countries

Coverage of formal pension systems in Asia is much lower *vis-à-vis* OECD countries. Further, the national pension provision in Asia is very diverse. While Philippines, Thailand, Vietnam and Pakistan have DB schemes, countries like China, Indonesia, Malaysia, Singapore, India and Sri Lanka have operationalised DC schemes (OECD, 2008).

In China, the Public Employees Scheme (PES) was launched in 2015 as part of the public service reform and it provides coverage to an estimated 40 million employees working in the government and public institutions (State Council, 2015). This is a DC scheme, with the contribution rate of 20 per cent from the employer (*i.e.*, the government) and 8 per cent from the employee. Before the PES was launched, public pensions were funded on a pay-as-you-go basis from the current operating budgets of government agencies and public institutions. Without a formal scheme, public employees did not pay contributions and enjoyed generous retirement benefits that were 80-100 per cent of final salary, with adjustments pegged to current civil service pay (Wong and Yuan, 2020).

In Thailand, until 1997, all the public sector employees were covered by the old civil service scheme, a non-contributory defined benefit plan. With the introduction of the Government Pension Fund in 1997, the public sector pension landscape became more heterogeneous. Currently, different schemes apply for central government officials, central government regular employees, local government officials and employees of state-owned enterprises. However, most of the current public pension schemes have a defined contribution element supplementing the former defined benefit plans. For instance, the central government officials in Thailand are presently covered by the Government Pension Fund (GPF), a DC scheme, under which the contributing members pay 3 per cent of their salary and the employer matches this amount. Moreover, in order to compensate for the benefit losses arising from the switch to the new DC scheme from the old DB scheme, the employer contributes an additional 2 per cent of the salary of the employees.

In Taiwan, public sector employees are covered by two pension schemes that complement each other. The Government Employees' and School Staffs' Insurance provides disability, death and retirement benefits. It is a defined benefit scheme with a current contribution rate of 7.15 per cent – employees pay 35 per cent of that contribution, while the government and employers share the remaining 65 per cent. The Public Service Pension Fund (PSPF), which dates back to 1943, is a mandatory defined benefit scheme for civil servants, teachers and military personnel. The

contribution rate for this scheme is 12 per cent – employees pay 35 per cent of the share, while the government and employers cover the remaining 65 per cent.

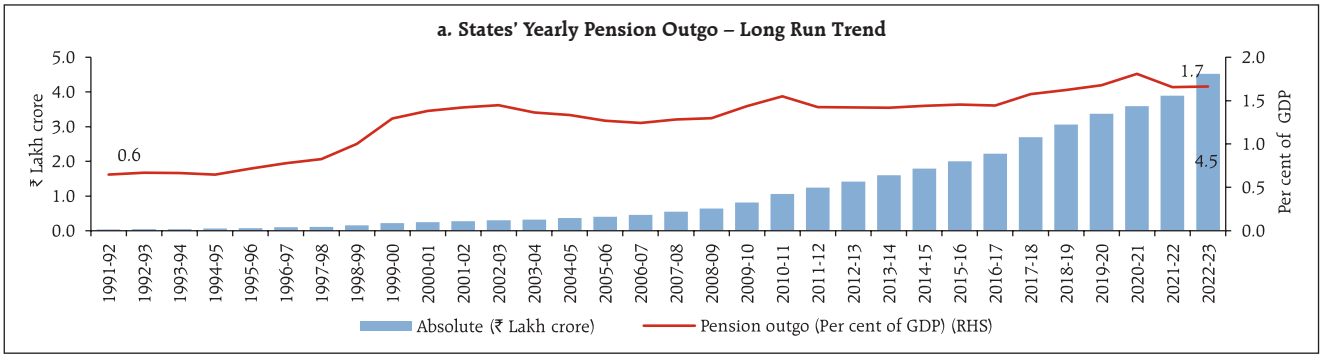
Overall, the international experience reveals a distinct shift towards DC plans from DB plans across countries with the objective of reducing the pension burden of the governments. Apart from this, countries have also taken recourse to measures like cutting benefits, increasing contribution rates, as well as raising the retirement age in order to restore long-term solvency of public pension systems (Bosworth & Burtless, 1997; Citi, 2016).

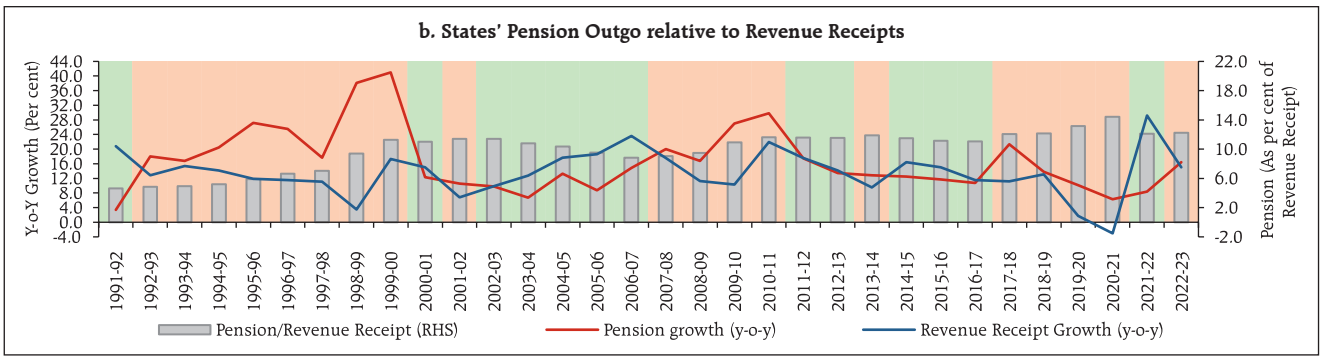
IV. Pension System in Indian States

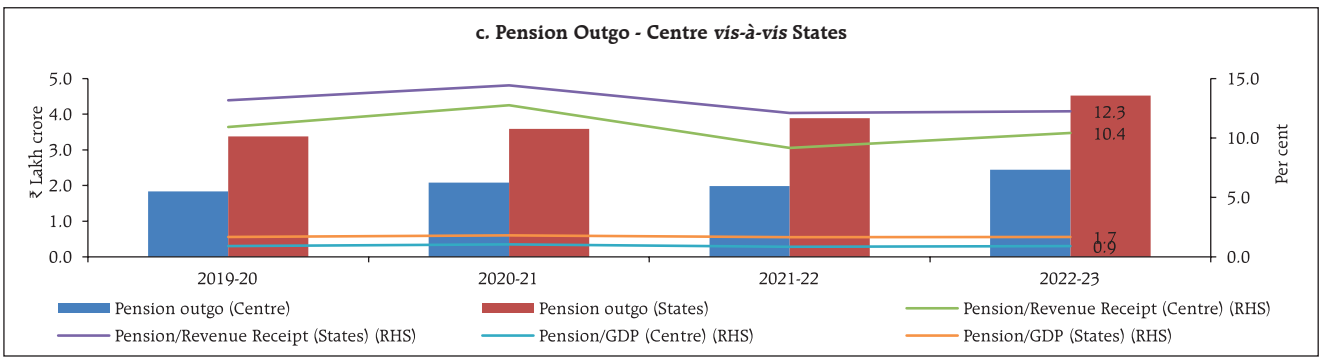
State Governments' Expenditure on Pension Payments

The Indian States' expenditure on pensions has increased from 0.6 per cent of GDP in the early 1990s to 1.7 per cent of GDP in 2022-23 (BE), outstripping the growth of revenue receipts (Chart 1a)[2]. As a result,

Chart 1: States' Pension Outgo







Note: Data pertains to 28 States. Pension Outgo is inclusive of expenditure on 'other retirement benefits'.
Sources: State Finances: A Study of Budgets of 2022-23; and Union Budget documents.

[2] The budgetary reporting of States' Pension outgo also includes expenditure on 'other retirement benefits'.

the ratio of pension payments to revenue receipts has increased (Chart 1b). The pension burden of the States has remained higher than that of the Centre both in absolute terms as well as a per cent to their revenue receipts (Chart 1c).

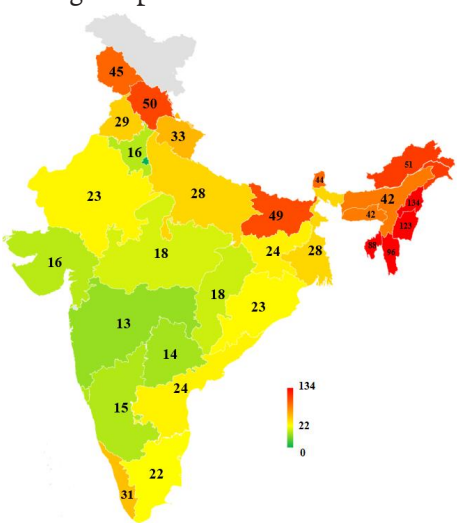
At the disaggregated level, there exist significant variations in the pension burden across the States (Chart 2). Apart from the north-eastern and hilly States, the pension outgo exceeds 25 per cent of own revenue receipts in States like Bihar, Kerala, Punjab, Uttar Pradesh and West Bengal.

Transition from OPS to NPS

Pensions provided by State governments in India at present can be categorized under the OPS and the NPS. The OPS is a DB scheme under which, after retirement, State government employees get a pension fixed at 50 per cent of the last drawn salary[3]. They also get the benefit of the dearness relief revisions. The pay-out is fixed and there is no deduction from the salary. Thus, the OPS is an unfunded, 'pay-as-you-go' system in which current taxpayers continuously finance retirees' pensions (Aiyar, 2022). While OPS may be more attractive from the employee's perspective, it puts an enormous financial burden on the government. Moreover, as future salary is not known in advance, the OPS may result in significant uncertainty regarding the quantum of State governments' pension liabilities for future years.

The financial challenges imposed by the OPS had prompted most of the States to switch to the NPS (Table 2). Only West Bengal and Tamil Nadu continued with the OPS. The NPS is a DC scheme under which the employees' defined contribution is 10 per cent of basic salary and dearness allowances, with a matching contribution from the State government[4]. By investing a part of this contribution in equity and debt markets, the NPS aims to ensure a

Chart 2: Pension Outgo *versus* States' Own Revenue
(Pension Outgo as per cent of States' Own Revenue)



Note: Average for the period 2014-15 to 2022-23.
Sources: State Finances: A Study of Budgets of 2022-23.

Table 2: Transitions of State Governments from OPS to NPS

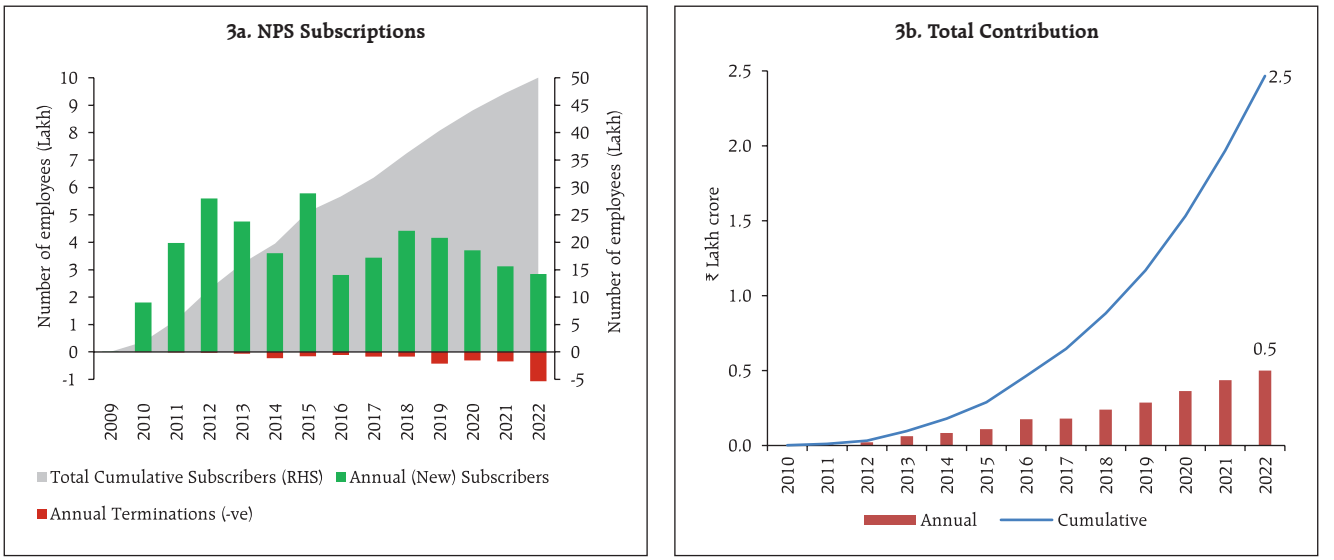
Year of Adoption	State (Date of NPS Adoption)
2003	Himachal Pradesh (May 15, 2003)
2004	Punjab (January 1, 2004) Rajasthan (January 1, 2004) Andhra Pradesh (September 1, 2004) Chhattisgarh (November 1, 2004) Jharkhand (December 1, 2004)
2005	Madhya Pradesh (January 1, 2005) Manipur (January 1, 2005) Odisha (January 1, 2005) Assam (February 1, 2005) Gujarat (April 1, 2005) Uttar Pradesh (April 1, 2005) Goa (August 5, 2005) Bihar (September 1, 2005) Uttarakhand (October 1, 2005) Maharashtra (November 1, 2005)
2006	Haryana (January 1, 2006) Karnataka (April 1, 2006) Sikkim (April 1, 2006)
2008	Arunachal Pradesh (January 1, 2008)
2010	Jammu and Kashmir (January 1, 2010) Nagaland (January 1, 2010) Meghalaya (April 1, 2010) Mizoram (September 1, 2010)
2013	Kerala (April 1, 2013)

Source: National Pension System Trust.

[3] Basic salary *plus* dearness allowances.

[4] For Central government employees, the employer's contribution rate has been raised to 14 per cent with effect from April 01, 2019. In the case of State government employees, the same was also increased to 14 per cent recently, which is under the process of implementation in various States.

Chart 3: State Government Employees' NPS Adoption



Source: Pension Fund Regulatory and Development Authority (PFRDA) (2022). *"Pension Bulletin"*, November, Volume XI, Issue X.

good pension for retiring employees, while reducing the budgetary burden (Aiyar, 2022). At the time of retirement, the employee gets a lumpsum amount from the accumulated fund and the rest is converted to an annuity by a third-party annuity provider. The NPS does not pose a pension obligation risk to the employer at the time of retirement, as the payments are made from the pension fund created through contributions from the employee and the employer during the service period.

As at end-November 2022, the cumulative number of State government employees subscribing to NPS rose to around 50 lakhs with their cumulative contribution in NPS corpus amounting to ₹2.5 lakh crore (Chart 3a and 3b).

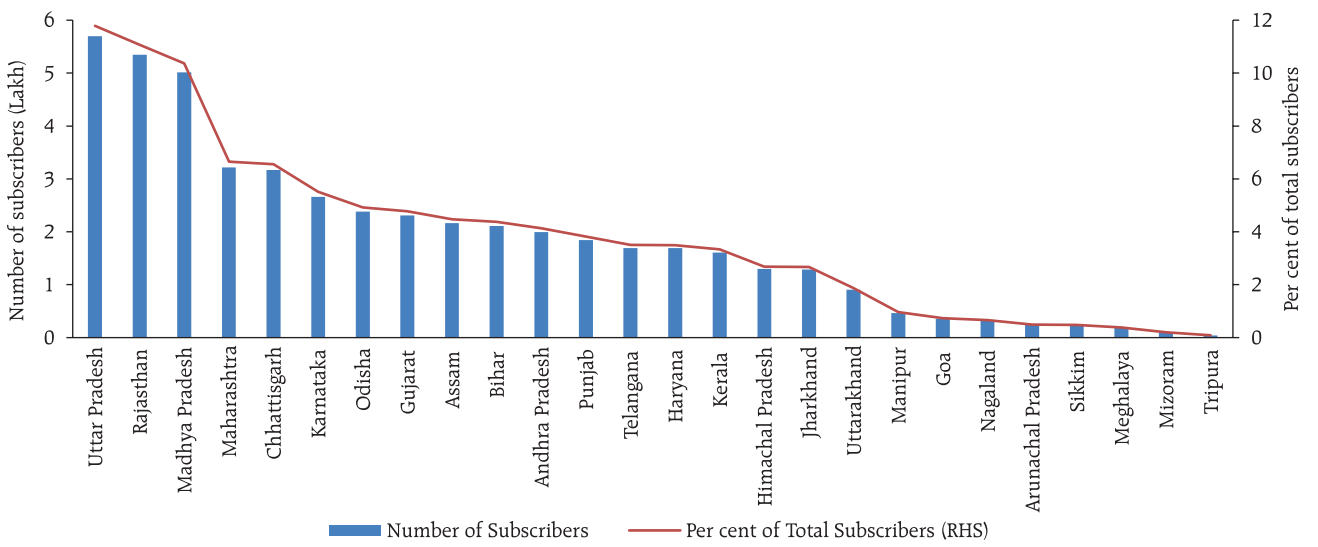
The six large States *viz.*, Uttar Pradesh, Rajasthan, Madhya Pradesh, Maharashtra, Chhattisgarh, and Karnataka account for around half of all the subscribers to NPS (Chart 4). Uttar Pradesh and Rajasthan are the only two States, which have more than five lakh subscribers (as on November 30, 2022).

The age-wise distribution of States' NPS subscribers follows a typical bell curve, with the bulk of the employees centred around the 30-40-year age bracket (Chart 5). As most of the current subscribers joined during the early 2010s, the subscriber base is relatively young and has an average residual service of around 20 years. The new entrants in the States' workforce have the highest proportion in the 26-30-year age bracket. On the other hand, NPS terminations are mostly centred around the 56-60-year age group, reflective of the relatively low attrition rate and voluntary retirements. The yearly entrants were around 6 per cent of the total NPS subscribers, while the annual retirees were less than one per cent in 2021.

Reversal to OPS from NPS

Since subscription to NPS has started in 2009, the current pension outgo of the State governments includes both – pension payment to the retirees who joined under OPS and the pension contribution to the employees covered under the NPS. This has contributed to an increase in the annual pension outgo, whereas the benefits of the NPS would start accruing only when the employees who joined under the NPS begin to retire.

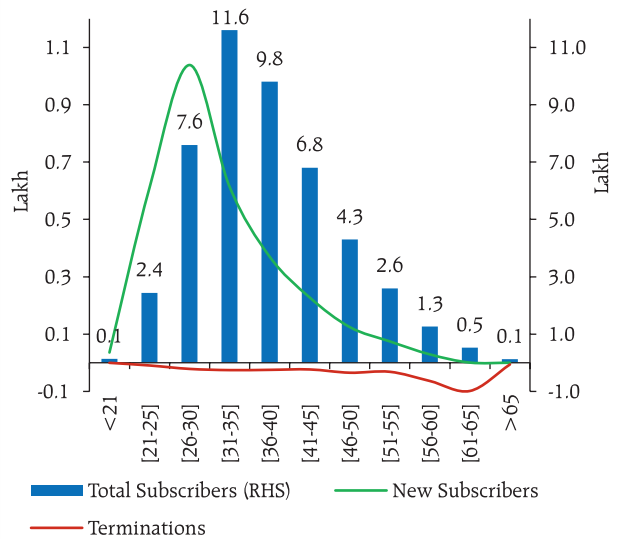
Chart 4: State-wise NPS Subscribers



Note: Data as on November 30, 2022.
Source: PFRDA (2022). *"Pension Bulletin"*, November, Volume XI, Issue X.

Recently, a few States like Rajasthan, Chhattisgarh, Jharkhand, Punjab and Himachal Pradesh have announced reversal to the OPS from NPS. The immediate gain is that they will not have to spend on NPS contribution of the current employees. In future, however, the unfunded OPS is likely to exert severe pressures on their finances, especially with increasing longevity. For instance, if the current NPS subscribers stay in government service till 60 years of age, in the next 15-year period, *i.e.*, during 2023-37, around 20 per cent of the current NPS subscribers will retire. However, in the succeeding 15-year period *i.e.*, 2038-52, 60 per cent of the current NPS subscribers (numbering around 30 lakh) will retire. Consequently, any switchback to a defined benefit pension system by the State governments will impose a huge fiscal burden on their finances during this period.

Chart 5: NPS Subscribers - Age-wise Distribution (2021)



Source: Data sourced from the PFRDA on request.

V. Estimating Fiscal Cost of Reversal to OPS: Methodology and Results

In order to estimate the fiscal cost of reversal from NPS to OPS, this study utilizes year-wise and State-wise incremental NPS contributions of the State government employees up till 2022.[5] Based on the number of employees in different age groups, age-wise new employees joining the government service and the imputed salary outgo of the government till 2022, this study projects the future number of new employees joining, total employees and the associated

[5] The government's contribution and employees' salary were arrived at assuming equal contribution (10 per cent of basic salary and dearness allowance) by both government and the employees into the NPS.

salary outgo for the government. Based on these projections, the study then projects the States' pension outgo under two different scenarios *i.e.*, 1) States continuing with the existing NPS system; and 2) States reverting to OPS beginning 2023 (Box I). The following baseline assumptions are used in estimation:

Assumptions[6]:

(i) Annual salary growth (increments *plus* merit) of 12 per cent (g) and annual pension growth of 6 per cent (p)[7].

Box I: Projecting States' Pension Outgo: Model Dynamics

Let vectors $\mathbf{E}(t_0)$, $\mathbf{J}(t_0)$ and $\mathbf{S}(t_0)$ represent the age-wise number of **employees**, new employees **joining** and yearly **salary** burden on the employer, respectively, for the year t_0 *i.e.*,

$$\mathbf{E}(t_0)=\begin{bmatrix} e_{18}(t_0)\\ \vdots \\ e_{a-1}(t_0)\\ e_a(t_0)\\ e_{a+1}(t_0)\\ \vdots \\ e_{60}(t_0)\end{bmatrix};\quad \mathbf{J}(t_0)=\begin{bmatrix} j_{18}(t_0)\\ \vdots \\ j_{a-1}(t_0)\\ j_a(t_0)\\ j_{a+1}(t_0)\\ \vdots \\ j_{60}(t_0)\end{bmatrix};\quad \mathbf{S}(t_0)=\begin{bmatrix} s_{18}(t_0)\\ \vdots \\ s_{a-1}(t_0)\\ s_a(t_0)\\ s_{a+1}(t_0)\\ \vdots \\ s_{60}(t_0)\end{bmatrix}$$

where $e_a(t_0)$, $j_a(t_0)$ and $s_a(t_0)$ correspond to the respective variable's value for age group a $(18 \le a \le 60)$. In addition, let $e_r(t_0)$ be the number of employees retiring in the year t_0. Assuming that the government intends to keep the total number of employees constant, it will recruit an equal number of new employees in the year t_1. To project the age-wise new employees in the year t_1 (*i.e.*, the vector $\mathbf{J}(t_1)$), it is assumed that the age-distribution of new-employees remains the same as it was in year t_0. Therefore, the age-wise new-employees joining during the year t_1 (*i.e.*, vector $\mathbf{J}(t_1)$) can be expressed as:

$$\mathbf{J}(t_1)=e_r(t_0)\cdot\frac{1}{\sum_{a=18}^{a=60}j_a(t_0)}\times\mathbf{J}(t_0)=\begin{bmatrix} e_r(t_0)\cdot j_{18}(t_0)/\sum_{a=18}^{a=60}j_a(t_0)\\ \vdots \\ e_r(t_0)\cdot j_a(t)/\sum_{a=18}^{a=60}j_a(t_0)\\ \vdots \\ e_r(t_0)\cdot j_{60}(t)/\sum_{a=18}^{a=60}j_a(t_0)\end{bmatrix}$$

To estimate the total number of employees in year t_1 (*i.e.*, vector $\mathbf{E}(t_1)$) the number of new employees in year t_1 (*i.e.*, vector $\mathbf{J}(t_1)$) are added to the $\mathbf{E}(t_0)$ but with each age group growing older by one year *i.e.*,

$$\mathbf{E}(t_1)=\begin{bmatrix} j_{18}(t_1)\\ e_{18}(t)+j_{19}(t_1)\\ \vdots \\ e_{a-1}(t)+j_a(t_1)\\ \vdots \\ e_{59}(t)+j_{60}(t_1)\end{bmatrix}=\begin{bmatrix} e_r(t_0)\cdot j_{18}(t_0)/\sum_{a=18}^{a=60}j_a(t_0)\\ e_{18}(t)+e_r(t_0)\cdot j_{19}(t_0)/\sum_{a=18}^{a=60}j_a(t_0)\\ \vdots \\ e_{a-1}(t)+e_r(t_0)\cdot j_a(t_0)/\sum_{a=18}^{a=60}j_a(t_0)\\ \vdots \\ e_{59}(t)+\cdot j_{60}(t_0)/\sum_{a=18}^{a=60}j_a(t_0)\end{bmatrix}$$

In the next step, the government's salary outgo in year t_1 (*i.e.*, vector $\mathbf{S}(t_1)$) is projected. Here the salary outgo for a particular age group a in year t_0 (*i.e.*, $s_a(t_0)$) is taken and the salary outgo in year t_1 (*i.e.*, $s_a(t_1)$) is arrived at by assuming a salary growth rate of g and accounting for the change in the number of employees (*i.e.*, from $e_a(t_0)$ to $e_{a-1}(t)+e_{61}(t_0)\cdot j_a(t_0)/\sum_{a=18}^{a=60}j_a(t_0)$). Hence, the projected age-wise salary outgo during the year t_1 can be expressed as:

$$\mathbf{S}(t_1)=\begin{bmatrix} \frac{j_{18}(t_1)}{e_{18}(t_0)}\cdot s_{18}(t_0)\cdot(1+\frac{g}{2})\\ \vdots \\ \left(1+\frac{j_a(t_1)}{e_a(t_0)}\right)\cdot s_{a-1}(t_0)\cdot(1+g)\\ \vdots \\ \left(1+\frac{j_{60}(t_1)}{e_{60}(t_0)}\right)\cdot s_{59}(t_0)\cdot(1+g)\end{bmatrix}=$$

$$\begin{bmatrix} \frac{e_r(t_0)\cdot j_{18}(t_0)/\sum_{a=18}^{a=60}j_a(t_0)}{e_{18}(t_0)}\cdot s_{18}(t_0)\cdot(1+\frac{g}{2})\\ \vdots \\ \left(1+\frac{e_r(t_0)\cdot j_a(t)/\sum_{a=18}^{a=60}j_a(t_0)}{e_a(t_0)}\right)\cdot s_{a-1}(t_0)\cdot(1+g)\\ \vdots \\ \left(1+\frac{e_r(t_0)\cdot j_{60}(t)/\sum_{a=18}^{a=60}j_a(t_0)}{e_{60}(t_0)}\right)\cdot s_{59}(t_0)\cdot(1+g)\end{bmatrix}$$

Next, assuming a contribution of 10 per cent of salary outgo by the government towards NPS, governments' NPS contribution for year t_1 can be expressed as $\text{NPS}(t_1)=\frac{1}{10}\cdot\sum_{a=18}^{60}s_a(t_1)$ *i.e.*, $\text{NPS}(t_1)=\frac{1}{10}\cdot\frac{j_{18}(t_1)}{e_{18}(t_0)}\cdot s_{18}(t_0)$.

(Contd.)

6 Most of these assumptions are in line with standard actuarial assumptions used by Sinha (2022).

7 Based on the literature, it is assumed that the annual salary growth is 12 per cent. This includes increments due to merit, salary revisions and dearness allowances, with half of the contribution coming from dearness allowance. In case of pensions, salary revision and merit components are generally not applicable, hence, its growth rate has been taken as half of the salary growth rate.

$\left(1+\frac{g}{2}\right)+\frac{1}{10}\cdot\sum_{a=19}^{a=60}\left(1+\frac{j_a(t_1)}{e_a(t_0)}\right)\cdot s_{a-1}(t_0)\cdot(1+g)$. This can be further reduced to:

$$\text{NPS}(t_1)=\frac{1}{10}\cdot\frac{e_r(t_0)\cdot j_{18}(t_0)/\sum_{a=18}^{a=60}j_a(t_0)}{e_{18}(t_0)}\cdot s_{18}(t_0)\cdot\left(1+\frac{g}{2}\right)+\frac{1}{10}\cdot\sum_{a=19}^{a=60}\left(1+\frac{e_r(t_0)\cdot j_a(t)/\sum_{a=18}^{a=60}j_a(t_0)}{e_a(t_0)}\right)\cdot s_{a-1}(t_0)\cdot(1+g)$$

This equation expresses the NPS outgo in year (t_1) in terms of $\mathbf{E}(t_0)$, $\mathbf{J}(t_0)$ and $\mathbf{S}(t_0)$ which are all known. As the next step, government's pension outgo in case of OPS is projected. In this scenario, the employees will receive pension beginning the year of retirement. The pension outgo will be half of the previous year's salary and thereafter will grow annually at the rate p. During every successive year, one new cohort of employees will retire and start receiving pension at half the last drawn salary. Accordingly, the government pension outgo in case of OPS can be expressed as follows:

$$\text{OPS}(t_1)=\frac{1}{2}\cdot s_{60}(t_0)\cdot(1+p);$$

$$\text{OPS}(t_2)=\frac{1}{2}s_{60}(t_1)\cdot(1+p)+s_{60}(t_0)\cdot(1+p)^2=\frac{1}{2}\left\{\left(1+\frac{j_{60}(t_1)}{e_{60}(t_0)}\right)\cdot s_{59}(t_0)\cdot(1+g)\right\}\cdot(1+p)+s_{60}(t_0)\cdot(1+p)^2=\frac{1}{2}\left\{\left(1+\frac{e_{61}(t_0)\cdot j_{60}(t)/\sum_{a=18}^{a=60}j_a(t_0)}{e_{60}(t_0)}\right)\cdot s_{59}(t_0)\cdot(1+g)\right\}\cdot(1+p)+s_{60}(t_0)\cdot(1+p)^2$$ *and so on.*

(ii) Annual discount rate of 8 per cent is used for accumulating past cashflows and discounting future cashflows.

(iii) State government's contribution to NPS is 10 per cent of the salary (basic *plus* dearness allowance).

(iv) Minimum age of joining is taken as 18 years and retirement age is taken as 60 years. Life expectancy is uniformly taken to be 80 years for all employees[8].

(v) The NPS data shows that premature retirements are miniscule, accounting for less than one per cent of total subscribers. Hence, attrition on account of premature terminations, deaths *etc.*, is assumed to be zero.

(vi) Till 2040, the existing trend of yearly recruitment (*i.e.*, 2012 to 2022) will continue, post which the annual intake will be equal to the number of retirees in the previous year[9].

States' Projected Yearly Pension Outgo

Currently there are two groups of employees in the State government service i) OPS subscribers, who joined prior to the adoption of NPS by their State, and ii) NPS subscribers, who joined after the adoption of NPS.

For the first group *i.e.*, the OPS subscribers, current pension outgo is around 1.7 per cent of GDP and is expected grow further. The last batch of these employees are projected to retire by the early 2040s and will continue to draw pension under OPS for the remainder of their lives *i.e.*, till 2060s.

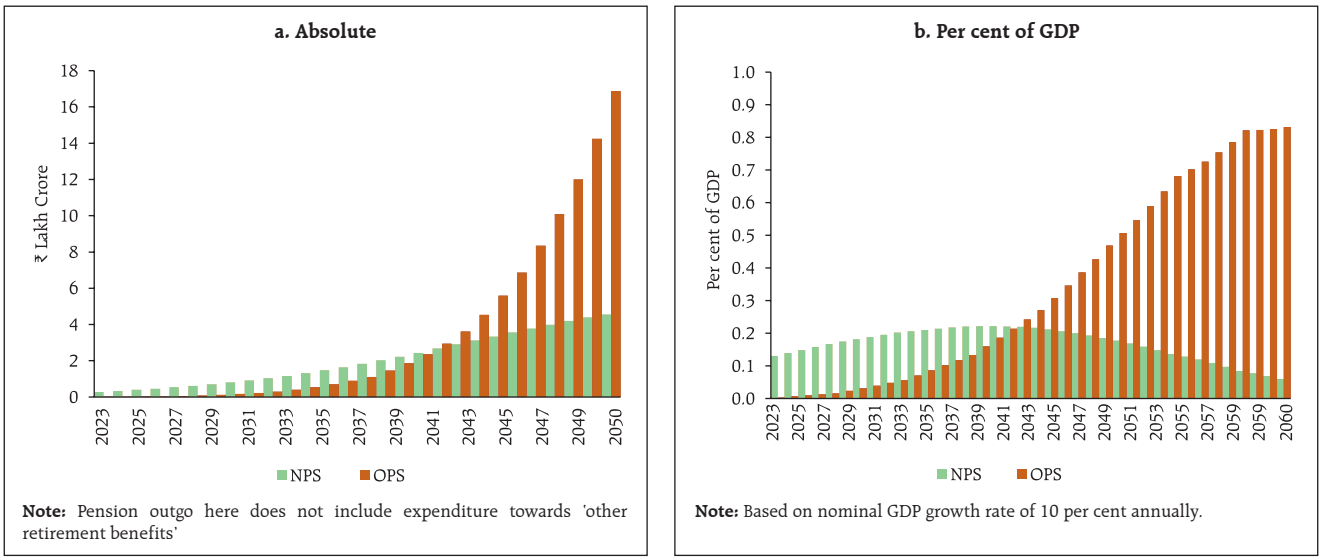
As for the second group, *i.e.*, the current NPS subscribers, State governments' yearly contribution to their retirement corpus fund is expected to increase from 0.1 per cent of GDP presently to around 0.2 per cent of GDP by 2039 and will slowly start declining after that.

In the counterfactual scenario of these NPS subscribers being allowed to revert to OPS beginning 2023, the State governments' save upon the employer's contribution they were earlier making towards these employees' retirement corpus fund. Consequently, States' immediate outgo towards these employees will drop to zero. However, as these employees gradually

[8] The estimated life expectancy in India in 2020 was 70.2 years and is projected to be around 80.1 years by 2062 (United Nations, 2022).

[9] Until 2040, the retirements will be from the OPS subscribers. Therefore, it is assumed that the current pace of recruitment will continue till 2040.

Chart 6: States' Projected Pension Outgo – NPS *vis-à-vis* OPS



Note: Pension outgo here does not include expenditure towards 'other retirement benefits'

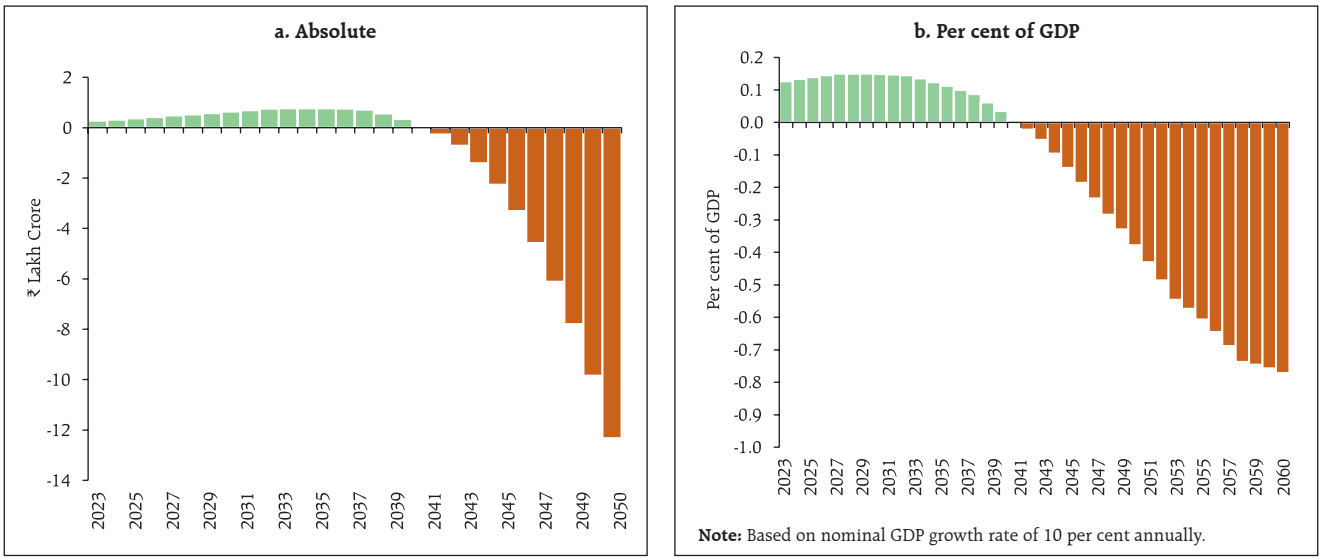
Note: Based on nominal GDP growth rate of 10 per cent annually.

Source: RBI staff estimates.

retire, the States' outgo will begin to increase again as these employees will now draw pension in line with the older OPS beneficiaries. By the mid-2030s the outgo would compare sizably to what it would have been under the NPS and eventually exceed it by 2040. Thereafter, the burden will increase rapidly, reaching around 0.9 per cent of GDP by the early 2060s (Chart 6a and b). This additional burden will be on top of the pension burden of older OPS retirees (the first group mentioned earlier) who will also continue to receive pension until the 2060s.

For the States, while reverting to OPS may look lucrative in the short-run, the future burden of OPS outgo will eclipse the short-run gains. By reverting to OPS, the States' will only save 0.1 per cent of GDP on

Chart 7: Yearly Savings Accruing to States in Reverting to OPS



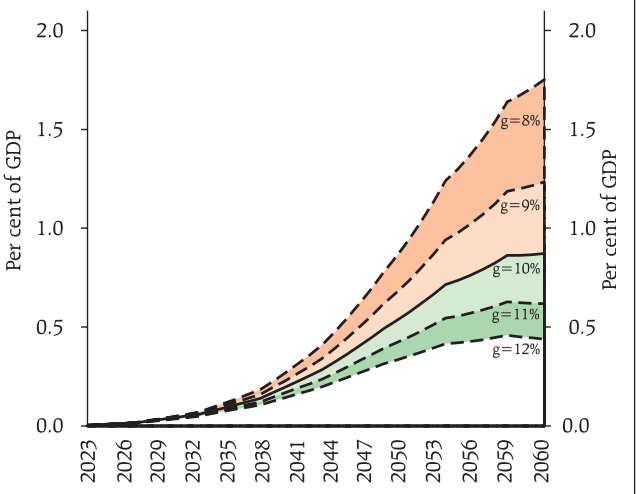
Note: Based on nominal GDP growth rate of 10 per cent annually.

Source: RBI staff estimates.

an average in yearly pension outgo till 2040 but would be required to incur an average additional increase in pension expenditure by 0.5 per cent of yearly GDP post 2040 (Chart 7).

The projected outgo of 0.9 per cent of GDP by 2060 is only a scenario with an assumed nominal GDP growth of 10 per cent. The burden will rise even further in case of moderation in future growth. For instance, a 1 percentage point fall in average growth rate raises the outgo from 0.9 per cent to 1.3 per cent of GDP by early 2060s (Chart 8). A two percentage point fall will raise it further to 1.9 per cent of GDP.

Chart 8: Yearly OPS Outgo in Alternate Nominal GDP Growth Scenarios

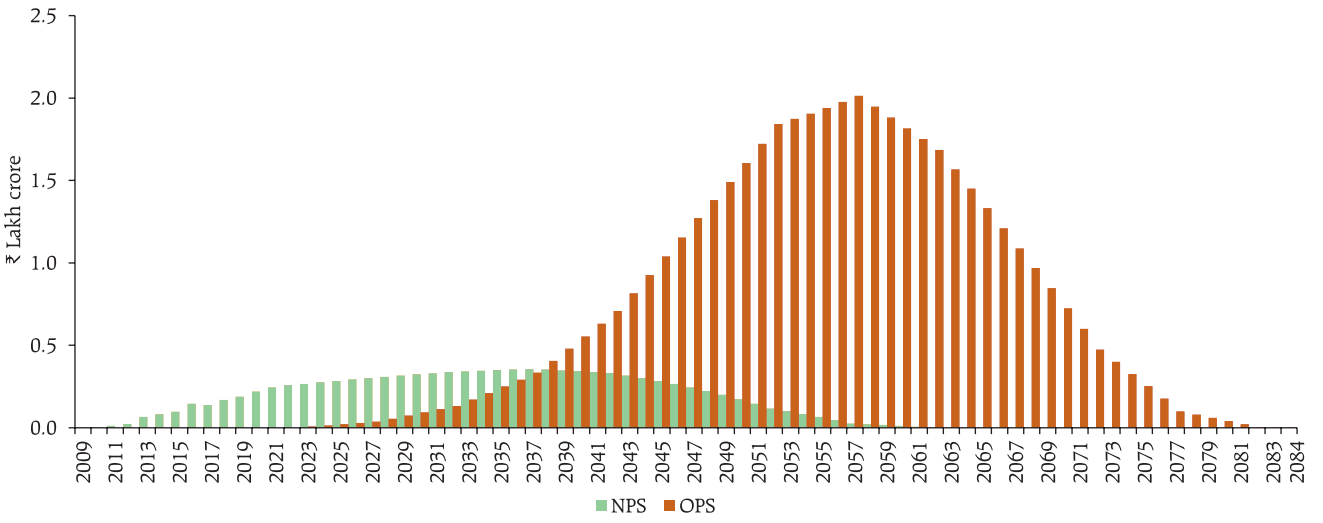


Source: RBI staff estimates.

Quantifying States' Cumulative Fiscal Burden: OPS vis-à-vis NPS

Projected yearly pension outgo in case of NPS *vis-à-vis* OPS show significantly higher outgo in case of the latter although the pay-outs are timed differently. In order to arrive at a cumulative fiscal burden, the ratio of discounted present values of pension outgo is estimated in case of NPS and OPS. The cohort of employees on payroll as at end-March 2022 are taken and it is assumed that no new employee join post that date (Chart 9).[10]

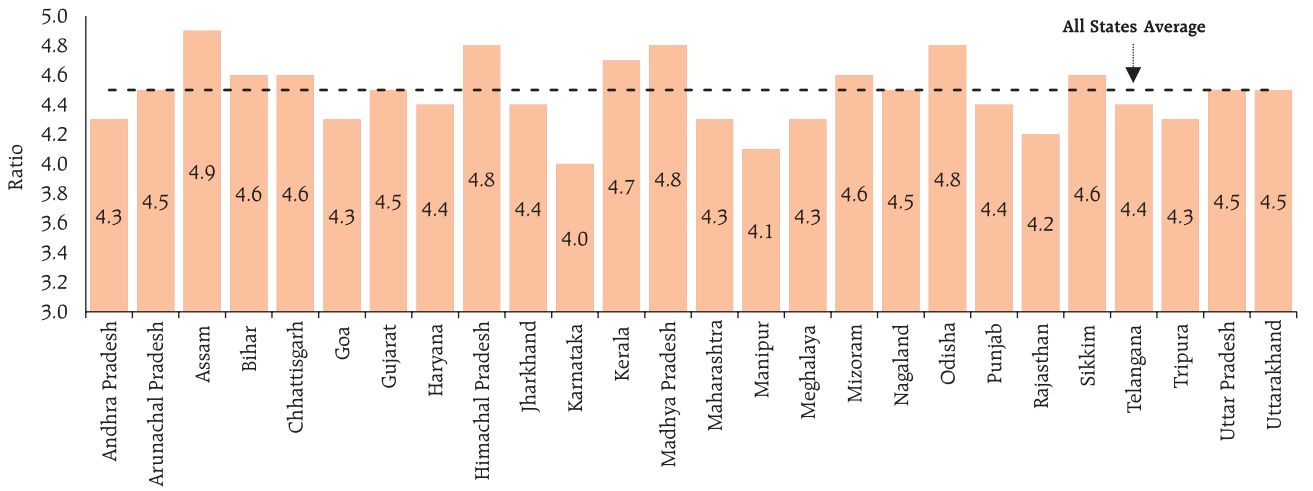
Chart 9: Projected Pension Outgo (Discounted) under NPS *versus* OPS for a Single Cohort of Employees



Note: NPS subscribers as on 2022 are taken as the cohort. Annual outgos are discounted to 2023 at 8 per cent annually.
Source: RBI staff estimates.

[10] To arrive at the fiscal burden incurred by the States, it is necessary to capture the cumulative pay-out (in NPS *vis-à-vis* OPS) for a single cohort of employees. Therefore, the cohort of employees on States' payroll as on end-March 2022 has been chosen without any new addition to the workforce. In the model this translates to $\mathbf{J}(t_0) = \mathbf{0}$.

Chart 10: State-wise Fiscal Burden – NPS *vis-à-vis* OPS
(Ratio of Cumulative OPS Outgo to Cumulative NPS Outgo)

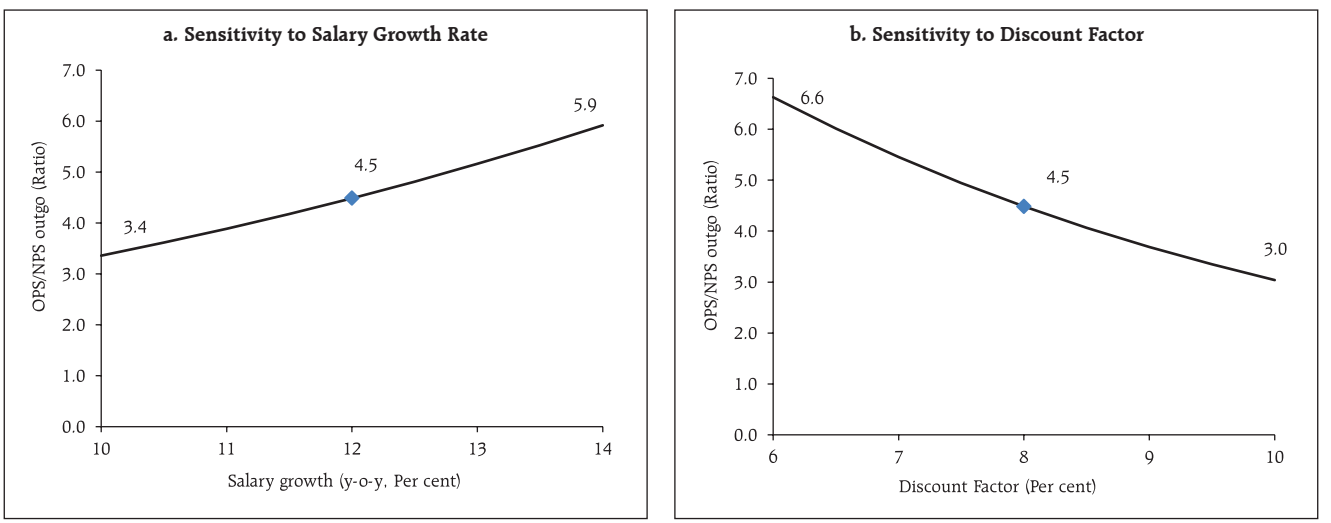


Source: RBI staff estimates.

The ratio of present value of total OPS burden to the present value of total NPS burden reveals that the overall pension burden of the States over the period end-March 2023 to end-March 2084 will increase on an average by around 4.5 times if they choose to shift from NPS to OPS (Chart 10).

These findings are in line with the findings of Vaidyanathan (2022) that the pension burden of the States may be 4 to 5 times higher in OPS than in NPS. Under different alternative scenarios, it was found that the OPS burden remains above 3 times the NPS burden even after varying the salary growth rate and discount rate assumptions by ± 2 per cent (Chart 11).

Chart 11: Ratio of Total OPS Outgo to Total NPS Outgo
(Alternate Scenarios)



Source: RBI staff estimates.

VI. Conclusion

This Study examines the relative fiscal burden of the States in a counterfactual scenario of all of them shifting from the NPS to the OPS by using their age-wise incremental contributions to NPS. It validates the findings of the earlier as well as recent studies that the expected cumulative pension burden for the States over the period from 2023 to 2084 due to the OPS, is substantially higher than that of the NPS. The Study finds that if there is a shift to the OPS scheme in 2023, the additional pension burden will start mounting in the subsequent years and outpace the NPS contribution for most of the States by the 2030s. Eventually, the fiscal cost of reverting to OPS will be enormous as the actual pension burden will increase by around 4.5 times than that of the NPS. The actual future pension outgo could also be difficult to assess due to changes in the underlying interest rate, longevity and salary/ pension growth which could raise risk premium and cost of capital in the economy.

To sum up, any reversion to OPS by the States would be fiscally unsustainable, though it may result in an immediate fall in their pension outgo. At a time when most of the countries are moving from DB to DC plans, reverting to OPS from NPS by the Indian States will be a major step backwards undermining the benefits of past fiscal reforms and compromising the interest of future generations.

References

Aiyar, S. (2022). "Fund-mentally disastrous: Why a return to Old Pension Scheme is a giant freebie". The Economic Times, November 30, 2022.

Auwera, V. (2006). "Pension reforms and ADB Interventions". Asian Development Bank. Technical Note.

Barr, N. and Diamond, P. (2009). "Reforming Pensions: Principles, Analytical Errors and Policy Directions". *International Social Security Review,* 62(2), 5-29.

Biernacka-Lievestro, J. and Fleming, J. (2022). "States' Unfunded Pension Liabilities Persist as Major Long-Term Challenge". July 7, 2022. URL: https://www.pewtrusts.org/en/research-and-analysis/articles/2022/07/07/states-unfunded-pension-liabilities-persist-as-major-long-term-challenge.

Bosworth, B. and Burtless, G. (1997). "Social Security Reform in a Global Context". Conference Series – Federal Reserve Bank of Boston, Vol. 41, pp. 243-274, Federal Reserve Bank of Boston.

Citi (2016). "The Coming Pensions Crisis - Recommendations for Keeping the Global Pensions System Afloat". Citi GPS: Global Perspectives & Solutions, March.

Holzmann, R. and Hinz, R. (2005) "Old Age Income Support in the 21st century: An International Perspective on Pension Systems and Reform".

IMF (2019). "Paving the Way to Sustained Growth and Prosperity in Central America, Panama, and the Dominican Republic". International Monetary Fund.

Mukherjee A., Behera S. R., Sharma S., Seth B., Agarwal R., Solanki R. and Khandelwal A. (2022). "State Finances: A Risk Analysis". RBI Bulletin, June.

Palacios, R. and Whitehouse. E. (2006). "Civil Service Pension Schemes Around the World". SP Discussion Paper No. 0602. The World Bank, Washington D.C.

OECD (2008). "Pensions at a Glance: Asia/Pacific Edition". Organization for Economic Cooperation and Development, Paris.

OECD (2011). "Funding in Public Sector Pension Plans: International Evidence". *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 8, OECD Publishing.

Sinha, R. K. (2022). "Sensitivity of Pension Liability of Banks to Various Actuarial Assumptions". *Reserve Bank of India Occasional Papers*, Vol. 43, No. 1.

State Council (2015). "Decision of the State Council on the Reform of the Old-Age Insurance System for Civil Servants and Public Institutions Employees".

Urban Institute (2018). "State and Local Government Pensions - State and Local Backgrounders". Available at: https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/projects/state-and-local-backgrounders/state-and-local-government-pensions.

United Nations (2022). "World Population Prospects 2022". United Nations Department of Economic and Social Affairs, Population Division.

Vaidyanathan, T. S. (2022). "Pension System: The old versus the New". The Hindu Business Line, May 30. Available at: https://www.thehindubusinessline.com/opinion/pension-system-the-old-versus-the-new/article65476009.ece.

Vaidyanathan, T. S. (2022). "OPS, NPS and the Alternative". The Hindu Business Line, June 01. Available at: https://www.thehindubusinessline.com/opinion/ops-nps-and-the-ap-alternative/article65481198.ece.

Wong, C. and Yuan, R. (2020). "Managing across levels of government: The challenge of pension reform in China". In "Ageing and Fiscal Challenges across Levels of Government", OECD Fiscal Federalism Studies, OECD Publishing, Paris.

An Analysis of the Recent Performance of NBFC Sector

*by Abhyuday Harsh, Nandini Jayakumar, Rajnish Kumar Chandra, and Brijesh P.^*

NBFIs have emerged as indispensable cogs in the global financial architecture, expanding significantly in the aftermath of the global financial crisis. Unlike NBFIs in advanced economies which function in a complex financial market structure, NBFCs in India take on a relatively more straightforward intermediation role between lenders and borrowers. The growing size and interconnectedness of the sector in recent times, however, necessitated a regulatory overhaul. The consolidated balance sheet of the NBFC sector exhibited double-digit year-on-year growth as at end-December 2022. While their profitability moderated marginally, the sector continues to maintain strong capital buffers. The pandemic accelerated the usage of digital services which opens up both opportunities and challenges for NBFCs.

Introduction

In recent years, particularly following the global financial crisis (GFC) of 2008, non-bank financial institutions (NBFIs) have emerged as one of the most important components of the global financial system. Their growth in terms of size and interconnectedness has become a dominant feature in both advanced economies (AEs) as well as emerging market economies (EMEs). Their size has rapidly increased from around US$ 57 trillion in 2002 to US$ 239 trillion in 2021 (FSB, 2022). Regulatory changes, post the GFC that restricted the activities of banks, demographic changes necessitating management of pension funds, technological change, and the pursuit of operational efficiencies were the primary forces behind this structural shift (Aramonte, Schrimpf, & Shin, 2022).

The activities of NBFIs are extensive and diverse. Unlike banks, their functions are not strictly compartmentalised. Historically, NBFIs did not have access to statutory public backstops and had either limited or no access to the balance sheet of central banks (Aramonte, Schrimpf, & Shin, 2022). However, because of their interdependence with the rest of the financial system, they may pose significant systemic risks through financial intermediation, which could circumvent the prudential standards that apply to banks and reduce the efficacy of policies, including macroprudential policies.

In India, considering their growth and implications for financial stability, the Reserve Bank of India (RBI) introduced scale-based regulation[1] (SBR) for non-banking financial companies[2] (NBFCs). The approach adopted in SBR envisages the regulation of NBFCs to be based on the principle of proportionality, where regulations are a function of the size, activity and perceived riskiness of NBFCs. In 2022, the Bank also brought out prudential guidelines to check credit risk concentration of NBFCs placed in the upper layer. Apart from the financial stability perspective, NBFCs are among the key players in realising the financial inclusion objective. NBFCs-MFI with 38.5 per cent share in the gross micro-credit portfolio at end-December 2022, surpassed banks as the leading micro-credit provider (MFIN, 2022).

The rest of the article is divided into the following sections. Section II provides an overview of the international landscape of NBFIs. Section III gives a general overview of the NBFI sector in India followed

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[1] RBI notification dated October 22, 2021, "Scale Based Regulation (SBR): A Revised Regulatory Framework for NBFCs".

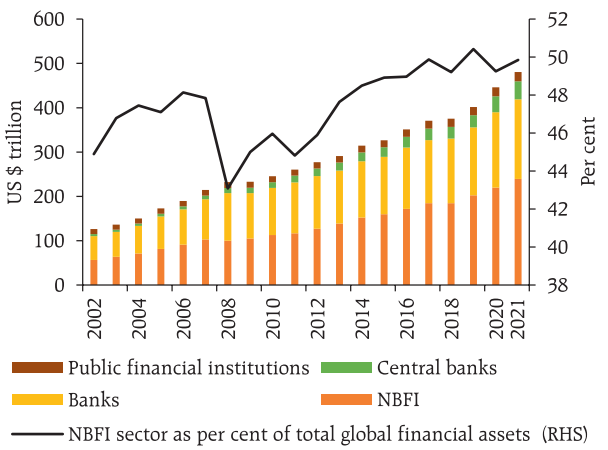
[2] In this article NBFCs refer to non-banks regulated by the RBI, as defined under Section 45-IA of the RBI Act, 1934.

by Section IV which discusses the balance sheet, along with sectoral distribution of credit, profitability and asset quality of NBFCs. Section V deliberates upon an important category of NBFCs, namely Core Investment Companies (CICs), in light of their different business structure as compared to other NBFCs. The last section of the article concludes with a few observations on emerging challenges.

II. Global Perspective

NBFIs have emerged as indispensable cogs in the global financial architecture, expanding in the aftermath of the GFC. They comprise a diverse and complex set of entities, differing widely in their business models and functions across jurisdictions. Over time they have increasingly managed to capture attention in policy discussions because of their interconnectedness with other financial entities and related implications. In this regard, the Financial Stability Board (FSB), conducts annual monitoring of the sector and reports on the trends, emerging risks and innovations, which gives us crucial insight into the NBFI sector in different jurisdictions.

Chart 1: Global Financial Assets



Notes: 1. Based on data from 29 individual jurisdictions.
2. NBFIs include insurance corporations, pension funds, other financial intermediaries and financial auxiliaries.

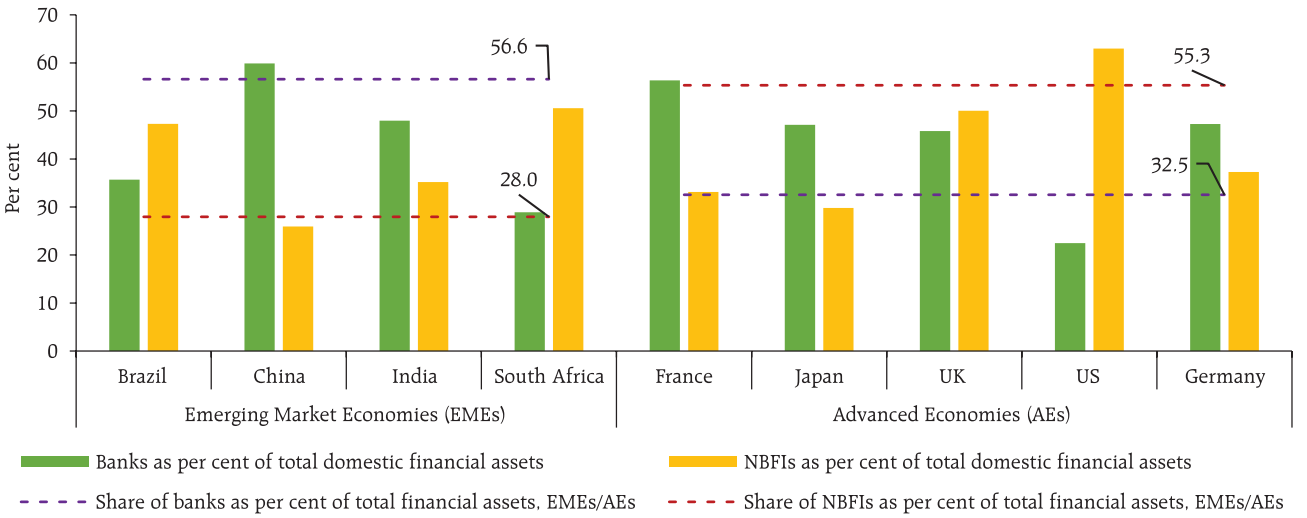
Source: Calculated from Global Monitoring Report on Non-Bank Financial Intermediation, 2022.

The outbreak of the COVID-19 pandemic necessitated a greater role for central banks, banks and public financial institutions to provide the necessary support and stability to the economy and financial markets. This resulted in a marginal decline in the share of NBFIs in the total financial assets in 2020. In 2021 however, NBFIs have again come to the forefront as a key driver of global financial assets, growing at 9 per cent, accounting for nearly half their size (Chart 1).

Although the share of the NBFI sector has steadily risen over the years, banks continue to dominate the financial landscape in EMEs, accounting for nearly 57 per cent of their financial assets in 2021. On the contrary, among the AEs, it is the NBFI sector which is dominant. However, there exists considerable heterogeneity within both EMEs and AEs, with Brazil and South Africa having a more dominant NBFI sector, and AEs like France and Japan having bank-dominated economies (Chart 2). Globally, the United States (US) has the largest presence of NBFIs and along with other large AEs, it is home to the biggest and most interconnected NBFIs namely central counterparties, hedge funds and investment funds (Aldasoro, Huang , & Kemp, 2020).

In order to better capture the extent of vulnerabilities posed by NBFIs due to their interconnectedness with other entities in the financial system, FSB has developed a *'narrow measure'*. This measure comprises those NBFIs which are engaged in credit intermediation activities that could give rise to bank-like financial stability risks. The measure is a composition of five economic functions (EF) or activities. In different jurisdictions around the globe, the narrow measure takes different forms, reflecting economy-specific requirements, policy support and existing legal and regulatory structures (FSB, 2022). As a result, within the narrow measure, EF1 has the largest share globally, attributable to the well-developed and complex financial market structures

Chart 2: Structure of Financial Systems across Jurisdictions, 2021



Note: NBFIs include insurance corporations, pension funds, other financial intermediaries and financial auxiliaries.
Source: Calculated from Global Monitoring Report on Non-Bank Financial Intermediation, 2022.

in AEs. In India, NBFIs take on a more straightforward intermediation role between ultimate lenders and ultimate borrowers. They cater to the finance needs of individuals and businesses who are unserved or under-served by the traditional banking sector, thereby facilitating financial inclusion and last-mile connectivity. Consequently, the non-banking sector in India is largely represented under EF2 (Table 1).

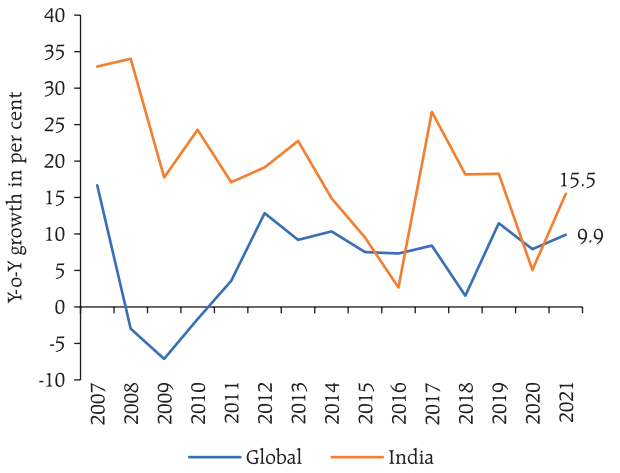
Globally, the narrow measure grew by 9.9 per cent in 2021, in line with the overall growth of the NBFI sector at 9 per cent, while in India the narrow

Table 1: Classification of Narrow Measure, by Entity-type and Activity, 2021

Economic Function/Activity	Entity type	Economic Function wise share in Narrow Measure: Global	Economic Function wise share in Narrow Measure: India
EF1	Money market funds, fixed income funds, mixed funds, credit hedge funds, real estate funds	76.2	24.0
EF2	Finance companies, leasing/factoring companies, consumer credit companies	6.8	75.3
EF3	Broker-dealers, custodial accounts, securities finance companies	6.8	0.4
EF4	Credit insurance companies, financial guarantors, monoline insurers	0.2	0.0
EF5	Securitisation vehicles, structured finance vehicles, asset-backed securities	7.5	0.4
Unallocated	Other financial intermediaries assessed to be involved in bank-like financial stability risks from NBFI, but which could not be assigned to a specific economic function	2.4	0.0
Narrow Measure *i.e.*, EF1+EF2+EF3+EF4+EF5 +Unallocated, as a share of total NBFI sector		28.3	42.7

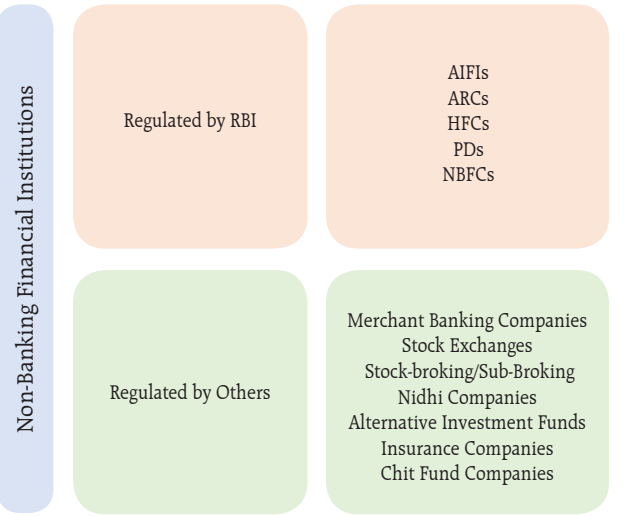
Notes: 1. Based on data from 29 individual jurisdictions, including eight euro area jurisdictions, which account for 80 per cent of global GDP and for which more granular data was available.
2. The entities listed are not exhaustive but indicate typical examples.
Source: Calculated from Global Monitoring Report on Non-Bank Financial Intermediation, 2022

Chart 3: Growth of Narrow Measure (2007-21)



Note: NBFIs include insurance corporations, pension funds, other financial intermediaries and financial auxiliaries.
Source: Calculated from Global Monitoring Report on Non-Bank Financial Intermediation, 2022.

Chart 4: NBFI Landscape in India



Note: Others refer to other regulators or the government.
Source: RBI.

measure expanded by 15.5 per cent, about 5 per cent lower than the growth in India's NBFI sector (Chart 3). An outline of the NBFI sector in India is provided in the next section.

III. A General Overview of the NBFI Sector in India

NBFIs in India comprise a varied range of entities operating on distinct business models. In order to systematically cover the wide dimension of the sector, we have grouped NBFIs under two sets, one regulated by the Reserve Bank and the remaining by other regulators, namely the Securities and Exchange Board of India (SEBI), Pension Fund Regulatory and Development Authority (PFRDA), Insurance Regulatory & Development Authority of India (IRDAI), the central or state governments among others (Chart 4).

Among entities which come under the Reserve Bank's regulatory purview, all India financial institutions (AIFIs) are the public financial institutions (FIs) that provide long-term funding to agriculture, foreign trade, small industries, housing finance companies (HFCs) and infrastructure. Asset reconstruction companies (ARCs) are specialised FIs that provide an institutional alternative for resolution of stressed assets by purchasing them from banks and other FIs. HFCs specialise in providing housing finance to individuals, cooperative societies and corporate bodies to support housing activity in the country. Primary dealers (PDs) ensure subscription to primary issuances of government securities (G-secs), besides acting as market makers in the G-sec market. NBFCs comprise mostly private limited companies which play an important role in credit delivery and financial intermediation.

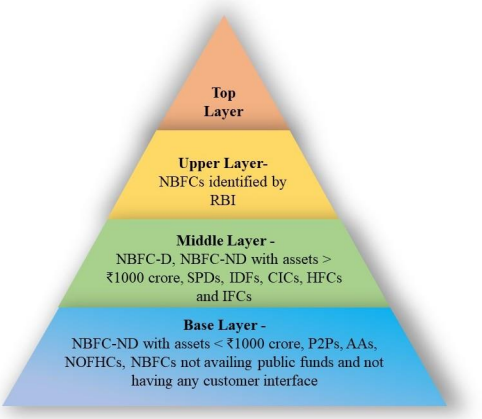
NBFCs could be dated back to the late 1940s when many small finance companies offered funding for the purchase of trucks (Kannan, Shanmugam, & Bhaduri, 2019). Over time they evolved into full-fledged FIs which developed expertise in penetrating market segments where banks have a thin presence, by offering traditional and innovative financial products and services which are tailored to the specific needs of the customer. Further, they have benefitted from differential regulation *vis-à-vis* banks, allowing them

to foster innovation and offer healthy competition to banks, ultimately benefitting the end consumers. In view of the growing importance of the NBFC sector in India's financial ecosystem, the rest of the article looks at the performance of select NBFCs in 2022-23 up to December 2022, grouping them in terms of the SBR framework which became effective from October 2022.

Under the SBR framework, NBFCs are placed in one of the four layers namely, Top (NBFC-TL), Upper (NBFC-UL), Middle (NBFC-ML) or Base layer (NBFC-BL) [Chart 5]. For now, the top layer has been kept vacant and would be filled if the Bank perceives a substantial increase in the potential systemic risk from specific NBFCs in NBFC-UL.

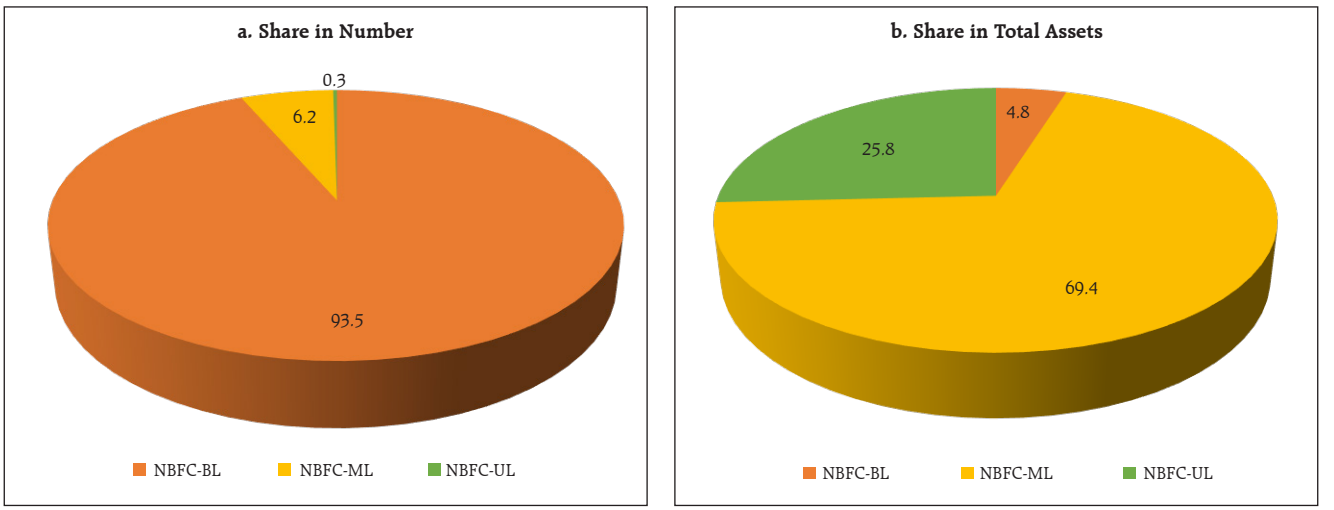
At end-March 2022, in terms of number, about 94 per cent NBFCs were under the NBFC-BL category, whereas in terms of asset size, NBFC-BL constituted merely 5 per cent of the total asset size (Chart 6). Given the nature of market concentration in the sector, where around 6 per cent of NBFCs contributed to 95 per cent of the asset size, the Reserve Bank prudently placed progressively stringent regulations for NBFC-UL and NBFC-ML.

Chart 5: Scale-Based Regulation for NBFCs



Note: NBFC-D, NBFC-ND, SPDs, IDFs, CICs, HFCs, IFCs, P2Ps, AAs, NOFHCs refer to deposit-taking NBFCs, non-deposit taking NBFCs, Standalone Primary Dealers, Infrastructure Debt Fund, Core Investment Company, Housing Finance Company, Infrastructure Finance Company, Peer to Peer Lending Platform, Account Aggregator, Non-Operative Financial Holding Company respectively.
Source: RBI.

Chart 6: Distribution of NBFC (at end-March 2022)



Note: Including CICs, PDs and HFCs.
Source: Report on Trend and Progress of Banking in India 2021-22.

IV. A Balance-Sheet based Analysis of the NBFC Sector

As on March 31, 2023, 9443 NBFCs[3] were registered with the Reserve Bank. However, the analysis is based on a sample of 205 companies that have regularly filed returns in all quarters from December 2020 to December 2022. The sample[4] represents around 91 per cent of the NBFC universe (in terms of asset size) at end-December 2022 on the eXtensible Business Reporting Language (XBRL) platform. The consolidated balance sheet of the sector grew at a double-digit level, however at a lower pace, at end-December 2022, than a year ago (Table 2).

IV.1 Liabilities Structure of NBFCs

NBFCs finance their operations mainly through borrowings from the market and banks, which account for around 75 per cent of their total borrowings. This makes them the largest net borrowers and as a result, they are intricately linked to the rest of the financial system (RBI, 2022). During the assessment period, NBFCs' reliance on banks steadily increased due to low interest environment and lags in monetary policy transmission (Chart 7a). While NBFC-UL overwhelmingly rely on secured borrowings, NBFC-ML borrow significantly *via* unsecured means (Chart 7b). This is particularly true for big, government NBFCs, over two-thirds of whose borrowing is unsecured. NBFCs-D (deposit-taking) additionally have access to public deposits. These are term-deposits, which witnessed significant growth at end-December 2022 over a year ago.

A deeper analysis highlights banks' preference in lending to NBFCs in the upper layer. Direct bank borrowings by NBFC-UL have grown steadily in recent quarters, accounting for nearly half of their total borrowings at end-December 2022. NBFC-ML rely more on debenture issuances, though their bank

Table 2: Consolidated Balance Sheet of NBFCs

(₹ crore)

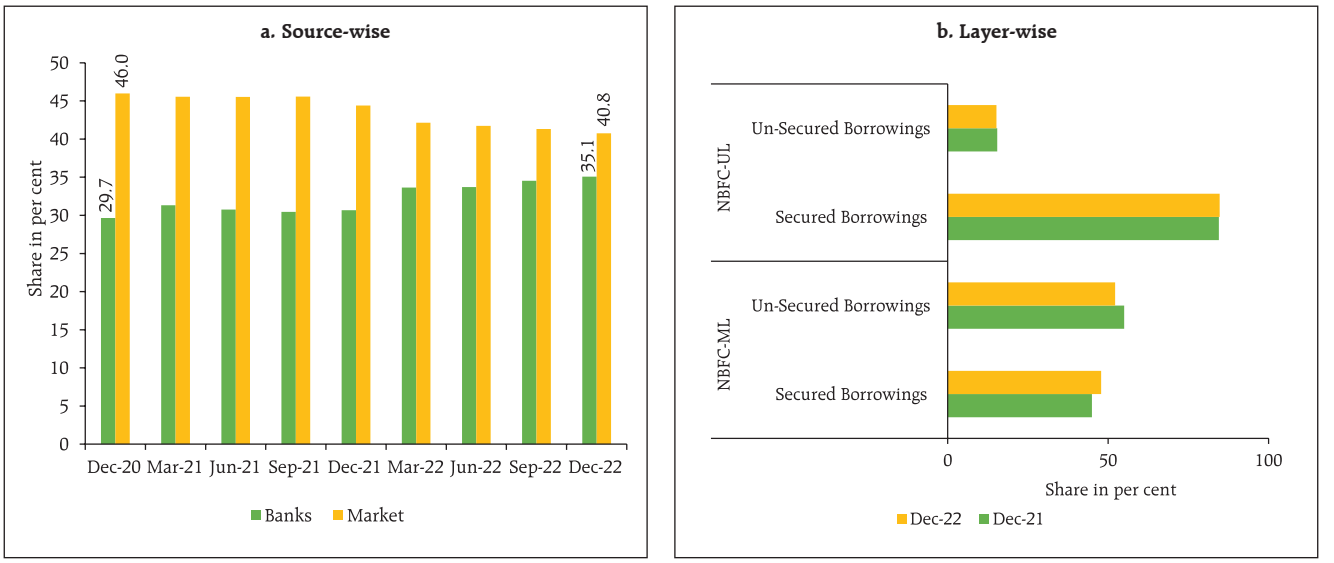
	The amount outstanding at the end of				Y-o-Y growth	
					(Per cent)	
	Dec-20	Dec-21	Mar-22	Dec-22	Dec 21 over Dec 20	Dec 22 over Dec 21
1. Share Capital	88,849	94,554	96,747	1,01,631	6.4	7.5
2. Reserves and Surplus	4,61,941	6,38,539	6,60,596	7,21,029	38.2	12.9
3. Public Deposits	95,911	94,641	96,596	1,15,874	-1.3	22.4
4. Total Borrowings	20,49,057	23,21,965	24,18,634	26,65,136	13.3	14.8
5. Current Liabilities & Provisions	1,90,311	1,98,130	1,87,864	2,03,939	4.1	2.9
6. Other Liabilities	26,187	55,029	56,236	54,606	110.1	-0.8
Total Liabilities / Assets	**29,12,256**	**34,02,860**	**35,16,673**	**38,62,215**	**16.8**	**13.5**
1. Loans and Advances	22,90,297	25,69,452	26,54,006	29,23,955	12.2	13.8
2. Investments	3,20,506	4,74,099	4,86,340	5,14,189	47.9	8.5
3. Cash & Bank Balances	1,32,290	1,43,266	1,45,117	1,45,072	8.3	1.3
4. Other Current Assets	99,370	1,00,805	1,07,806	1,30,636	1.4	29.6
5. Other Assets	69,794	1,15,238	1,23,404	1,48,364	65.1	28.7

Notes: 1. Data are provisional.
2. Numbers may not add up as all components are not reported here.
Source: Supervisory Returns, RBI.

[3] Excluding HFCs and ARCs.

[4] Includes 10 NBFC-UL and the rest are NBFC-ML, excluding CICs and PDs. CICs are covered in the next section.

Chart 7: Composition of Borrowings

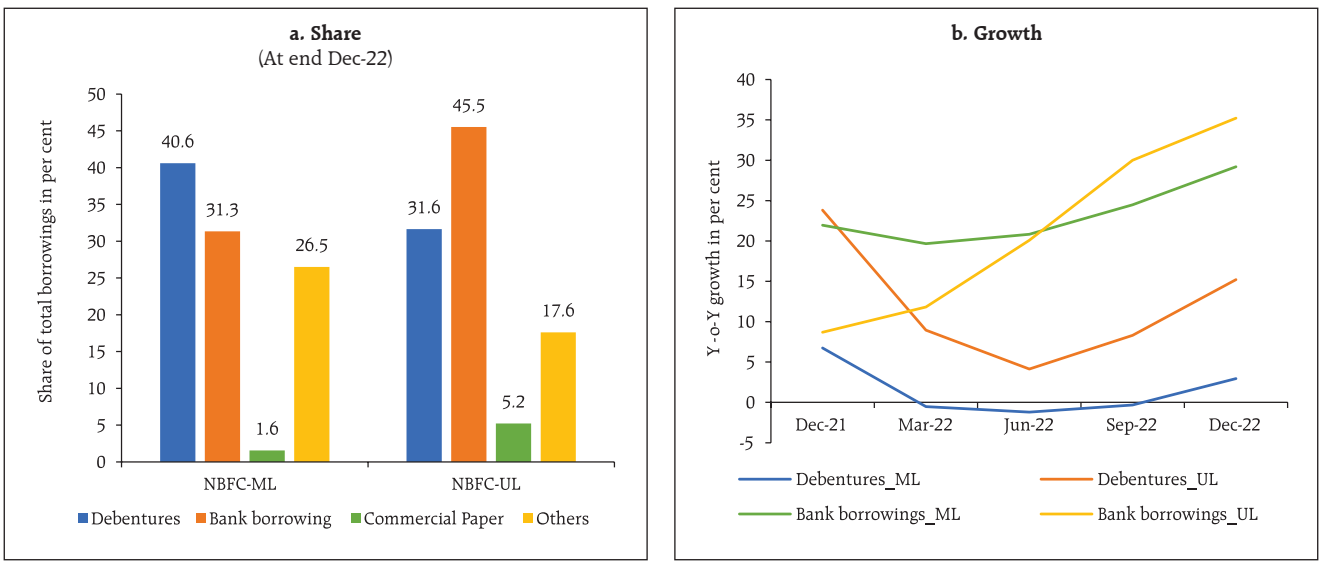


Source: Supervisory Returns, RBI.

borrowings have also grown in recent times. Further, NBFC-UL also seem to be more successful in raising short-term debt *via* CPs (Chart 8a and b).

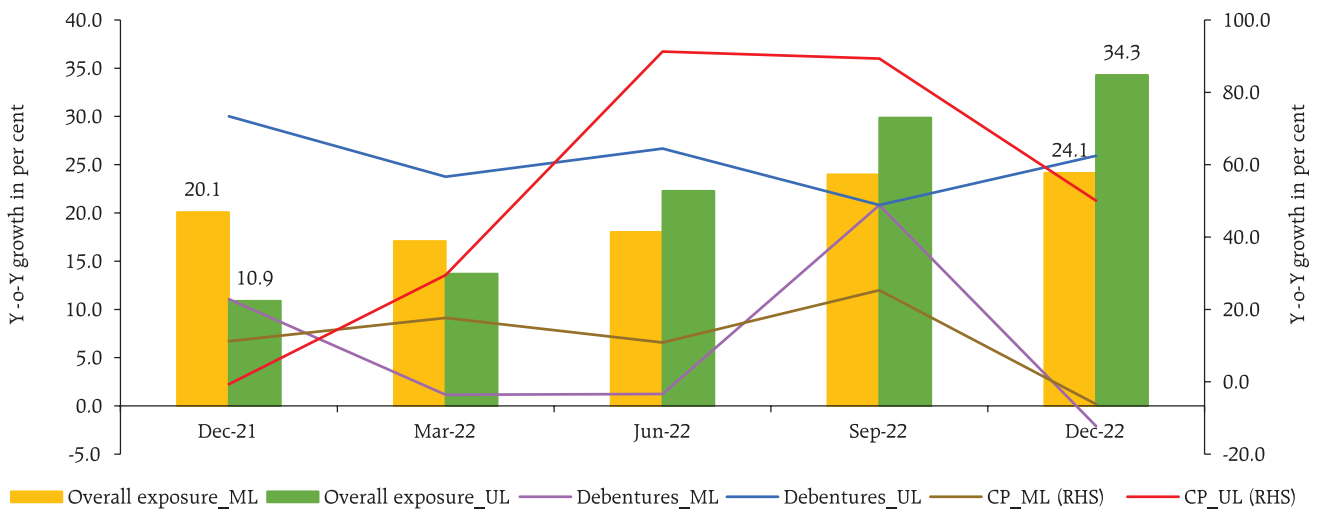
Apart from direct lending, banks are also one of the key subscribers of the debenture and CP issuances by NBFCs. In this way, their exposure to the NBFC sector is higher than the quantum indicated by direct lending. Banks' exposure to NBFC-UL in particular, has been steadily rising, primarily due to a steep growth in their direct lending to these NBFCs in 2022-23 (up to December 2022). Bank subscription to debenture and CP issuances of NBFC-UL have also been growing at a robust pace, reflecting banks' preference for instruments of bigger NBFCs, which in general have

Chart 8: NBFCs' Borrowings



Source: Supervisory Returns, RBI.

Chart 9: Banks' Exposure to NBFCs' Instruments

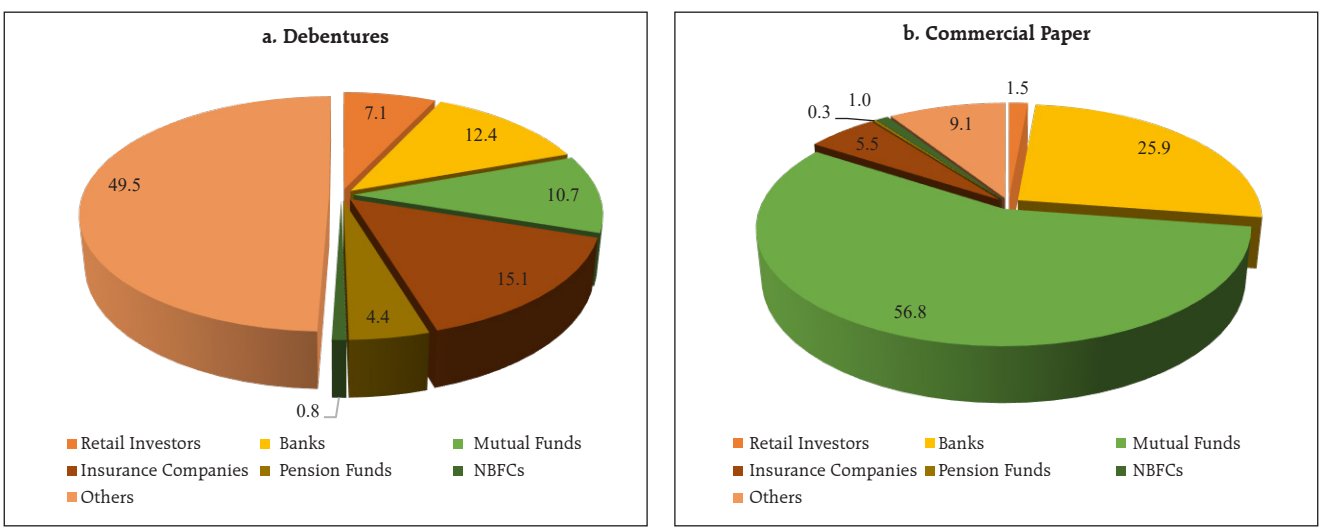


Source: Supervisory Returns, RBI.

strong parentage and are under enhanced regulation (Chart 9).

The debenture issuances of NBFCs are also subscribed by a host of other market participants apart from banks, with mutual funds, insurance companies, retail investors and pension funds being the other key players (Chart 10a). The CP market of NBFCs is dominated by mutual funds and banks, with the former cornering a preponderant share (Chart 10b).

Chart 10: Subscribers to NBFCs' Market Instruments (as a share of total issuances)
(At end Dec-22)



Source: Supervisory Returns, RBI.

IV.2 Assets Structure of NBFCs

Loans and advances followed by investments are the top two components on the asset side, with shares of 76 and 14 per cent of the aggregate asset size, respectively. Aggregate loans and advances grew at 13.8 per cent at end-December 2022, higher than a year ago. These loans are mainly secured and are of longer tenor (Chart 11a and b). Investment, as opposed to loans and advances, experienced slower growth, during the same period.

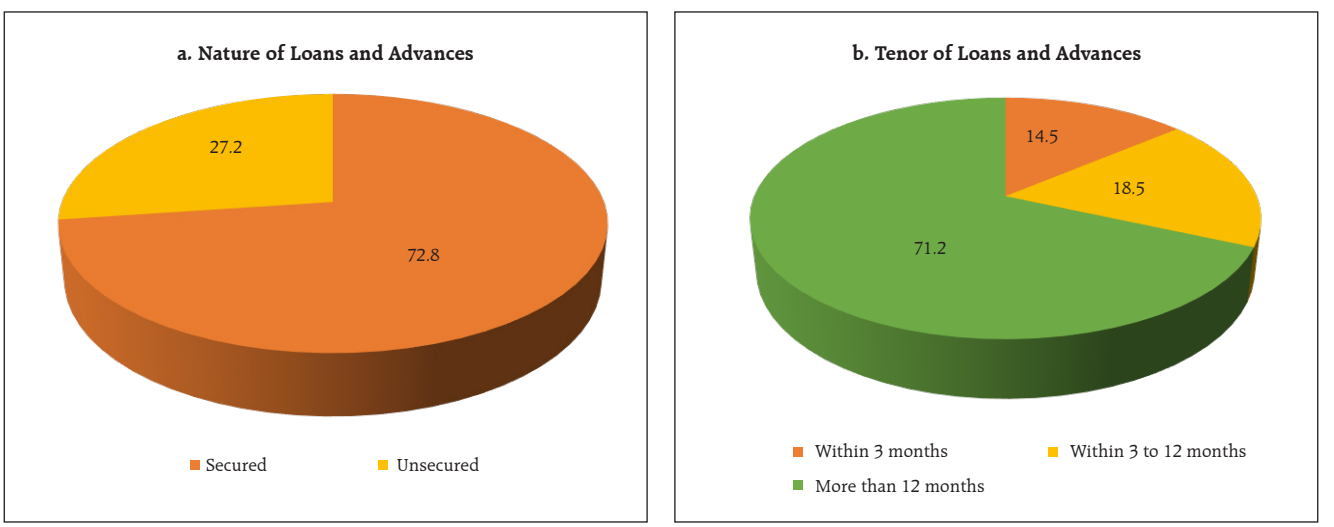
IV.3 Sectoral Credit

NBFCs play a crucial role in the Indian economy by complementing banks in deploying funds to various productive sectors. In descending order of their respective shares, the NBFC sector provided finance to industry, retail, services and agriculture at end-December 2022 (Chart 12a). Following a period of subdued spending post-pandemic, gross advances grew at a double-digit rate at end-December 2022, mainly led by growth in retail and service segments (Chart 12b).

Scale-based analysis of the credit allocation reveals that NBFCs in the upper layer (all of which are privately owned) provide a major chunk of their gross advances to the retail segment, while the middle layer provided maximum credit to the industry. Government NBFCs that fall in the middle layer are large providers of credit to the infrastructure segment of industries (Table 3).

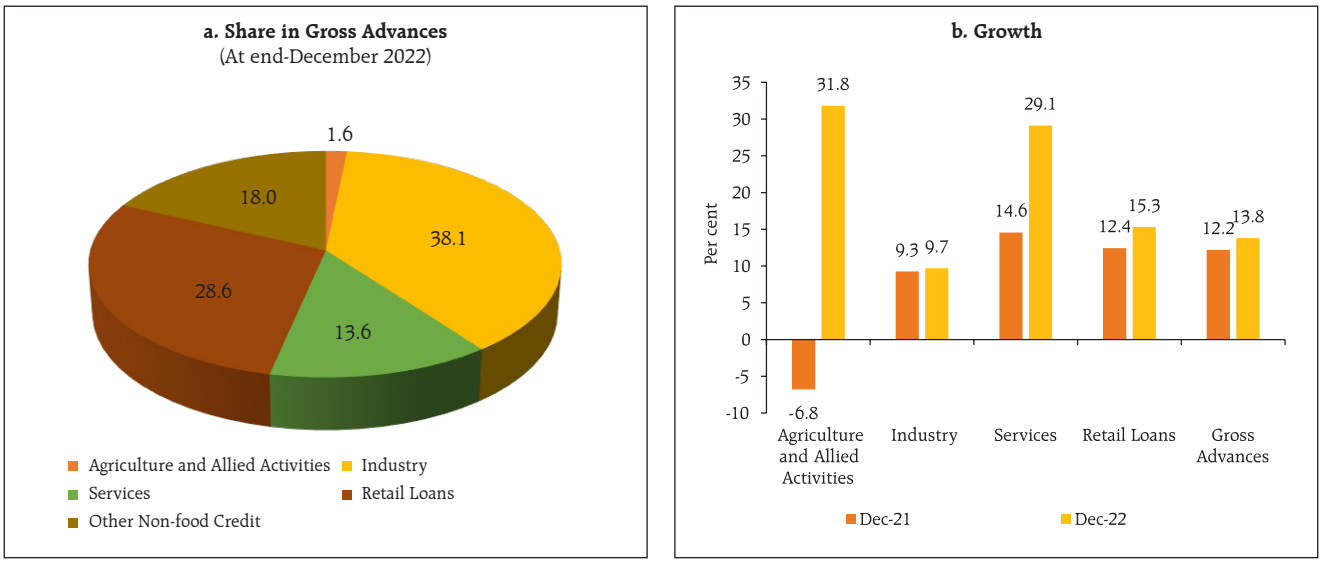
Historically, NBFCs have been providing advances to unbanked/under-banked segments and furthering the objective of financial inclusion. Within industry and service sectors, NBFCs extended about seven per cent of their outstanding gross advances to the micro, small and medium enterprises (MSMEs), which grew significantly at end-December 2022 over end-December 2021. Within retail segment, vehicle loans and loans against gold occupied the top two positions in terms of their share in gross advances, at around 12 and 4 per cent, respectively.

Chart 11: Characteristics of Loans and Advances by NBFCs
(At end Dec-22)



Source: Supervisory Returns, RBI.

Chart 12: Sectoral Deployment of Gross Advances



Source: Supervisory Returns, RBI.

IV.4 Financial Performance, Asset Quality and Capital Adequacy

NBFCs generate income mainly through the allocation of their funds. Fee-based income, on the other hand, contributes merely two per cent of their total income. On the expenditure side, interest expense, operating expenditure and expense incurred on writing-off bad debts are major contributors to the total expenditure. During Q3:2022-23, operating expenditure was the largest component of aggregate expenditure for NBFCs-UL. On the other hand, the share of interest expenses to total expenditure was higher for the middle layer than the upper layer.

Table 3: Share of Sectoral Credit Allocation by NBFCs (At end-December 2022)

	Agriculture and Allied Activities	Industry	Services	Retail Loans	Other Non-food Credit
Upper Layer (10)	3.9	11.4	21.5	62.2	0.9
Middle Layer (195)	0.6	49.3	10.3	14.4	25.2

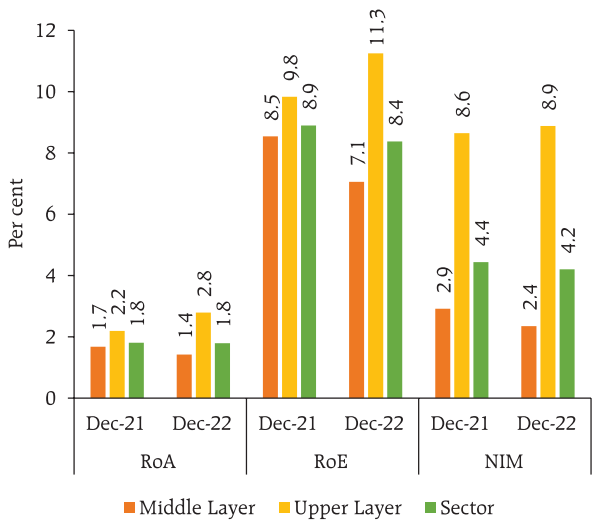
Note: Numbers in the parenthesis indicate the number of NBFCs.
Source: Supervisory Returns, RBI.

Profitability as indicated by return on assets (RoA), return on equity (RoE) and net interest margin (NIM) varied across the layers. At the sector level, all profitability indicators, except RoA, showed some moderation in Q3:2022-23 when compared with the same period last year. The upper layer, on the other hand, fared better when assessed over the same period (Chart 13).

Better recovery practices and resumption of the economic activity helped in on-time servicing of loan obligations. Reduction in GNPA and NNPA ratios at end-December 2022, bodes well for the sector (Chart 14). The decline was mainly on account of low accretion, better recoveries, and write-offs.

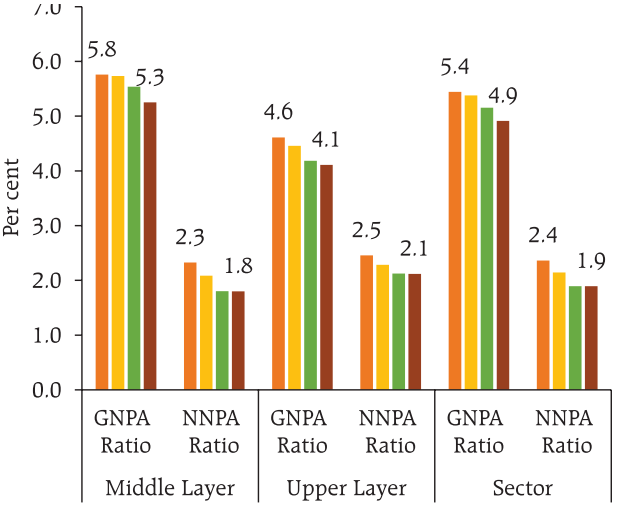
NBFC sector at an aggregate level maintained adequate capital, as the capital to risk-weighted assets ratio (CRAR) at 25.8 per cent was well above the regulatory requirement of 15 per cent at end-December 2022. A higher CRAR is indicative of a stronger financial position along with a lower default risk. Under SBR, NBFC-ML and NBFC-UL are required to make a realistic assessment of their risks and accordingly estimate

Chart 13: Profitability of NBFCs



Source: Supervisory Returns, RBI.

Chart 14: Asset Quality of NBFCs



Source: Supervisory Returns, RBI.

their capital requirements. This has to be done in line with Internal Capital Adequacy Assessment Process (ICAAP), which is prescribed for commercial banks under Pillar 2 of Basel III regulations, however, not insisted upon for NBFCs. Additionally, NBFC-UL are required to maintain common equity tier I capital of at least nine per cent of risk-weighted assets.

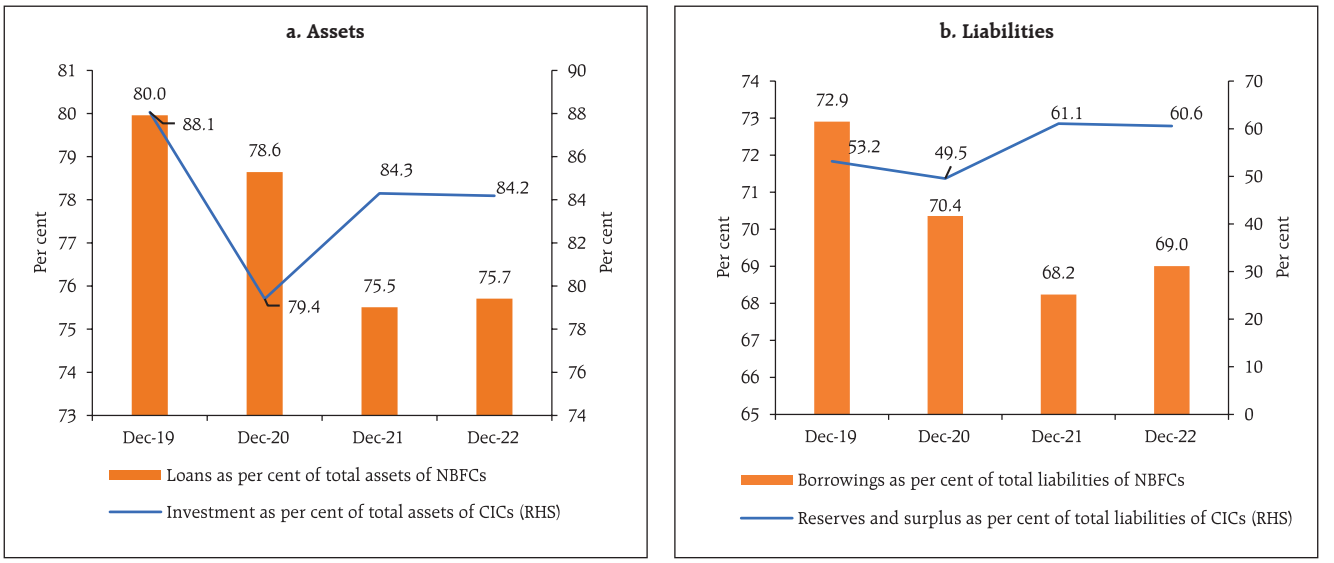
Since the IL&FS crisis in 2018, the balance sheet of the sector has been growing with sound financials. The crisis unfolded due to a default by a group company of a big CIC on its short-term liabilities, which led to a liquidity shock in the system. This led to a withdrawal by short-term creditors of NBFCs. Mutual funds which were a large player in the CP market, and had significant exposure to the sector, quickly reacted and reduced their exposure to NBFCs (Kulkarni, Neelima, & Sinha, 2023). In a reversal of events, mutual funds have again become the largest subscribers of CPs issued by NBFCs at end-December 2022, reflecting the return of market confidence in their businesses. In light of this event, the next section delves into the functioning of CICs.

V. Core Investment Companies

Core investment companies (CICs) are a niche segment within the NBFC universe that provide promoters with an avenue to hold stakes in group companies. In 2002, CICs were identified as investment companies whose only business was to invest in group companies. Subsequently, to limit the scope of trading in securities of group companies by CICs, a category called systemically important CICs (CIC-ND-SI) was introduced in 2010. Thus, by design, CICs were mandated to invest in group companies which in turn confined their exposure. Hence, differential prudential norms, as opposed to those applicable for other NBFCs which are primarily concerned with lending, became applicable to CICs, which were in line with their business model (RBI, 2019). Thus, they were only required to maintain adjusted net worth (ANW) such that it is at least 30 per cent of their aggregate risk weighted assets along with a leverage ratio not exceeding 2.5 times their ANW. Further principal business criteria for CICs mandated a minimum exposure[5] of 90 per cent to

[5] Includes both loans and investments in group companies.

Chart 15: Asset and Liabilities of CICs



Source: Supervisory Returns, RBI.

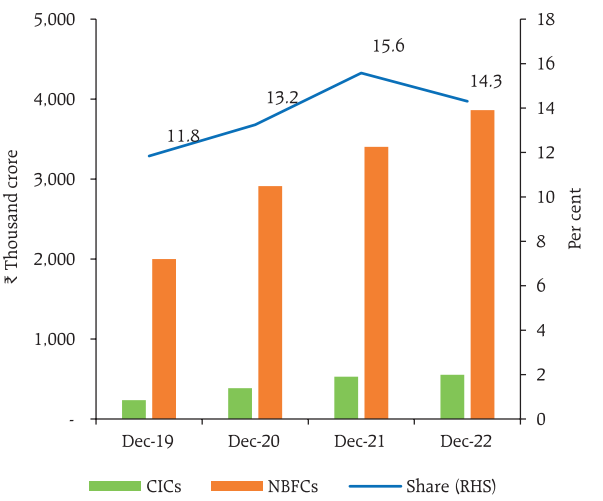
group companies, of which 60 per cent should be in the form of equity investment (RBI, 2022).

As the business activity of CICs is primarily investing, their investment in group companies stood at 84.2 per cent of total assets at end December 2022, whereas, for NBFCs, loans and advances had the highest share at 75.7 per cent during the same period (Chart 15a). On the liability side, for CICs, reserves and surplus were the largest constituents, accounting for 60.6 per cent of their total assets, while for NBFCs, borrowings were the largest component constituting 69 per cent of their total assets during the same period (Chart 15b).

Further, the size of the balance sheet of CICs as a proportion of the balance sheet of NBFCs has been gradually rising, except for a dip in December 2022, reflecting the rising importance of CICs (Chart 16).

The IL&FS episode of 2018 had a major impact on the Indian financial system and exposed the systemic risk posed by CICs. However, timely interventions by the government and the Reserve Bank restored confidence. Revised guidelines were issued after the submission of the Tapan Ray committee report which were aimed at monitoring the complex group structures and interconnectedness of CICs with financial systems and strengthening the corporate governance framework for them. Under the new guidelines, the definition of ANW was altered to address the issues of multiple gearing and excessive leveraging. Now, as applicable to other NBFCs, the capital contribution

Chart 16: Assets of CICs as a Proportion of Assets of NBFCs



Source: Supervisory Returns, RBI.

by a CIC in a step-down CIC, over and above 10 per cent of its owned funds, is deducted from its ANW. Further, to address the complexity in group structures and the existence of multiple CICs within a group, the number of layers of CICs within a group (including the parent CIC) has been restricted to two. Group Risk Management Committee (GRMC) has been mandated to address the issues of build-up of high leverage and other risks at the group level. CICs with asset size of more than ₹5,000 crore are also required to appoint a chief risk officer. To increase transparency and carry out due diligence, more corporate governance and disclosures have been stipulated. Also, CICs will have to prepare a consolidated financial statement as per provisions of the Companies Act, 2013 to provide a clear view of the financials of the group as a whole. To reduce the scope of misrepresentation, CICs that were not required to be registered with the Reserve Bank will now be termed as"unregistered CICs" instead of "exempted CICs".[6]

Going forward, the revised guidelines are expected to strengthen the sector by reducing the chances of failure which have financial stability implications.

VI. Conclusion

Innovation and dynamism are the hallmarks of the NBFI sector globally. Unlike in AEs, NBFCs in India take on a relatively more straightforward intermediation role between lenders and borrowers. Although the balance sheet size of the NBFC sector is less than one-fifth of SCBs, it is an important segment of the Indian financial landscape, complementing banks in providing credit to various productive sectors. Over the years, many NBFCs have grown and become systemically significant and in this context, scale-based regulation is both relevant and timely. At end Q3:2022-23, the consolidated balance sheet of the NBFC sector exhibited double digit growth. GNPA and NNPA ratios of the sector moderated on account of low accretion, better recoveries, and write-offs, as economic activity gained traction in the aftermath of the pandemic. The sector continues to maintain adequate provisions and strong capital buffers.

In recent years, NBFCs have been leading in the rapidly evolving digital lending space, leveraging technology to reach wider audiences and streamline the user experience. When compared to banks that sanctioned 5.6 per cent of loans through digital channels, NBFCs sanctioned 60 per cent of loans digitally in 2019-20 (RBI, 2021). Riding on this momentum, new-age NBFCs are integrating Artificial Intelligence/Machine Learning (AI/ML) tools in their operations to improve business processes and decision-making. The Reserve Bank has also been encouraging NBFCs to adopt digital solutions for seamless customer interface. In this regard, the Bank has mandated NBFC-UL and NBFC-ML with 10 or more fixed point service delivery units to implement a 'Core Financial Services Solution (CFSS)', akin to the Core Banking Solution (CBS) adopted by banks, on or before September 30, 2025.[7]

Going forward, NBFCs need to diversify their funding sources, thereby reducing excessive reliance on bank borrowings. They need to develop strong governance and risk management standards and be more vigilant about cybercrimes, as the growing digital lending space offers huge opportunities, but also presents novel challenges.

References

Aldasoro, I., Huang , W., & Kemp, E. (2020). Cross-border links between banks and non-bank financial institutions. *BIS Quarterly Review.*

Aramonte, S., Schrimpf, A., & Shin, H. S. (2022). Non-bank financial intermediaries and financial stability. *BIS Working Papers No. 972.*

6 https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11949&Mode=0

7 https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=12247&Mode=0

FSB. (2022). *Global Monitoring Report on Non-Bank Financial Intermediation.* Financial Stability Board.

Kannan, R., Shanmugam, K. R., & Bhaduri, S. (2019). *Non-Banking Financial Companies Role in India's Development .* Springer.

Kulkarni, N., Neelima, K. M., & Sinha, S. (2023, August 29). Anatomy of a Liquidity Shock on Non-banks. CAFRAL, Working Paper.

MFIN. (2022). *Micrometer.* MicroFinance Institutions Network.

RBI. (2019). *Report of the Working Group to Review the Regulatory and Supervisory Framework for Core Investment Companies.* Reserve Bank of India.

RBI. (2021). *Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps.* Reserve Bank of India.

RBI. (2022). *Financial Stability Report.* Reserve Bank of India.

RBI. (2022). Master Direction - Core Investment Companies (Reserve Bank) Directions, 2016.

Inflation and Inflation Expectations: A Distributional Mapping

*by R. K. Sinha^*

The article analyses statistical characteristics of the Consumer Price Index-Combined (CPI-C) based inflation and inflation expectations datasets and identifies suitable statistical distributions for these. The identification of appropriate distributions facilitates in establishing a one-to-one mapping of these distributions. The mapping provides a conversion/correspondence of a data point from one dataset to another. These models have the potential to forecast inflation and are also potentially useful to measure Inflation-at-Risk (IaR).

Introduction

The CPI-C based inflation data is published by the Ministry of Statistics and Programme Implementation (MoSPI) together with granular-level data. One type of granularity is by-product item at the all-India level. Another is according to the product group and sub-group level according to States/Union Territories (UTs) and Regions (Rural/Urban). The Reserve Bank conducts the Inflation Expectations Survey of Households (IESH), which provides expectations of the respondents (surveyed households) on inflation for the near term. Such surveys are known for biases internationally, and accordingly, the levels of inflation expectations often differ from the realised inflation. Nevertheless, they have proved to be very useful for tracking the directional changes. Several recent studies (Das *et al.*, 2019; Shaw, 2019; Muduli *et al.*, 2022) have attempted to assess the inherent biases in such surveys and removed them to establish a meaningful comparison between inflation and inflation expectations.

In this article, we carry out a comparative study of the statistical characteristics of entire distribution of the datasets of actual inflation of MoSPI and inflation expectations[1] of the surveyed households rather than just modelling and mapping the central tendencies of the two datasets. It may please be noted that comparing and modelling aggregate inflation/inflation expectation numbers often lose inherent information in the dataset, as these are just the derived numbers.

The article is divided into five sections. After the introductory section, the datasets of inflation and inflation expectations are described in the second and third sections, respectively. The fourth section connects the findings of these two sections through suitable mappings and suggests possible uses of it. The last section concludes the article.

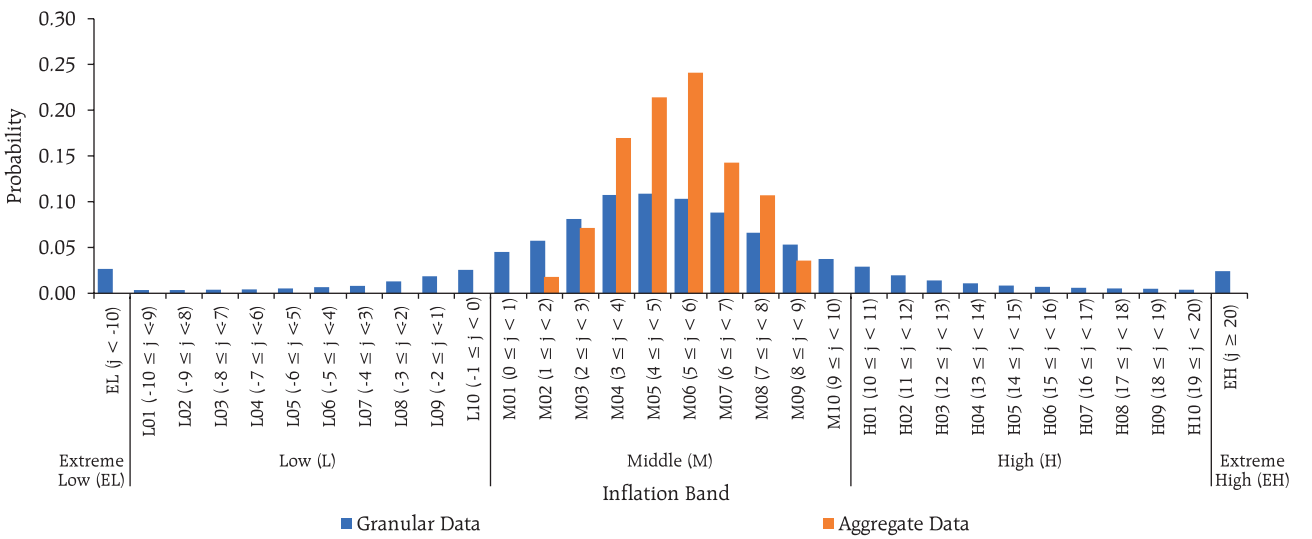
II. Statistical characteristics of CPI-C based Inflation Dataset

The data on CPI-C based inflation (aggregate as well as granular level) is published by the MoSPI on a monthly frequency. Statistically, the mean of inflation of the aggregate and granular-level datasets of the same period should match closely, the standard deviation (SD) of granular data can be expected to be higher as compared to the SD of aggregate data, as aggregate data is a distribution of the mean of the granular data. The modal inflation of the aggregate data falls in the band of 5 per cent to 6 per cent, while it is in the band of 4 per cent to 5 per cent in the case of disaggregate data for the period January 2014 to June 2023. The greater variability in the granular data represents individual product level shocks, which can be favourable (bringing the aggregate level inflation

^ The author is from the Monetary Policy Department (MPD). The views expressed in this article are those of the author and do not represent the views of the Reserve Bank of India.

[1] The comparative study is also possible using the information on inflation expectations of other respondents such as professional forecasters. The same is not explored in this article.

Chart 1: Probability Density of CPI-C Granular and Aggregate Data



Sources: MoSPI and Author's calculations.

towards target point) or adverse (moving away the aggregate level inflation from the target point). The lowest and highest inflation in the aggregate level data stand at 1.46 per cent (recorded in June 2017) and 8.60 per cent (recorded in January 2014), respectively during January 2014 to June 2023 (Chart 1).

The distribution of inflation in the granular level has varied significantly across the months driven by the relative presence of extreme values. We attempt to analyse the statistical properties of the granular dataset[2] over the period January 2014 to June 2023.

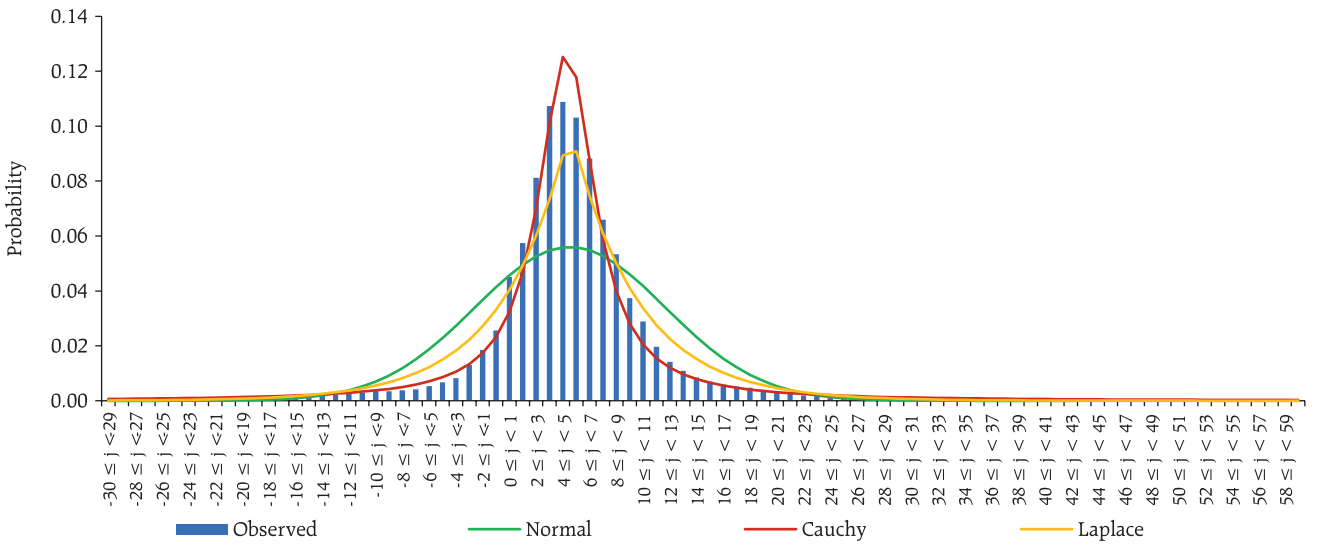
The disaggregated dataset of CPI-C may, initially, appear to have some characteristics of a normal (bell curve).[3] However, the dataset is found to be very leptokurtic *i.e.*, having high peak than normal, with a kurtosis at 15.856. The distribution visually appears to be more-or-less symmetric, although has a mild positive skewness of 0.869. A best fit Normal distribution, *viz.*, N (5.0430, 7.1185) is also plotted, demonstrating the nature of poor fitting with under-estimation at around central and extreme values, and compensating over-estimation in between (Chart 2). The underlying leptokurtic dataset has fatty tails with around 2.5 per cent of observations each in extreme parts, *i.e.*, inflation lower than -10 per cent in the left tail and more than 20 per cent in the right tail, representing severe shocks (Chart 1).

As the normal distribution fails to explain characteristics of the dataset, we explore and search for other suitable statistical distributions, which may potentially explain the nature of this dataset. It is observed that no single statistical distribution explains the dataset adequately. Two best-fit distributions were identified as Cauchy (μ = 4.7930 and σ = 2.4758) and

[2] The study considers 22 larger States/UTs, which have individual weights of more than 0.25 per cent in the CPI-C basket. These States collectively cover 98.30 per cent of CPI-C basket and have greater level of granularity as compared to the set of smaller States.

[3] The probability density function of the disaggregate and aggregate inflation data would be different though the central tendency derived from these two datasets would be comparable. However, other statistical moments of the data (*viz.*, standard deviation, skewness and kurtosis) may differ significantly. For example, the standard deviation of the granular data would be higher than that of the aggregate data.

Chart 2: Probability Density of CPI-C Disaggregate Data



Source: Author's calculations.

Laplace (μ = 5.0430 and λ = 0.1987) though they also do not fit the dataset appropriately (Chart 2 and Table 1).

It may be mentioned that the granular level dataset is composed of various product/sub-product groups across the regions (Rural/Urban) and States/UTs leading to wide heterogeneity. Fitting of sub-sets of datasets by product categories, having larger heterogeneity than regions and States/UTs, indicate more precise modelling for some of the products. Also, we observe larger variations in the descriptive statistics of these subsets. For example, inflation of 'cloth and footwear' appeared to be closest to a bell curve (normal); inflation of 'housing' hovered in a tight spread (narrow range) over time (Annex - Chart A1 and Table A1).

Table 1: Fitting of CPI-C Disaggregate Dataset through Suitable Statistical Distributions

Name of the Distribution	Estimated Parameters	(Kolmogorov – Smirnov Test (Critical Value at 5 per cent = 0.01944)	Rejection at 5 per cent level of significance
Normal	μ = 5.0430 σ = 7.1185	K-S Statistics = 0.12413	Yes
Cauchy	μ = 4.7930 σ = 2.4758	K-S Statistics = 0.03687	Yes
Laplace	μ = 5.0430 λ = 0.1987	K-S Statistics = 0.06548	Yes

Source: Author's calculations.

If a single distribution fails to fit the underlying dataset appropriately, various studies have explored and demonstrated the use of mixture distributions, having potential to capture the characteristics of the dataset more appropriately. These mixture distributions can be constructed with or without the identification of a threshold, a particular value of the random variable. The threshold approach partitions the dataset into two parts, and the parts are modelled separately using different statistical distributions.

Several studies *e.g.*, Cooray and Ananda (2005) and Scollnik (2007) used the Lognormal-Pareto model; Ciumara (2006) and Scollnik and Sun (2012) applied the Weibull-Pareto model; Nadarajah and Bakar (2014) suggested Lognormal-Burr model; to mix two distributions with a threshold. Other approaches suggest mixing of two statistical distributions across the entire distribution without any threshold, but that might have fixed or dynamic

weights (mixing parameters). Frigessi *et al.* (2002) demonstrated a dynamic mixture model for the unsupervised tail estimation without estimating the threshold. The study used a Weibull-Pareto pair, which assigned a higher weight, starting from one, to Weibull at the left part of the distribution which is gradually reduced and tend to zero at the right tail of the distribution. All these studies demonstrated the same dataset *viz.*, Danish fire loss data, a famous insurance dataset known for its heavy right tail.

Unlike the above dataset, which has only one possible heavy tail loss, as values are bounded at zero, the underlying inflation dataset has two clear tails, which have varied significantly across the months. We split the data into two parts with inflation at 4 per cent, as the threshold. These two parts of the dataset are modelled separately. However, we transform the data before the modelling as detailed below:

Let $\{x_L\}$ and $\{x_R\}$ are the data points of the initial granular dataset of inflation covering the distinct ranges (-∞ to 4 per cent) and [4 per cent to ∞), respectively. We define:

$X_L = 4 - X$ for $X < 4$,

$X_R = X - 4$ for $X \geq 4$ Equation (II.1)

Both, X_L and X_R range from 0 to ∞ now.

We now fit the data and identify that 3-parameter Burr and 3-parameter Dagum[4] are the two distributions, which could explain the characteristics of the data appropriately for both the parts. We use Burr distribution in our case, and rest of the analysis is centered around Burr. Burr distribution is a versatile distribution and has been found to be suitable for many insurance datasets. Sastry and Sinha (2010) used a 4-parameter Burr distribution to describe Danish fire loss data and found it to be competitive to several mixture distributions, as proposed by some of the studies for this dataset, as mentioned earlier in this section.

The probability density function (pdf) of a 3-parameter Burr distribution is defined as:

$$f(x) = \frac{\alpha k \left\{\frac{x}{\beta}\right\}^{\alpha-1}}{\beta\left[1+\left\{\frac{x}{\beta}\right\}^{\alpha}\right]^{k+1}} \quad \text{Equation (II.2)}$$

Where, k (>0) and α (>0) are the first and second shape parameters, respectively; β (>0) is the scale parameter.

The distribution function (df) of a 3-parameter Burr distribution is defined as:

$$F(x) = 1 - \frac{1}{\left[1+\left\{\frac{x}{\beta}\right\}^{\alpha}\right]^{k}} \quad \text{Equation (II.3)}$$

The descriptive statistics (DS) of each part of the distribution indicates resemblances of observed data and fitting by Burr (Table 2).

The fitting by using mixture distribution indicates stark improvement over the initial approach of using single distribution. Now the derived variables (X_L and X_R) are transformed back to the original variable (X) and the modelled probability density functions

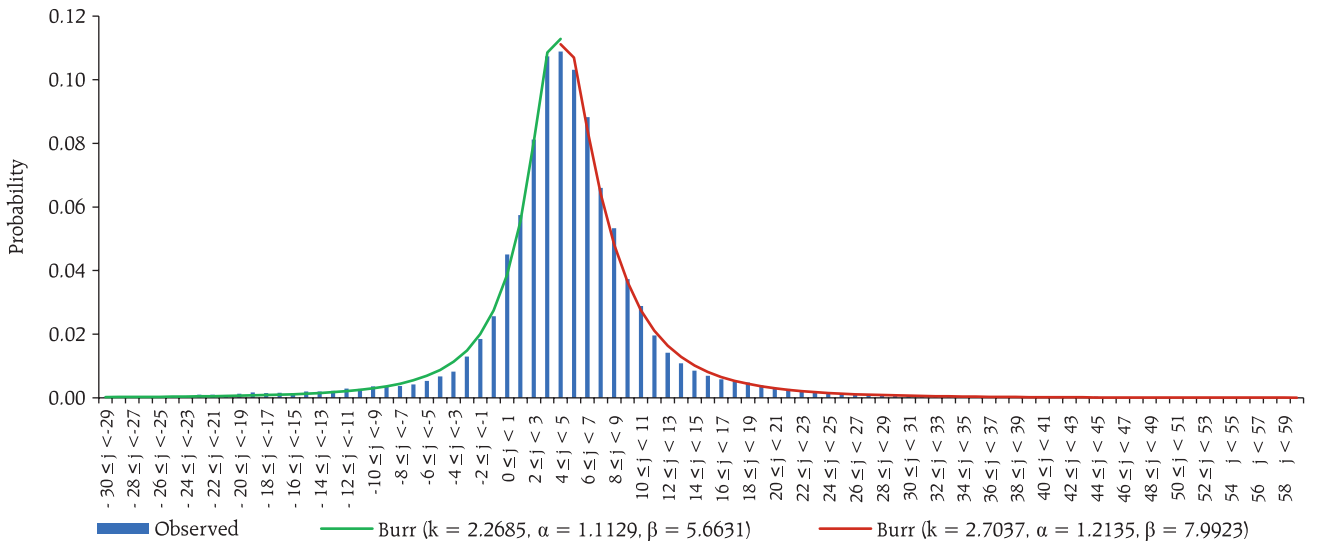
Table 2: Descriptive Statistics of two Parts of the Distribution

DS	Left Part (X_L)	Right Part (X_R)
Weight in Full Data	0.41015	0.58985
Mean	4.0977 (-0.0977 for X)	4.6112 (8.6112 for X)
Range	0 to 46.90 (-42.90 to +4.00 for X)	0 to 89.19 (+4 to +93.19 for X)
SD	5.4349	5.8530
Skewness	2.7690	4.1868
Kurtosis	11.933	31.462
Fitting of Burr Distribution		
Parameters	k = 2.2685 α = 1.1129 β = 5.6631	k = 2.7037 α = 1.2135 β = 7.9923
K-S Statistics (Critical value at 5 per cent)	0.01839 (0.02611)	0.01381 (0.02384)

Source: Author's calculations.

[4] Dagum distribution is the inverse of Burr distribution, which is used to fit heavy tailed distributions.

Chart 3: Fitting of CPI-C Disaggregate Data - Synthetic Burr



Source: Author's calculations.

are proportioned into their respective weights and stitched together. This way, the derived single pdf from the synthetic pair of Burr (2.2685, 1.1129, 5.6631) and Burr (2.7037, 1.2135, 7.9923) adds to unity with appropriate weights[5] and explains the data in a much better way (Chart 3).

If a single distribution, whether derived on a standalone basis or through the mixing of distributions, fails to capture the characteristics of extreme tails adequately and precisely, its estimates of probabilities in the extreme tails are neither reliable nor usable, as it may be under or over-estimating these consistently. In such cases, the alternative solution is to model the extreme tails exclusively through the Extreme Value Theory (EVT) tools. In the current case, the synthetic Burr appears to fit well the entire curve including the tails (Chart 3). We examine the same statistically and explore if EVT tools would be a valuable addition in this context.

[5] The appropriate weights of the left and right tails are derived from the observed data at around 0.41 and 0.59 (Table 2).

The distribution of excesses over a high threshold, say u, in the right tail of inflation is defined as:

$$F_u(x_R) = P[X_R \leq x_R] = P[X_R \leq x - u \mid X > u, \text{ for } 0 \leq X_R < x_{max} - u \quad \text{Equation (II.4)}$$

where, x_{max} is the largest observation.

The distribution of excesses represents the probability that inflation (X) exceeds the threshold inflation u by at most an amount x_R, where, x_R = x-u, given the information that X exceeds the threshold u. In terms of the underlying function, the same is as below:

$$F_u(x_R) = \frac{F(x_R + u) - F(u)}{1 - F(u)} \quad \text{Equation (II.5)}$$

The functions, $F_u(x_R)$ and $F(x_R + u)$, are the conditional and unconditional distribution functions, respectively. The function $F(x_R + u)$ is equivalent to F(x), as $x_R = x - u$. The F(u) is the cumulative probability at the threshold "u". The underlying distribution function may have an infinite right endpoint, *i.e.*, it allows the possibility of arbitrarily very large inflation value with a very small probability.

Similarly, the distribution of shortfall over a lower threshold u in the left tail of inflation is defined as:

$$F_u(x_L) = P[X_L \leq x_L) = P[u - X \leq x_L \mid X < u],$$
$$\text{for } 0 \leq x_L < u - x_{min} \qquad \text{Equation (II.6)}$$

where, x_{min} is the smallest observation.

The distribution of shortfall represents the probability that inflation (X) falls short the threshold inflation u by at most an amount X_L, where, x_L = u - x, given the information that X falls short of the threshold u. In terms of the underlying function, the same is as below:

$$F_u(x_L) = \frac{F(u) - F(u - x_L)}{F(u)} \qquad \text{Equation (II.7)}$$

The EVT essentially considers the larger/smaller few observations of the dataset at the extreme ends and not the complete dataset. The EVT deals with conditional probabilities for example, what is the probability of inflation exceeding 25 per cent, given that it is more than 10 per cent. The challenge with EVT is determining the threshold level. Ideally, a higher threshold should be preferred. However, as the threshold increases, the modeller is left with a very small number of observations raising debatable issues on the reliability of probability estimates. Accordingly, there has to be an optimum level of threshold. There are a few standard techniques to determine the threshold statistically. One such technique is plotting the 'Mean Excess Function'. The same is described below:

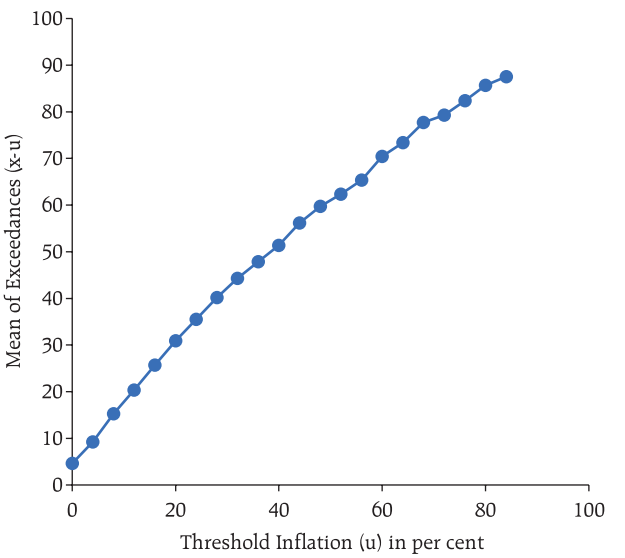
If *u* is the threshold, the mean excess function e(*u*) can be estimated by the sum of exceedances (or shortfall, in case of left tail of the distribution) over the threshold *u* divided by the number of data points exceeding the threshold *u*. In other words, the mean excess function indicates the expected overshoot of a threshold given that it exceeds the threshold.

For the right tail, an upward trend of the mean excess function may indicate heavy-tailed behaviour of the data; a horizontal line may suggest an exponentially distributed data, and a downward trend may indicate a short-tailed data. The underlying data may follow GPD, if the empirical mean excess function shows an upward trend, in particular, a positive gradient (upward sloping) straight line (McNeil, 1997). In our context, the mean excess plot of the data (Chart 4) is a clear upward sloping line exhibiting suitability for a Generalised Pareto Distribution (GPD) at various possible threshold points.

A threshold is chosen from inspecting the plot of mean excess. Accordingly, the mean excess function is computed for our dataset[6]. It is observed that the mean excess function more-or-less maintains linearity and does not diverge across the board. This indicates that GPD may be potentially an appropriate choice for fitting the exceedances (Chart 4).

We explore and examine the appropriateness of GPD in our context and also compare it with our fitted synthetic Burr distribution. We find that the

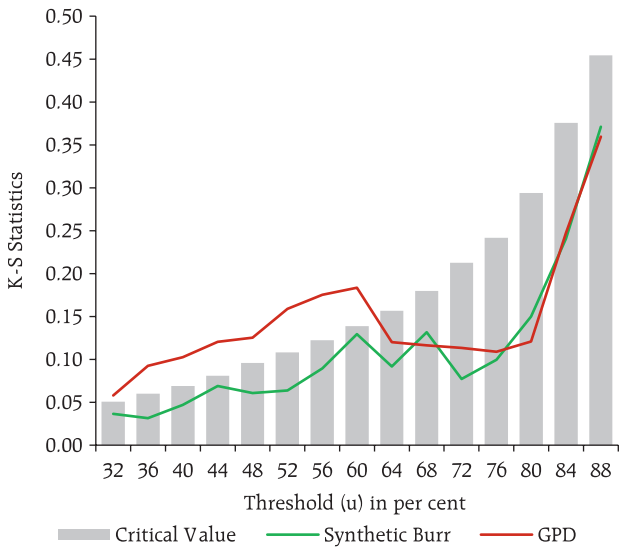
Chart 4: Mean Excess Plot



Source: Author's calculations.

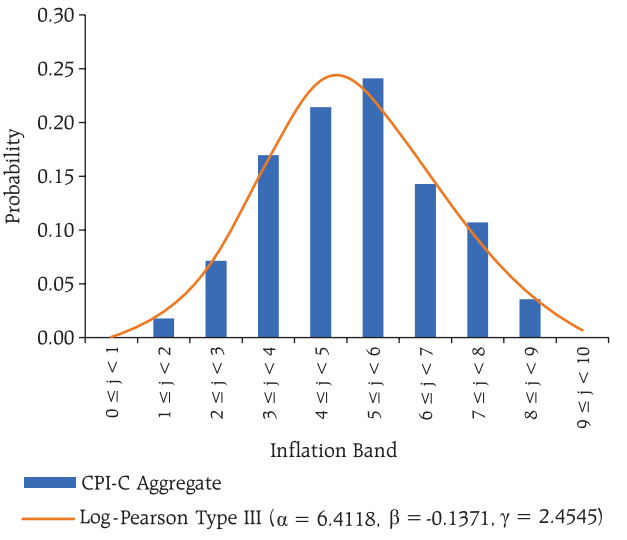
[6] We use probability weighted counts of observations in our context to reflect varied and appropriate weights of the products/sub-products. This is unlike many other studies, wherein simple counts are applied to derive mean excess function, which is meaningful in loss distributions such as Danish fire loss dataset, demonstrated by many studies.

Chart 5: Burr and GPD Comparison



Source: Author's calculations.

Chart 6: Fitting of CPI-C Aggregate Inflation



Source: Author's calculations.

GPD is inferior to synthetic Burr, which has a poor fit at many thresholds (especially at lower u values) and has higher K-S Statistics values. The GPD appears to improve with the increase of threshold and converges with Burr though does not exhibit betterment over it. We demonstrate this for the right tail of the data (Chart 5).

We now move to the distribution of inflation in the aggregate data. As we observed earlier (Chart 1) that the distribution of CPI-C based aggregate inflation has much shorter tails, as compared to the granular level inflation distribution. The distribution is found to be almost symmetric and platykurtic (less peaked than normal). The Log-Pearson Type III distribution is identified to be the closest representation of the aggregate level inflation data (Table 3 and Chart 6).

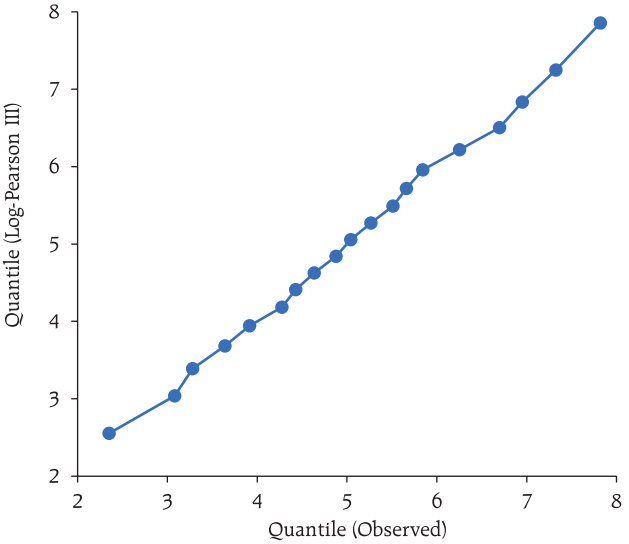
The quantile-quantile (QQ) plot exhibits a straight line highlighting the apprpriateness of the 3-parameter Log-Pearson Type III distribution for the CPI-C headline distribution (Chart 7).

Table 3: Descriptive Statistics and Fitting of CPI-C Aggregate Inflation

DS	Estimates	Fitting
Sample Size (N)	112	**3-parameter Log – Pearson Type III**
Mean	5.1039	α = 6.4118
Range	7.14 (1.46 to 8.60)	β = - 0.1371
SD	1.5925	γ = 2.4545
Skewness	0.0653	K-S Statistics = 0.03671
Kurtosis	2.4621	(Critical value at 5% = 0.12832)

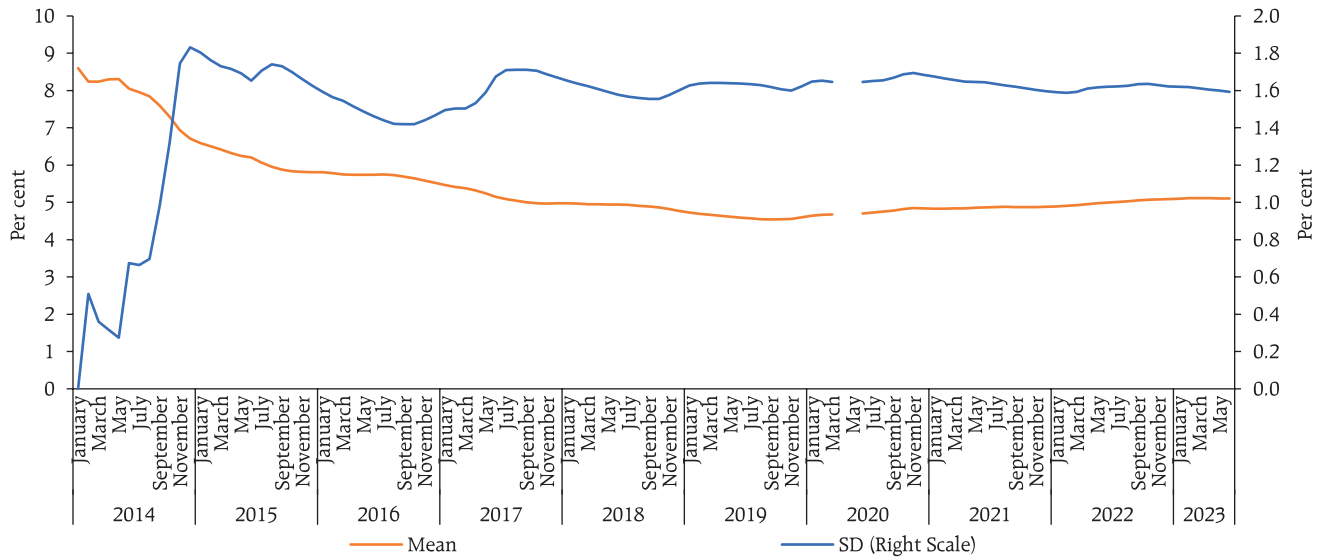
Note: The data period is from January 2014 to June 2023. The data of April 2020 and May 2020 are not included, which were imputed and published by MoSPI subsequently.
Source: Author's calculations.

Chart 7: QQ Plot



Source: Author's calculations.

Chart 8: Evolution of Mean and SD



Source: Author's calculations.

We also analyse the evolution of inflation distribution with the incoming of each incremental data point for the CPI-C aggregate data.[7]

Evolution and Stabilisation of Statistical Moments of Inflation (January 2014 to June 2023)

The mean inflation[8] witnessed a more-or-less consistent drop since the beginning of January 2014 till September 2019, touching a trough of 4.54 per cent, which rose gradually in the subsequent period to 5.10 per cent in June 2023. The Standard deviation (SD) of the distribution appears to be settling at around 1.6 per cent (Chart 8).

The skewness of the distribution dipped gradually in recent years towards zero-level, leading to a symmetric distribution. The distribution turned platykurtic (less peaked than normal) again in February 2020, just prior to COVID emergence, which remained leptokurtic (more peaked than normal) throughout December 2017 to January 2020. The unstable values of skewness and kurtosis during 2014 are due to the small sample size. Further, these do not appear to precisely converge given the current sample size (Chart 9).

Now, we explore the statistical properties of inflation expectations in the following section, which is sourced from the Inflation Expectations Survey of Households (IESH) conducted by the Reserve Bank. There are other sources of inflation expectations/forecasts such as the Survey of Professional Forecasts (SPF), which is also conducted by the Reserve Bank. We restrict the analysis to IESH in the current context, as mentioned in the introductory section.

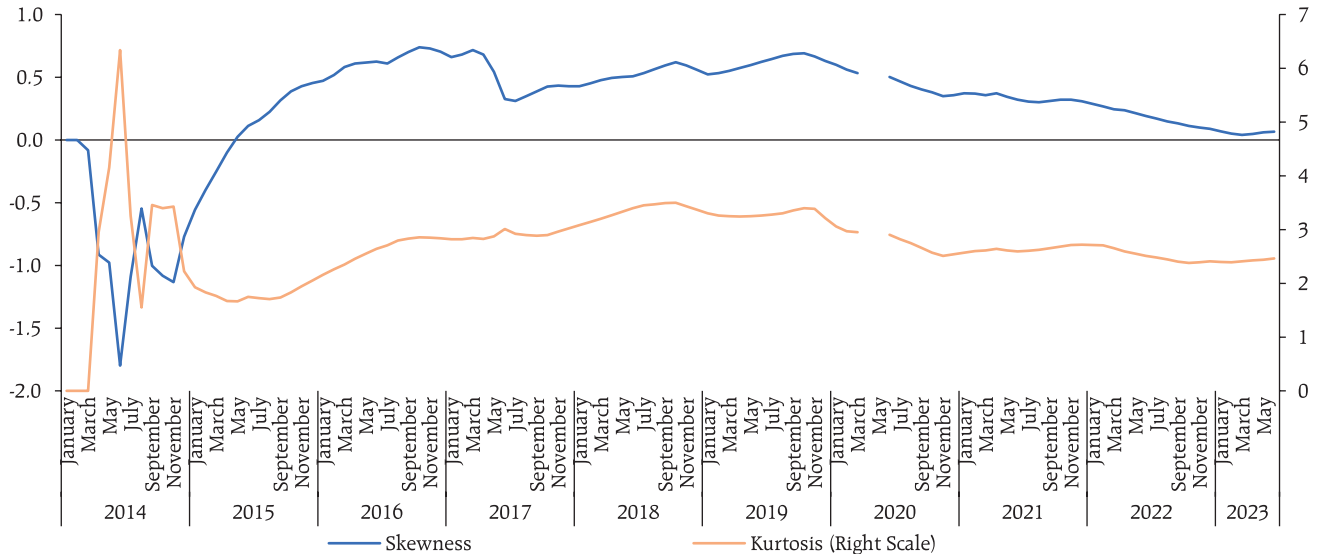
III. Statistical Characteristics of the Inflation Expectations Dataset

The inflation expectations survey of households is a bimonthly survey, wherein qualitative and quantitative expectations on inflation are sought from

[7] The evolution and stabilisation of granular-level data of CPI-C based inflation was discussed in the study (Sinha, 2023) covering the pre-COVID and post-COVID periods with additions of half-yearly data. The study found a consistent right-ward shift in the distribution in the post-COVID period.

[8] The mean inflation at a month (t) is a simple average of inflation starting from January 2014 to the month (t).

Chart 9: Evolution of Skewness and Kurtosis



Source: Author's calculations.

around 6,000 households[9] in select cities in the urban areas. Here, we analyse only the quantitative inflation expectations of households, which are captured from the households for three-time points - current period, 3-month ahead period and 12-month ahead period. We consider the dataset for the IESH starting from March 2014 (Round 35) to May 2023 (Round 71B) including the two bimonthly surveys conducted every year in addition to four quarterly surveys. The granular (unit) level data on inflation expectations are also released by the Reserve Bank, in addition to web releasing the summary (aggregate) data. Accordingly, we analyse both the datasets, as carried out for CPI-C based inflation in the previous section.

The households happen to generally report higher inflation than actual inflation. Further, there is a tendency to report higher inflation for 3-month ahead and further to 12-month ahead as compared to the current inflation (Table 4). We identify that the 4-parameter Burr distribution explains the IESH unit-level data appropriately. In the previous section, we identified that a mixture of two 3-parameter Burr distributions explains the distribution of CPI-C granular inflation well. From the IESH granular dataset, we observe that there has been a preference of households to report inflation in round numbers. This preference leads to the bunching of frequencies

Table 4: Descriptive Statistics and Fitting of IESH Granular Data

DS	Dataset		
	Current Period	**3-month ahead**	**12-month ahead**
Mean	11.765	13.150	13.849
Median	8.50	9.50	10.50
Range	99.50 (0.50 to 100.00)	98.50 (0.50 to 99.0)	99.50 (0.50 to 100.0)
SD	11.241	12.689	14.131
Skewness	3.1441	2.9822	2.7168
Kurtosis	15.916	14.001	12.163
Fitting	**4-parameter Burr** k = 0.2894 α = 8.0122 β = 9.8506 γ = - 4.7867 K-S Statistics = 0.09987 (Critical value at 5% = 0.13675)	**4-parameter Burr** k = 0.3447 α = 6.3927 β = 10.1440 γ = - 4.2926 K-S Statistics = 0.07008 (Critical value at 5% = 0.13446)	**4-parameter Burr** k = 0.9789 α = 2.4867 β = 11.8570 γ = - 2.0122 K-S Statistics = 0.08236 (Critical value at 5% = 0.13446)

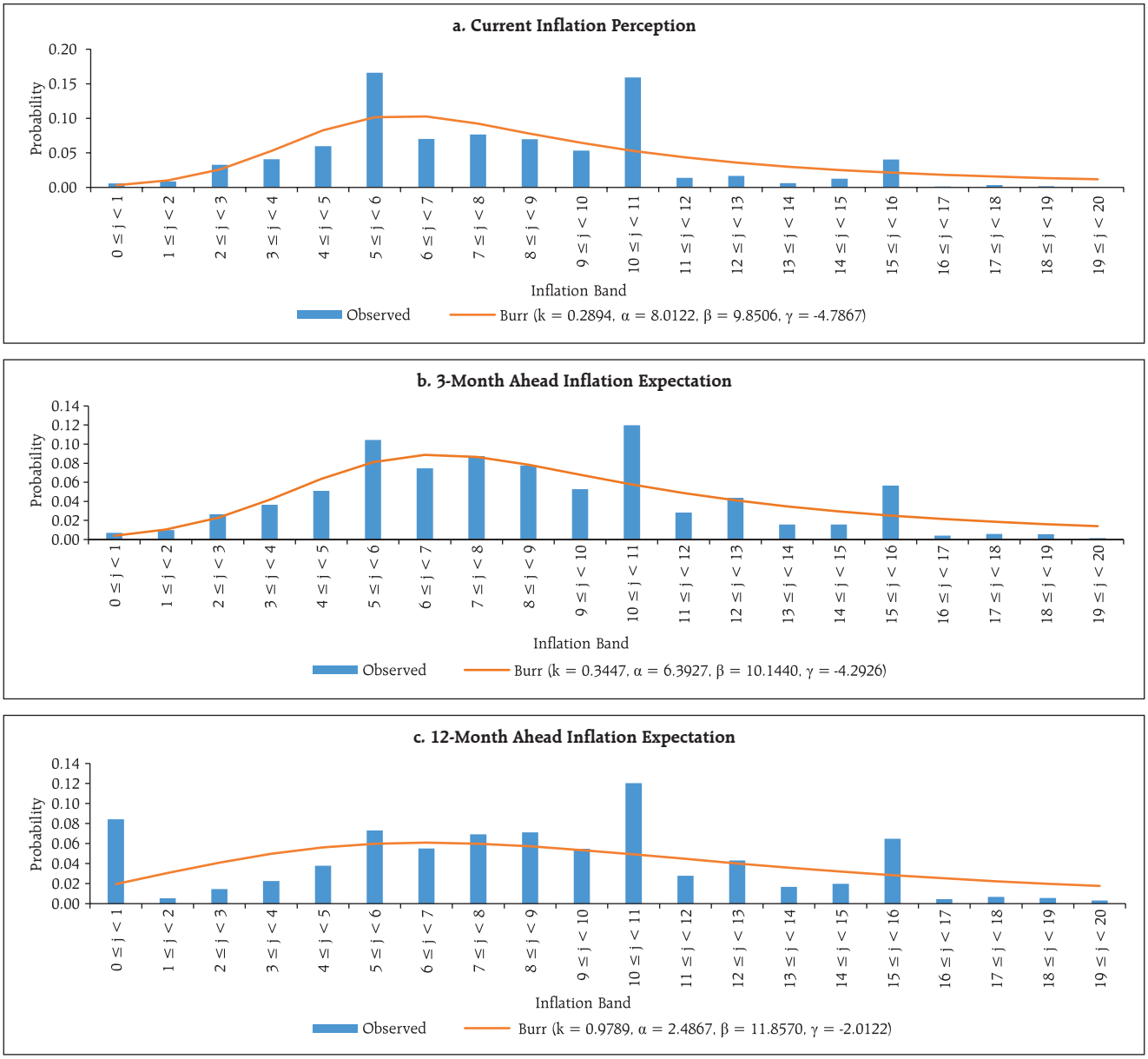
Source: Author's calculations.

[9] The number of surveyed households has increased in recent times with the introduction of new cities/centres for the survey.

at round numbers and distorts the distribution. Further, unlike CPI-C granular inflation, the IESH granular inflation expectations have only one tail *viz.*, right tail, as the lowest band (inflation less than one per cent) does not produce an extreme left tail, although it is unbounded theoretically, it is likely to be considered as between zero to one per cent by the respondents, which indeed appeared to contain a low frequency, barring 12-month inflation expectations dataset. The descriptive statistics and fitting of distribution are provided in Table 4 and Chart 10, respectively.

Chart 10 exhibits the characteristics of respondents regarding their preference for round numbers, as mentioned, with round numbers in the multiples of 5, *viz.*, 5, 10, 15, 20.....and so on. The distribution is found to be very (positively) skewed

Chart 10: Fitting of IESH Granular Data



Source: Author's calculations.

as well as very leptokurtic for all three datasets (each for current inflation, 3-month ahead inflation and 12-month ahead inflation). The 4-parameter Burr appears to pass the goodness of fit at 5 per cent though, a superior fitting may still be feasible possibly through a mixture distribution due to the inherent nature of round number preferences while responding at survey rounds. The same is not attempted in the current context though.

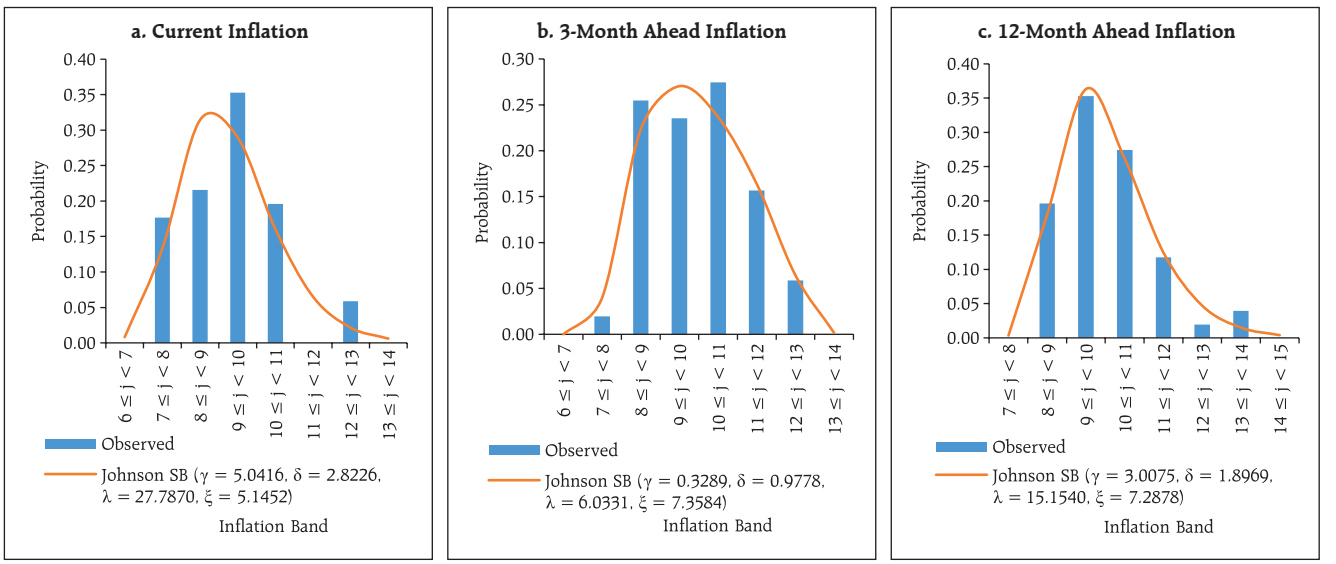
Now, we move to the fitting of IESH aggregate data. The summary statistics of the IESH data is released for two central tendencies (mean[10] and median). We identify that 4-parameter Johnson SB distribution[11] tracks the distribution of mean inflation of IESH well. The descriptive statistics and fitting are exhibited in Table 5 and Chart 11, respectively.

Table 5: Descriptive Statistics and Fitting of IESH Aggregate Data (Mean)

DS	Dataset		
	Current Period	**3-month ahead**	**12-month ahead**
N	51	51	51
Mean	9.284	9.961	10.051
Range	5.40 (7.30 to 12.70)	4.80 (7.90 to 12.70)	5.20 (8.30 to 13.50)
SD	1.246	1.258	1.171
Skewness	0.7234	0.2401	0.9043
Kurtosis	3.7781	2.2039	4.0463
Fitting	**4-parameter Johnson SB** $\gamma = 5.0416$ $\delta = 2.8226$ $\lambda = 27.7870$ $\xi = 5.1452$ K-S Statistics = 0.08065	**4-parameter Johnson SB** $\gamma = 0.3289$ $\delta = 0.9778$ $\lambda = 6.0331$ $\xi = 7.3584$ K-S Statistics = 0.06640	**4-parameter Johnson SB** $\gamma = 3.0075$ $\delta = 1.8969$ $\lambda = 15.1540$ $\xi = 7.2878$ K-S Statistics = 0.08959
	Critical value at 5% = 0.18659 (same for all the datasets, as these are ungrouped datasets with same sample size)		

Source: Author's calculations.

Chart 11: Fitting of IESH Aggregate Datasets (Perception and Expectations)



Sources: Author's calculations.

[10] The published mean of the IESH may not match with the mean computed from the granular level data due to various aggregation and methodological issues.

[11] Johnson System Bounded (SB) distribution is a system of curves for bounded data, which can be transformed to an approximately normal distribution through an appropriate transformation function. Similarly, Johnson System Unbounded (SU) distribution is a system of curves for unbounded data, which is found to be suitable in this study for select product groups in the CPI-C granular dataset (Annex Table A1).

The distribution of mean inflation of IESH is found to be (positively) skewed unlike the CPI-C aggregate inflation, which was found to be almost symmetric.

After studying and analysing the statistical properties of inflation and inflation expectations at the granular and aggregate level, we attempt to map these in the following section.

IV. Mapping of Distributions

The findings of section II and III reveal that the statistical moments of the distributions of various analysed datasets differ significantly from each other. The findings are summarized in Chart 12.

The mappings, as collated in Chart 12, provide an equivalence of distribution with the other. For example, a data point of IESH (aggregate) for current inflation following the 4-parameter Johnson SB (γ = 5.0416, δ = 2.8226, λ = 27.7870, ξ = 5.1452) has a correspondence with a data point of CPI-C (aggregate) following Log-Pearson Type III (α = 6.4118, β = - 0.1371 and γ = 2.4545). The functional relationship of two datasets can be used in many ways. A simple approach is to map through the cumulative distribution function (CDF). These are potentially useful as IESH is forward-looking, whereas CPI-C realised inflation is post-facto. Accordingly, the mapping has the potential to forecast inflation. The forecast for CPI-C inflation using IESH data can be possible under two mappings – direct and indirect, as below:

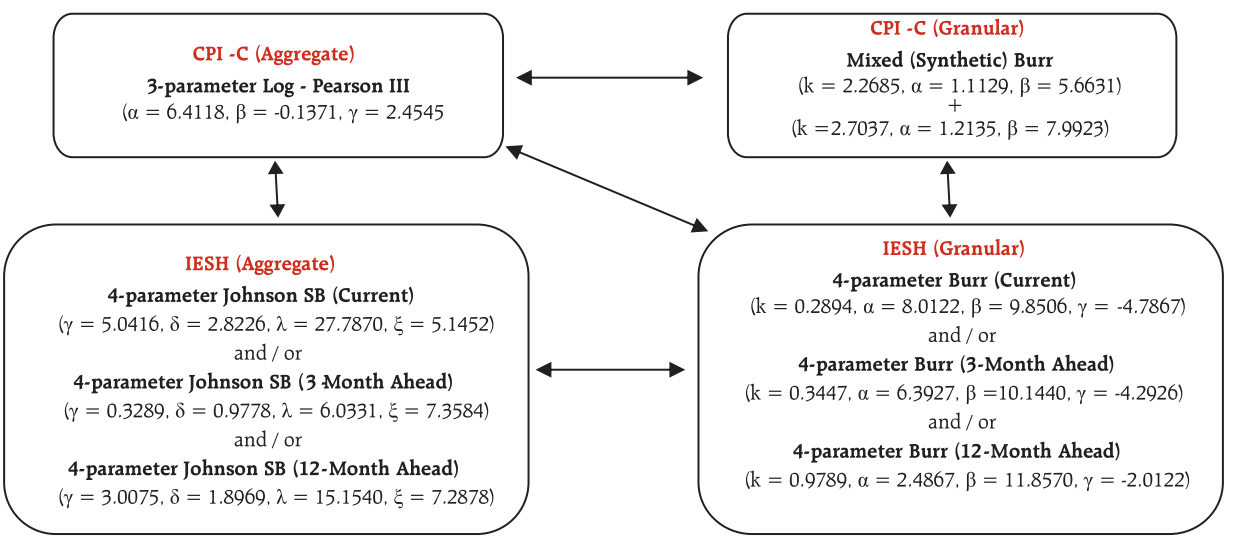
Direct mapping

It is based on aggregate numbers and does not use granular-level information. Let X and Y be random variables representing realised inflation and 3-month ahead inflation expectations of IESH, respectively, both at an aggregate level. The mapping of a particular value 'y' of the 3-month ahead inflation expectation to a value of x (of realised inflation) can be done by equating $F_{\text{Johnson SB}}(y)$ with $F_{\text{log-Pearson III}}(x)$. The steps to do this mapping is given as below:

Given a value of y ⟶ Find $F_{\text{Johnson SB}}(y)$ ⟶ Equate with $F_{\text{log-Pearson III}}(x)$ ⟶ Get x

For example, the result of the 72nd round of IESH, which was conducted during July 1-10, 2023,

Chart 12: Mapping of Distributions



Source: Author's calculations.

indicated a mean of 10.20 per cent for the 3-month ahead inflation (*i.e.*, forecast for October 2023). Using the 4-parameter Johnson SB ($\gamma = 0.3289$, $\delta = 0.9778$, $\lambda = 6.0331$, $\xi = 7.3584$) distribution of 3-month ahead inflation in IESH, we compute $F_{\text{Johnson SB}}(10.20) = 0.58525$. We compute x, by solving the equation, $x = F^{-1}_{\text{log-Pearson III}}(0.58525)$, wherein F^{-1} is an inverse CDF. This provides an estimate for x = 5.43 per cent.

The above mapping could be an alternative to the traditional econometric models, which are commonly used to forecast inflation through forward-looking inflation expectations. Based on the above approach using the identified distributions with estimated parameters, we estimate the inflation for the months since March 2014, barring those months, wherein any of the two – inflation and inflation expectations are not available. We compare the estimates of inflation with realised inflation using this approach and a simple regression-based approach, an econometric tool, and observe that the proposed approach is quite competitive, which additionally provides valuable insights into the detailed profile of the datasets (Chart 13).

More complex mapping of distributions could be done using Copula[12] functions, although they are not attempted in this article.

Indirect mapping

In direct mapping, one data point of one distribution is mapped with one data point of the other distribution, which is suitable for the aggregate dataset, as we have only one (aggregate) number per month for inflation expectations and one for the realised inflation. Instead of aggregating single numbers, we can establish a mapping between granular datasets of inflation expectations and realised inflation through many one-to-one mappings. These mappings could include the mapping of inflation at disaggregate level such as urban city (centre) of IESH *versus* corresponding State of CPI-C, *etc.* The indirect mapping could be complex and could be done in two stages, as below:

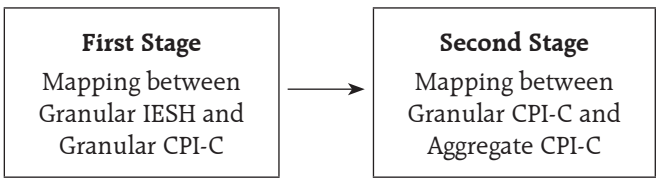
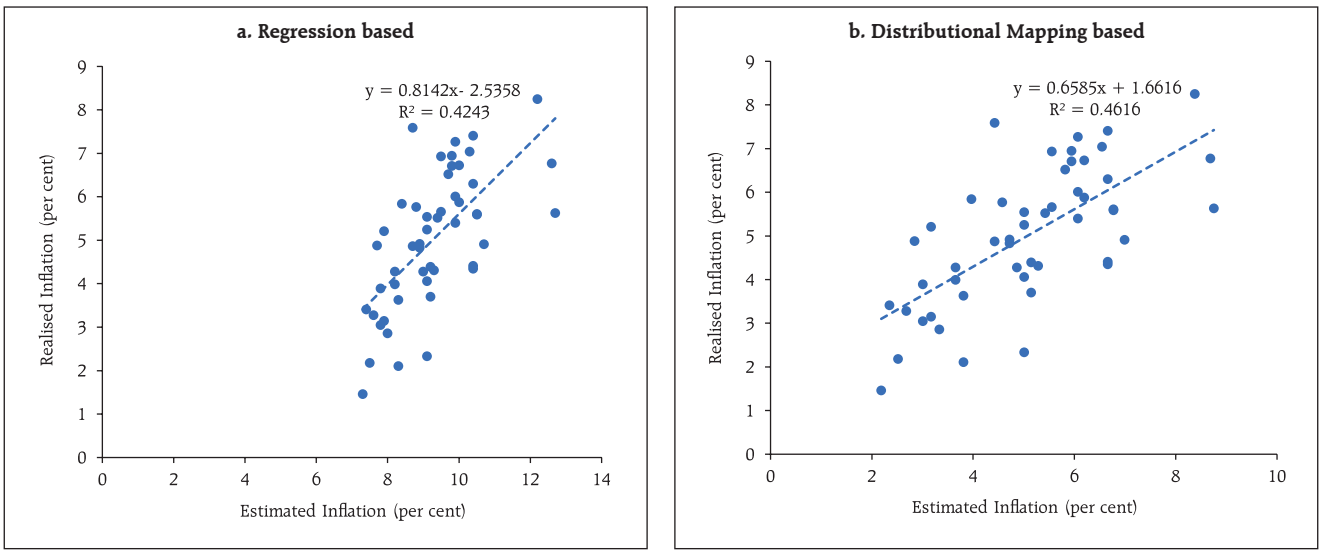


Chart 13: Scatter Plot – Estimated Inflation and Realised Inflation



Note: Simple regression is of the form, Y = aX + b + e, wherein Y is the realised CPI-C inflation and X is the IESH current inflation perception, e is the error term.
Source: Author's calculations.

[12] Copula is a multivariate cumulative distribution function for which the marginal (individual) probability distribution of each variable is uniformly distributed in the interval [0, 1]. It models the dependence (inter-correlation) structure between random variables and is widely used in financial datasets.

In the indirect mapping, it is feasible to analyse the distribution of incoming (new) data of a month at a granular level and compare the historical distribution (covering several months) to identify changes in the shape of the distribution, in terms of changes in moments such as skewness, kurtosis *etc.* This is not possible in the aggregate, being a single number. We fit the 4-parameter Burr distribution to all rounds under study on an individual basis also to get estimates of parameters of the distribution as also the round-wise descriptive statistics (Annex Table A2).

We find that the mean and standard deviation of the granular level IESH data are positively correlated with the realised CPI-C inflation. The skewness and kurtosis are negatively correlated. Similarly, two parameters (α and β) appeared to be linked positively with the realised inflation, while the other two (*viz.*, k and γ) parameters are inversely correlated. These indicators may play a useful role in econometric models as input variables aiding in forecasting inflation (Annex Table A3).

The identification of one-to-one mappings in stage 1, which exhibits closer co-movement, shall be a useful exercise. The same is not explored in the current article. The second stage of the indirect mapping is expected to be stronger, being part of the same dataset.

Inflation-at-Risk (IaR)

The above mappings may also be useful in assessing Inflation-at-Risk (IaR)[13]. As lower inflation (left tail) has not been a concern in the Indian context, we compute IaR at 95 per cent and 99 per cent for the CPI-C aggregate data using historical (observed) inflation and using inflation expectations from IESH.

The estimated distribution of CPI-C inflation *i.e.*, Log-Pearson Type III ($\alpha = 6.4118$, $\beta = -0.1371$ and $\gamma = 2.4545$) corresponds to the inverse CDFs - $F^{-1}(0.95)$ and $F^{-1}(0.99)$ *viz.* the Inflation-at-Risks - $IaR_{0.95}$ and $IaR_{0.99}$ at 7.84 per cent and 8.84 per cent, respectively. The same using the estimated distribution of IESH *i.e.*, 4-parameter Johnson SB ($\gamma = 0.3289$, $\delta = 0.9778$, $\lambda = 6.0331$, $\xi = 7.3584$) for 3-month ahead inflation corresponds the inverse CDFs of $F^{-1}(0.95)$ and $F^{-1}(0.99)$ to $IaR_{0.95}$ and $IaR_{0.99}$ at 12.15 per cent and 12.70 per cent, respectively. Thus, the $IaR_{0.95}$ = 12.15 per cent and $IaR_{0.99}$ = 12.70 per cent of 3-month ahead inflation expectations have equivalence with the $IaR_{0.95}$ = 7.84 per cent and $IaR_{0.99}$ = 8.84 per cent of realised inflation, respectively. The detailed quantile mapping of IESH current and 3-month ahead inflation along with CPI-C inflation is provided for completeness (Table 6). Similar computations could be carried out using granular level data under the indirect mapping approach, as discussed earlier.

Table 6: Quantile Mapping of IESH Inflation Expectation and CPI-C Aggregate Inflation

Quantiles	CPI-C Aggregate Inflation	IESH Current Inflation Perception	IESH 3-Month Ahead Inflation Expectation
0.01	1.78	7.05	7.73
0.05	2.55	7.52	8.07
0.10	3.04	7.82	8.33
0.15	3.39	8.04	8.56
0.20	3.69	8.22	8.76
0.25	3.95	8.38	8.95
0.30	4.18	8.54	9.14
0.35	4.41	8.69	9.32
0.40	4.63	8.84	9.50
0.45	4.84	8.98	9.69
0.50	5.06	9.13	9.87
0.55	5.27	9.29	10.06
0.60	5.49	9.45	10.26
0.65	5.72	9.62	10.46
0.70	5.96	9.81	10.68
0.75	6.22	10.02	10.90
0.80	6.51	10.26	11.15
0.85	6.84	10.56	11.42
0.90	7.25	10.95	11.74
0.95	7.84	11.56	12.15
0.99	8.84	12.83	12.70

Source: Author's calculations.

[13] There are different approaches to define and measure Inflation-at-Risk (IaR). IaR was originally introduced by Andrade *et al.* (2012) to assess the risks to the inflation outlook. The study constructed a Value-at-Risk (VaR)-type measure of tail risk for inflation using survey-based conditional density forecasts. They observed that the magnitude and the asymmetry of inflation risks varied over time. A recent study by Salido and Loria (2021) used a probability-type measure for IaR. It also highlighted importance of skewness in the IaR. In the current context, we use a simple VaR-type measure for IaR.

V. Conclusion

The statistical properties of granular-level inflation and inflation expectation datasets remain important and can be analysed through suitable statistical distributions. This article attempts to map the datasets of survey-based inflation and actual inflation through their long-run statistical distributions, which appear to be an unexplored area of research. The variants of Burr distributions are found to be appropriate in explaining statistical characteristics of both the granular level datasets, *viz.* survey-based inflation expectations and the realised inflation. The aggregation of these datasets provides useful summary statistics such as headline inflation numbers.

As the survey-based inflation expectations are forward-looking and have been useful in forecasting inflation for the short-term for which econometric tools are widely used, the functional relationship through suitable statistical distributions derived in the article may facilitate short-term forecasting as a non-econometric tool. Further, the round-wise estimated parameters for the survey-based inflation expectations may also be used as an input to the suitable econometric models. The identified distributions can also be used to measure Inflation-at-Risk for the observed inflation and survey-based inflation expectation datasets.

References

Andrade, P., Ghysels, E. and Idier, J. (2012), "Tails of Inflation Forecasts and Tales of Monetary Policy". *Working Papers, Banque de France.*

Carreau, J. and Bengio, Y. (2009), "A hybrid Pareto model for asymmetric fat-tailed data: the univariate case", Extremes 12, 53-76.

Cooray, K. and Ananda, M. M. A. (2005), "Modelling actuarial data with a composite Lognormal-Pareto model", Scandinavian Actuarial Journal (5), 321-334.

Das, A., Lahiri, K. and Zhao, Y. (2019), "Inflation expectations in India: learning from household tendency surveys". International Journal of Forecasting, 35 (3), 980-993.

Frigessi, A., Haug, O. and Rue, A. (2002), "Dynamic mixture model for unsupervised tail estimation without threshold selection", Extremes, 5, 219-235.

McNeil, A. J. (1997), "Estimating the tails of loss severity distributions using extreme value theory", ASTIN Bulletin, Vol. 27, No. 1, 117-137.

Muduli, S., Nadhanael, G. V. and Pattanaik, S. (2022), "Assesing inflation expectations adjusting for households' biases", Monthly Bulletin, Reserve Bank of India, December.

Nadarajah, S. and Bakar, S. A. A. (2014), "New Composite Models for the Danish Fire Insurance Data", Scandinavian Actuarial Journal, 2, 180-187.

Salido, D. L. and Loria, F. (2021), "Inflation at Risk", Federal Reserve Board, September 08.

Sastry, D. V. S. and Sinha, R. K. (2010), "A Revisit to Danish fire loss data", Conference Proceedings, 12th Global Conference of Actuaries (GCA), Mumbai, India.

Scollnik, D. P. (2007), "On composite Lognormal-Pareto model", Scandinavian Actuarial Journal, Vol. 2007, Issue 1/2007, 20-33.

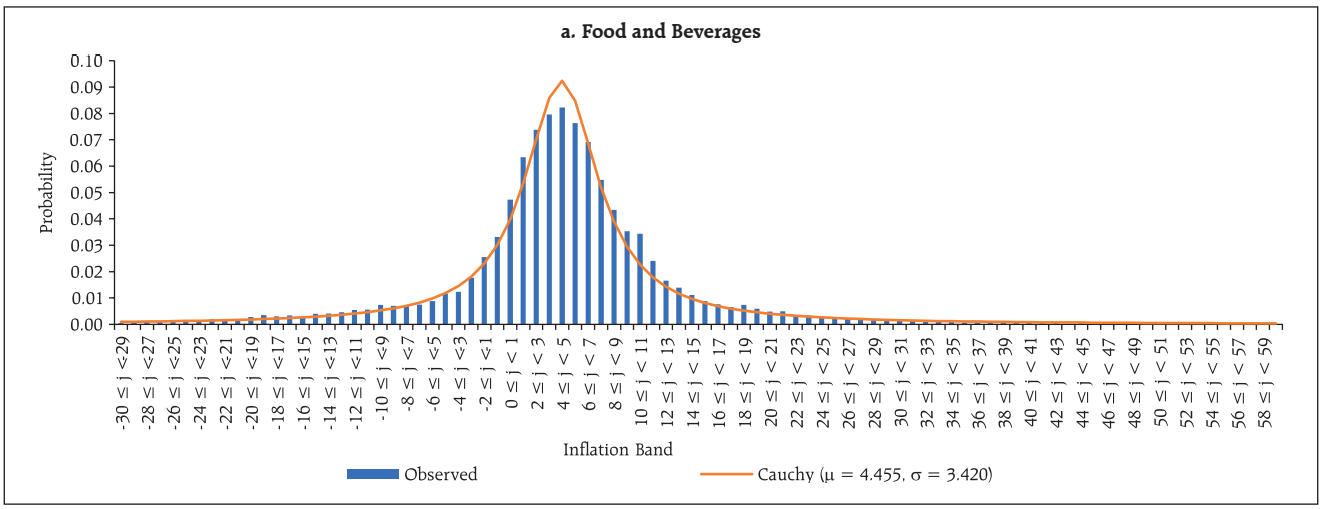
Scollnik, D. P. and Sun, C. (2012), "Modelling with Weibull-Pareto models", North American Actuarial Journal, 16 (2), 260-272.

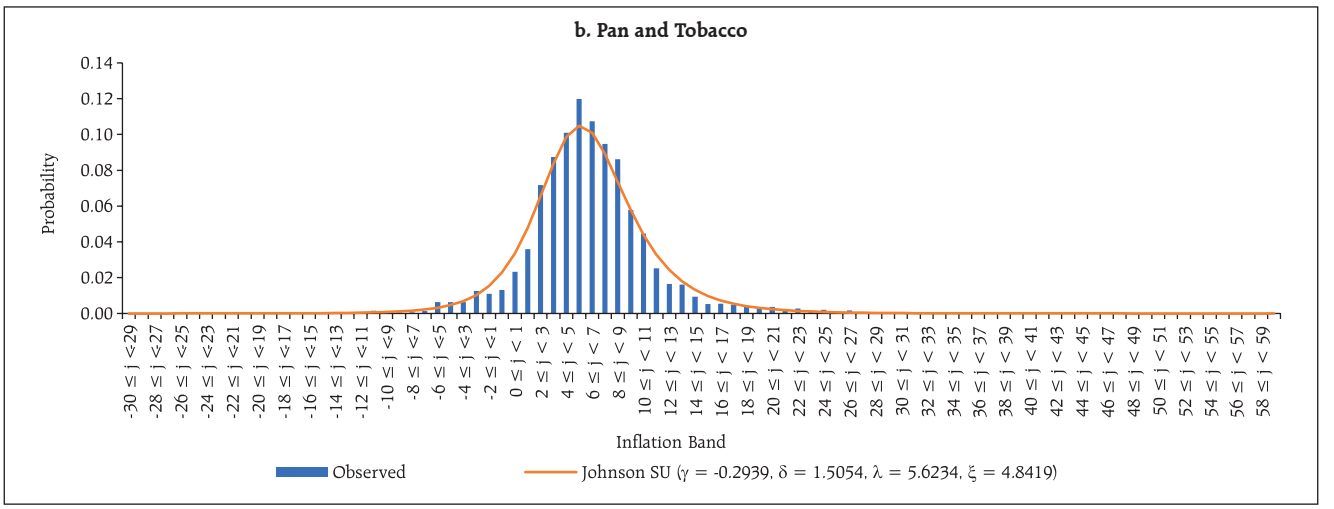
Shaw, P. (2019), "Using rational expectations to predict inflation", Reserve Bank of India Occasional Papers, Vol. 40, No. 1.

Sinha, R. K. (2023). "India's Steady State Equilibrium Inflation: A Revisit", Monthly Bulletin, Reserve Bank of India, May.

Annex

Chart A1: CPI-C Granular Data (Product Group-Wise Fitting of Inflation)





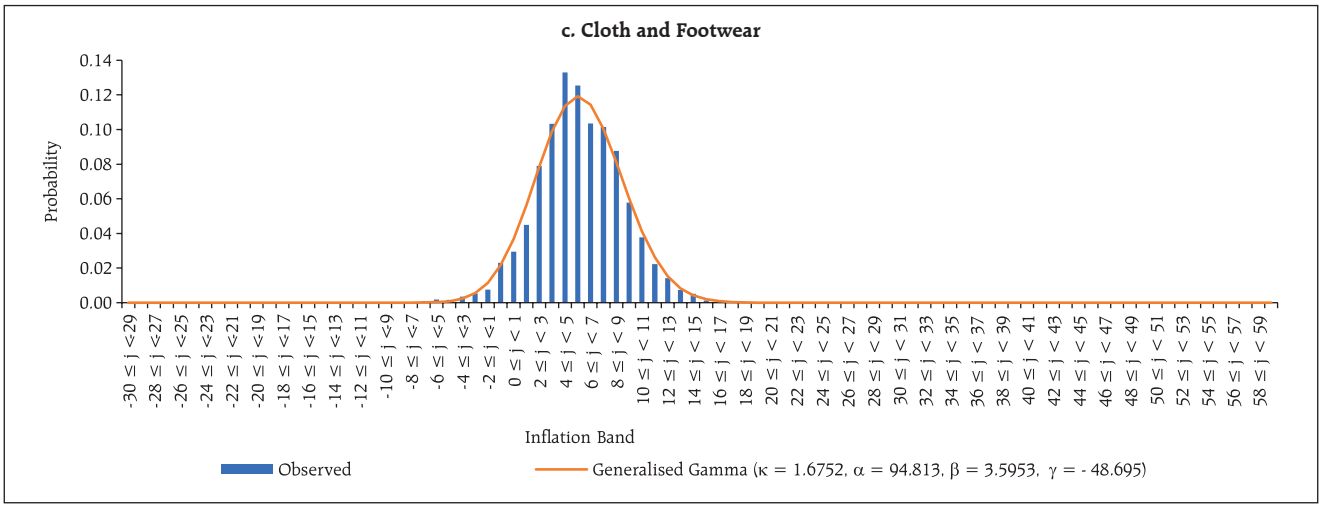
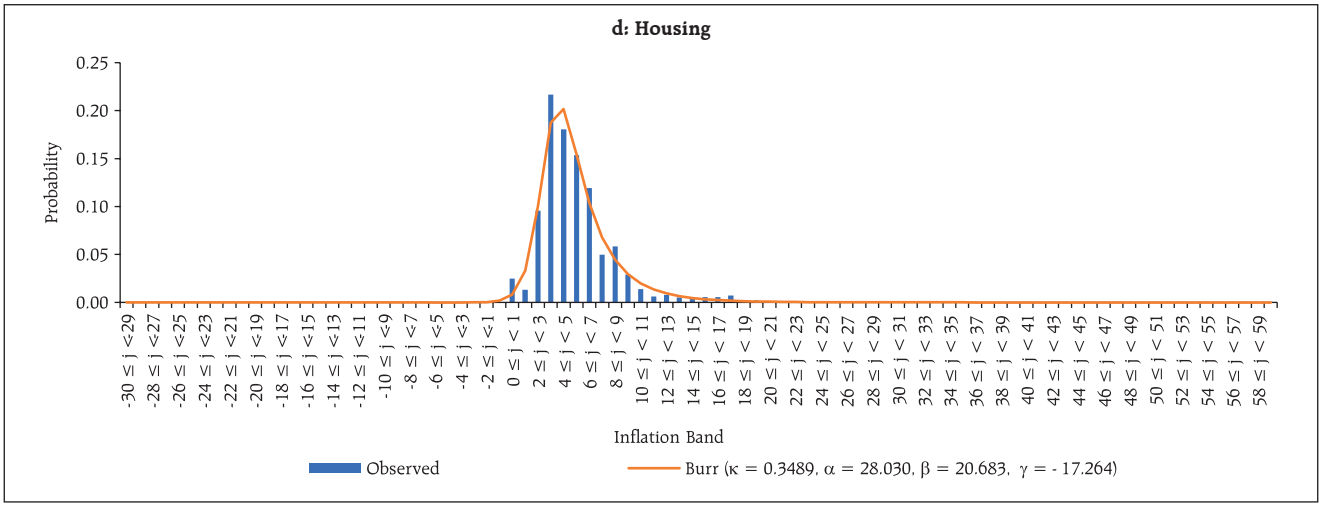
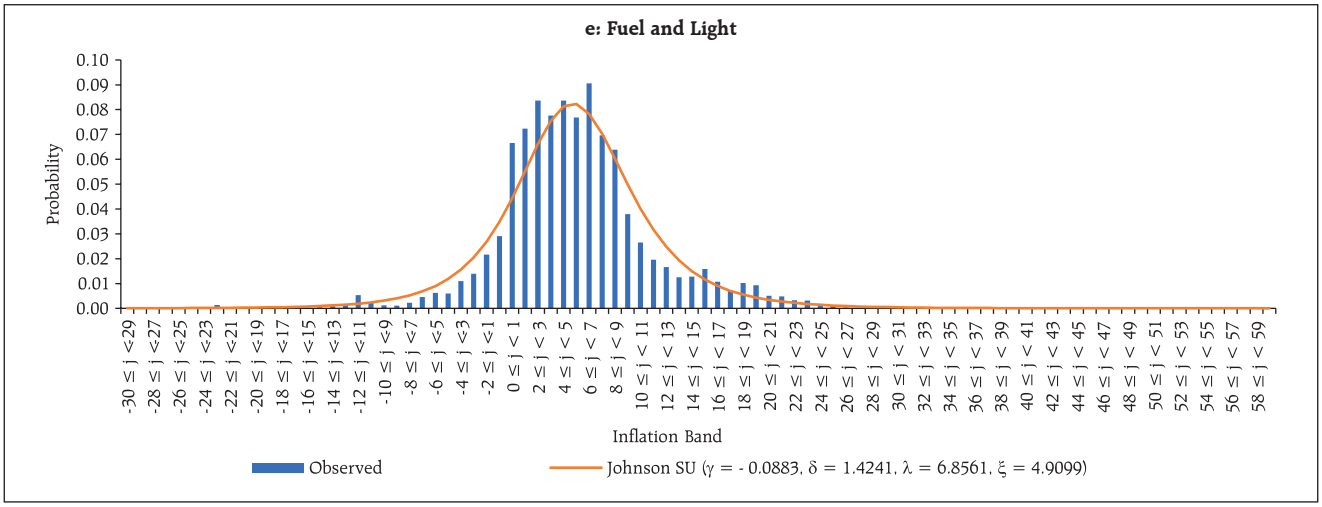
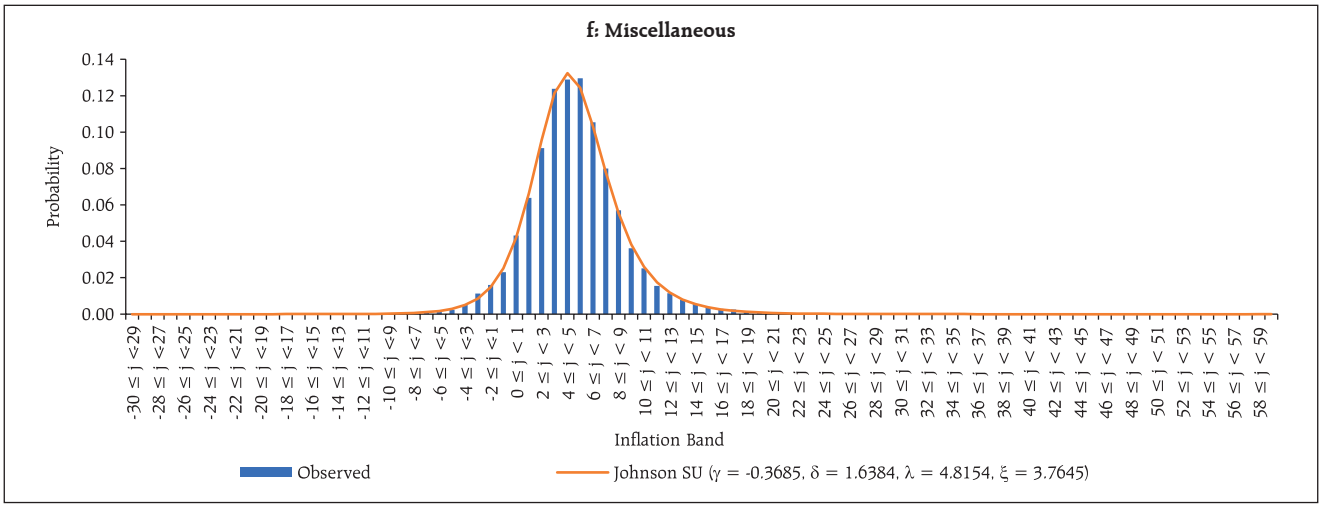


Chart A1: CPI-C Granular Data (Product Group-Wise Fitting of Inflation) *(Concld.)*







Sources: Author's calculations.

Table A1: CPI-C Granular Data (Goodness of Fit)

DS		Best Fit	Goodness of Fit
1. Food and Beverages			
Mean	4.72	Cauchy (μ, σ) μ = 4.455 σ = 3.420	K-S Statistics = 0.03111 Critical Value at 5 per cent = 0.01928
SD	9.46		
Range	136.09		
Skewness	0.8244		
Kurtosis	10.5708		
2. Pan and Tobacco			
Mean	6.22	Johnson SU (γ, δ, λ, ξ) γ = - 0.2939 δ = 1.5054 λ = 5.6234 ξ = 4.8419	K-S Statistics = 0.03005 Critical Value at 5 per cent = 0.03314
SD	4.84		
Range	53.85		
Skewness	0.6025		
Kurtosis	7.3770		
3. Cloth and Footwear			
Mean	5.65	Generalised Gamma (k, α, β, γ) k = 1.6752 α = 94.813 β = 3.5953 γ = - 48.695	K-S Statistics = 0.02143 Critical Value at 5 per cent = 0.0331
SD	3.32		
Range	30.16		
Skewness	0.0040		
Kurtosis	3.5698		
4. Housing			
Mean	5.44	Burr (k, α, β, γ) k = 0.3489 α = 28.030 β = 20.683 γ = - 17.264	K-S Statistics = 0.02326 Critical Value at 5 per cent = 0.04537
SD	2.92		
Range	19.38		
Skewness	1.7588		
Kurtosis	7.5862		
5. Fuel and Light			
Mean	5.45	Johnson SU (γ, δ, λ, ξ) γ = - 0.0883 δ = 1.4241 λ = 6.8561 ξ = 4.9099	K-S Statistics = 0.03855 Critical Value at 5 per cent = 0.02995
SD	6.30		
Range	104.16		
Skewness	0.2176		
Kurtosis	7.8465		
6. Miscellaneous			
Mean	5.08	Johnson SU (γ, δ, λ, ξ) γ = -0.3685 δ = 1.6384 λ = 4.8154 ξ = 3.7645	K-S Statistics = 0.00780 Critical Value at 5 per cent = 0.02852
SD	3.69		
Range	74.42		
Skewness	0.5900		
Kurtosis	6.3318		

Source: Author's calculations.

Table A2: IESH Data (Round-Wise Fitting of 3-Month Ahead Inflation)

Survey Rounds	Period of Survey	4-Parameter Burr Distribution (Estimated parameters)				Descriptive Statistics				Published Prints		
		k	α	β	γ	Mean*	SD	Skewness	Kurtosis	IESH 3-month ahead Mean Inflation	IESH 3-month ahead Median Inflation	Realised CPI-C Inflation#
35	Mar-14	0.3890	7.320	18.287	-9.292	17.601	14.993	2.486	10.233	12.3	12.9	6.77
36	Jun-14	0.2289	11.157	23.521	-16.494	20.748	19.468	2.112	7.531	12.5	14.0	5.63
37	Sep-14	1.0350	2.039	15.455	0.324	21.805	19.744	2.004	7.277	12.7	14.6	4.28
38	Dec-14	0.9008	2.974	8.637	-1.012	10.365	9.494	3.827	25.393	8.8	8.3	5.25
39	Mar-15	0.7021	3.756	8.626	-1.498	10.731	9.528	3.882	25.077	9.0	8.5	5.40
40	Jun-15	0.6444	4.283	10.484	-2.526	12.231	10.429	3.580	21.570	10.1	10.0	4.41
41	Sep-15	0.5529	4.307	10.101	-2.216	13.519	11.909	3.255	17.591	10.6	10.4	5.61
42	Dec-15	0.3618	6.313	10.005	-3.071	13.749	12.144	2.983	14.159	10.5	9.9	4.83
43	Mar-16	0.6304	3.272	6.807	-0.547	10.946	11.036	3.730	21.811	8.8	8.1	5.77
44	Jun-16	0.4702	5.158	10.030	-3.533	12.364	11.773	3.231	16.556	9.7	9.2	4.39
45	Sep-16	0.6900	3.805	9.991	-2.241	12.109	11.521	3.573	19.768	9.7	9.5	3.41
45B	Nov-16	0.5190	4.441	8.395	-2.288	11.356	11.504	3.709	21.040	9.1	8.2	3.65
46	Dec-16	0.6270	5.581	10.085	-4.180	8.843	7.692	4.331	32.604	7.9	7.3	3.89
47	Mar-17	0.6111	4.951	9.175	-3.145	9.477	8.723	3.982	24.903	8.2	7.5	1.46
47B	May-17	0.5241	6.050	9.976	-4.386	9.401	9.014	4.182	26.427	8.1	7.3	3.28
48	Jun-17	0.6939	5.146	9.604	-3.202	8.899	7.203	4.481	34.669	8.1	7.5	3.28
49	Sep-17	0.4139	7.261	9.362	-4.067	9.503	8.886	4.255	27.648	8.2	7.2	5.21
49B	Nov-17	0.3860	6.654	8.724	-3.494	10.304	10.210	3.773	21.608	8.4	7.5	4.44
50	Dec-17	0.4357	5.831	8.724	-3.502	10.159	10.146	3.736	21.247	8.4	7.5	4.28
51	Mar-18	0.4533	6.737	10.251	-4.550	9.967	8.848	4.042	26.851	8.6	7.8	4.92
51B	May-18	0.4994	4.642	8.454	-2.125	11.544	10.892	3.553	19.713	9.4	8.7	3.69
52	Jun-18	0.3841	6.238	10.144	-4.293	12.201	11.690	3.122	15.356	9.5	8.9	3.70
53	Sep-18	0.3098	6.523	9.215	-3.723	13.224	12.953	2.779	11.973	9.9	9.4	2.11
53B	Nov-18	0.3102	7.708	10.619	-5.227	12.166	11.315	3.025	14.568	9.7	9.0	2.57
54	Dec-18	0.3726	6.174	8.590	-3.194	11.263	11.273	3.522	18.303	9.1	8.2	2.86
55	Mar-19	0.4732	5.271	8.028	-2.320	10.162	9.210	3.986	25.473	8.7	7.8	3.18
55B	May-19	0.3909	6.603	8.869	-3.649	10.119	9.225	3.642	21.563	8.6	7.6	3.28
56	Jul-19	0.4151	5.723	7.895	-2.590	10.254	9.702	3.646	20.489	8.6	7.6	4.62
57	Sep-19	0.4767	4.941	8.098	-2.364	10.554	9.325	3.119	16.027	8.9	8.0	7.35
57B	Nov-19	0.2914	8.021	10.718	-5.315	12.540	11.751	3.018	14.512	9.8	9.2	6.58
58	Jan-20	0.2456	9.788	11.045	-6.055	12.192	11.575	3.088	15.106	9.5	8.6	NA
59	Mar-20	0.4305	5.954	8.876	-2.782	10.980	9.610	3.510	19.517	9.2	8.5	6.23
59B	May-20	0.1809	16.522	19.864	-14.896	14.411	13.375	2.654	11.462	10.6	10.4	6.69
60	Jul-20	0.1979	15.068	20.132	-14.933	14.735	13.551	2.582	11.019	10.8	10.5	7.61
61	Sep-20	0.1767	16.053	20.088	-15.110	15.261	14.410	2.492	10.252	10.8	10.4	4.59
61B	Nov-20	0.2505	8.788	11.589	-5.986	14.202	13.503	2.653	10.997	10.4	10.1	5.03
62	Jan-21	0.2865	7.708	10.275	-4.722	13.110	12.510	2.869	12.823	10.0	9.3	4.23
63	Mar-21	0.2244	10.097	12.130	-6.629	14.178	13.369	2.689	11.339	10.4	10.1	6.26

Table A2: IESH Data (Round-Wise Fitting of 3-Month Ahead Inflation) *(Concld.)*

Survey Rounds	Period of Survey	4-Parameter Burr Distribution (Estimated parameters)				Descriptive Statistics				Published Prints		
		k	α	β	γ	Mean*	SD	Skewness	Kurtosis	IESH 3-month ahead Mean Inflation	IESH 3-month ahead Median Inflation	Realised CPI-C Inflation#
63B	May-21	0.1680	15.823	19.861	-14.492	16.561	15.527	2.299	8.642	11.3	10.8	5.30
64	Jul-21	0.1335	23.541	26.553	-21.489	16.904	15.415	2.149	7.879	11.7	11.3	4.48
65	Sep-21	0.1571	16.348	19.905	-14.466	17.231	16.112	2.193	8.020	11.4	10.8	5.66
65B	Nov-21	0.2908	6.865	13.349	-6.371	17.914	15.994	2.141	7.856	11.9	12.3	6.07
66	Jan-22	0.1776	14.816	17.495	-12.027	15.480	14.241	2.474	9.884	11.1	10.6	7.79
67	Mar-22	0.1706	16.596	20.122	-14.744	15.628	14.173	2.312	8.772	11.1	10.7	7.01
67B	May-22	0.1419	23.030	26.925	-21.733	16.545	14.856	2.233	8.514	11.4	10.8	7.00
68	Jul-22	0.3039	7.324	10.986	-4.521	14.302	12.710	2.633	11.188	10.7	10.3	6.77
69	Sep-22	0.2155	11.932	17.219	-11.210	16.070	14.675	2.465	9.847	11.3	10.8	5.72
69B	Nov-22	0.2651	9.224	13.205	-6.982	14.432	12.714	2.691	11.788	10.9	10.4	6.44
70	Jan-23	0.3470	6.865	11.370	-4.566	13.917	11.883	2.747	12.329	10.8	10.5	4.70
71	Mar-23	0.3251	7.186	10.753	-4.299	13.504	11.829	2.937	13.665	10.5	10.2	4.87
71B	May-23	0.4260	5.205	9.225	-2.338	13.186	11.666	2.939	13.570	10.3	10.1	6.83

Note: *: Computed from the raw data (without incorporating any filter/trimming) and is unweighted.
#: Realised CPI-C Inflation is 3-month ahead print from the month of the survey.
NA: The CPI-C inflation for April 2020 (3-month ahead from Round 58) was not initially published by MoSPI, which was imputed and published subsequently.
Source: Author's calculations.

Table A3: Correlation Matrix of IESH Indicators (with Published CPI-C Inflation)

	Realised CPI-C Inflation	k	α	β	γ	Mean*	SD	Skewness	Kurtosis	Published Mean	Published Median
Realised CPI-C Inflation	1.000										
k	-0.378	1.000									
α	0.406	-0.774	1.000								
β	0.433	-0.577	0.894	1.000							
γ	-0.414	0.738	-0.967	-0.954	1.000						
Mean*	0.424	-0.380	0.514	0.766	-0.600	1.000					
SD	0.367	-0.408	0.522	0.749	-0.603	0.982	1.000				
Skewness	-0.496	0.591	-0.625	-0.746	0.655	-0.927	-0.919	1.000			
Kurtosis	-0.474	0.628	-0.586	-0.672	0.602	-0.878	-0.888	0.983	1.000		
Published Mean	0.482	-0.429	0.524	0.751	-0.599	0.976	0.937	-0.940	-0.900	1.000	
Published Median	0.426	-0.271	0.396	0.695	-0.502	0.975	0.932	-0.878	-0.825	0.975	1.000

Source: Author's calculations.

Private Consumption Drivers in India: A Thick Modelling Approach

by Deepmala, Sunil Kumar and Bipul Ghosh ^

This study investigates the drivers of private consumption in India, both in the short and long term. The findings reveal a long-run relationship between real private consumption, income and wealth, indicating a strong correlation between consumption and income over time. Additionally, factors such as interest rates, consumer and government indebtedness, inflation, and uncertainty impact short-term private consumption. Furthermore, the study highlights the asymmetric impact of interest rates, with monetary policy being more effective in containing private consumption rather than stimulating it. Monitoring these factors becomes crucial for accurately assessing the evolving domestic demand conditions.

Private consumption is a key driver of aggregate demand in India, like many other economies. Although its share has come down over the years, it still constitutes the largest part of aggregate demand –around 56 per cent during 2012-13 to 2019-20 and contributed about 59 per cent to real GDP growth on an average during this period. The pandemic-induced large loss of lives, livelihoods, and consumer confidence, however, dented private consumption substantially – it contracted by 5.2 per cent during 2020-21 and pulled down real GDP by 5.8 per cent in the same year. Amidst fiscal and monetary stimuli, private consumption rebounded and grew by 11.2 per cent and 7.5 per cent during 2021-22 and 2022-23, respectively; real GDP expanded by 9.1 per cent and 7.2 per cent, respectively, during these years, exhibiting strong co-movements.

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Considering the paramount contribution of private consumption to aggregate demand and growth, an analysis of its macroeconomic drivers assumes importance for a more informed, forward-looking assessment and navigation of the business cycles efficiently. Income, wealth, inflation, interest rate, and future expectations/ uncertainty, among others, are major potential determinants of short- and long-run private consumption (Singh, 2012; Vihriälä, 2017; Wong, 2017; Dossche, *et al.*, 2018). In the long-run, income and wealth drive private consumption according to the insights provided by the seminal works such as "permanent income hypothesis (PIH)" and "life cycle hypothesis (LCH)" (Freidman, 1957; Modigliani, 1954; Ando and Modigliani, 1963; Fernandez-Corugedo, 2004). PIH postulates that consumers decide their expenditure based on their long-term view of the likely resources available to them. According to LCH, forward-looking consumers maximise their lifetime utility subject to the lifetime resources available to them – households save more at a young age to finance consumption post-retirement. Any variation in asset prices and wealth changes the expected income and may trigger a readjustment in the current consumption. On the other hand, factors such as interest rates, inflation, availability of credit, government indebtedness (Ricardian equivalence phenomenon), and uncertainty influence private consumption in the short term. With inflation reaching multi-decadal highs across countries during 2022-23, its role in dragging down private consumption has attracted attention. For example, in the Indian context, as noted by Patra (2023), inflation ruling above 6 per cent is inimically harmful for growth and is showing up in the deceleration of private consumption spending and the moderation in sales growth in the corporate sector.

Against this backdrop, we empirically examine the long-run and short-run macroeconomic drivers of private consumption in India in an error correction

framework for the period 2004-2019, using quarterly data. We have chosen pre-pandemic period for the empirical analysis to have robust inferences as the pandemic led to a massive structural break in data. The empirical analysis indicates a long-run co-integrating relationship between real private consumption and income and wealth, with income elasticity close to unity pointing towards a strong co-movement of consumption and income over time. Amongst the short-run drivers, besides income and wealth, real interest rate; inflation; and indebtedness of households and government are found to be impacting private consumption. The paper also explores the potential asymmetric effect of monetary policy easing and tightening cycles on private consumption. The analysis suggests an asymmetric impact: monetary tightening dampens private consumption more than the expansionary effect of an equivalent easing of interest rate. The anatomy of the remaining study is as follows: a brief review of literature is discussed in Section 2; data and methodology are furnished in Section 3; Section 4 describes the empirical findings including the asymmetric impact of the monetary policy on private consumption; and concluding observations are given in Section 5.

2. Literature Review

Consumption and its drivers have received wide coverage in economic research. The seminal work of Keynes on General Theory (Keynes, 1936) identifies the relationship between income and consumption as a key macroeconomic relationship wherein real consumption is mainly determined by real disposable income, with a supplemental role for wealth, credit, taxes, expectations, and aggregate price levels. Extending the relationship between consumption and income beyond Keynes's "absolute income hypothesis", Duesenberry (1949) postulates that consumption is also influenced by previously achieved consumption levels, implying that once a particular level of consumption is attained, it becomes difficult to cut it significantly. Modigliani (1954) focuses on the "lifecycle hypothesis" wherein households consume a constant portion of the present value of their lifetime income – accordingly, they save at a young age to finance consumption post-retirement. Freidman's (1957) "permanent income hypothesis (PIH)" distinguishes between current income and permanent income (income expected during lifetime) and argues that consumers decide their expenditure based on the latter reflecting their long-term view of the likely resources available to them. While permanent income is regarded as average income over the long run which is influenced by several factors such as accumulated or inherited wealth/capital, occupation, environment *etc.*, the transitory component of income is largely saved, with minimal impact on current consumption. Hall (1978) by combining rational expectations theory with permanent income hypothesis suggests that consumption follows a random walk process. Empirical studies also suggest the response of consumption to be asymmetric to the positive and negative income shocks. Jawadi and Léoni (2012) find the relationship between income and consumption as non-linear and cyclical. According to Bunn *et al.* (2018), the marginal propensity of consumption (MPC) of negative income shocks is higher than that of positive income shocks in the UK. Similar results are found in case of the Netherlands (Christelis *et al.,* 2019).

The impact of wealth, especially housing and financial assets, on consumption has been studied extensively which is also relevant for monetary policy transmission. Wealth could affect private consumption through various channels, *viz.,* i) realized wealth, ii) unrealized wealth, iii) budget constraints, iv) liquidity constraints and v) substitution effects (Cooper and Dynan, 2016; Paiella and Pistaferri, 2017; Jawadi *et al.*, 2015). Some studies find housing wealth affecting consumption more than financial wealth (*e.g.,* Benjamin *et al.,* 2004; Bostic *et al.,* 2009; Case *et al.*, 2013). The impact of housing and financial wealth on consumption may be cyclical and asymmetric

across countries (Lettau and Ludvigson, 2004). The asymmetric impact can be due to income uncertainty and risk aversion (Carroll and Kimball, 1996), varying perceptions of liquidity (Shefrin and Thaler, 1988), and the combination of liquidity constrains and business cycles (Apergis and Miller, 2006). According to Schooley and Worden (2008), households' spending gets a boost from an increase in their assets from home equity. In the Indian context, Singh (2012) finds that a 10 per cent rise in real stock wealth increases the consumption demand by 0.3 per cent, consistent with estimates for some emerging market economies. Khan *et al.* (2015) estimate consumption function for South Asian countries including India and they conclude that while consumption depends on current income in the short run, consumers foresee their future income and accordingly make consumption decisions based on permanent income in the long run.

Amongst other determinants of private consumption, interest rate impacts consumption through income and substitution effects – these effects could operate in opposite directions, rendering the aggregate impact on consumption uncertain and mixed, depending upon household-specific characteristics. Some studies have found an inverse relation (*e.g.*, Boskin, 1978; Mishkin, 1976; Gylfason, 1981; Kozlov, 2023), while others document a positive relation (*e.g.*, Springer 1975). Kozlov (2023) finds that a decrease in the interest rate boosts consumption substantially in the short-run, which diminishes over time. Gourinchas and Rey (2018) underline that co-movements in real interest rates and real consumption do not follow a systematic trend. Some studies have found the impact of interest rates on consumption to be weak (Kapoor and Ravi, 2009; MacDonald *et al.*, 2011; Hviid and Kuchler, 2017). Interest rate fluctuations also affect households' consumption through "balance sheet channel" by influencing property prices (the wealth effect) and cash flows through mortgage payments. Mian and Sufi (2014) underline that a large fraction of the consumption decline during the Great Recession period could be potentially attributed to "household balance sheet" channel.

Several studies have found that an easing of borrowings constraint bolsters household consumption during normal/ boom phase, but excessive borrowings (leverage) adversely impact their consumption when the economy is undergoing through a stress phase (*e.g.*, Mian and Sufi, 2011; Dynan, 2012; Baker, 2018). High household debt built up in the US during the boom phase led to weaker economic conditions during the burst phase as several shocks hit households: a decline in housing prices, an increase in borrowing constraints, and a fall in housing and equity wealth raising debt-asset ratio beyond acceptable levels (Mian and Sufi, 2011). Highly indebted households cut consumption substantially in response to negative income shocks (Baker, 2018). De Nardi *et al.* (2017) argue that precautionary savings in response to an increase in labour market risk lead households to substitute consumption expenditures with safe assets such as government securities.

The validity of the Ricardian equivalence hypothesis (REH) is examined by Ayunasta *et al.* (2020). Their findings show that Indonesian household consumption is not significantly impacted by the government's external debt, but other factors such as gross domestic product, tax revenue, government spending, and government budget surplus / deficit exert statistically significant influence on it. Dooyeon Cho and Dong-Eun Rhee (2013) find nonlinear effects of government debt on private consumption - a higher level of government debt crowds out private consumption to a greater extent. A thorough empirical analysis on the relationship between inflation, interest rate and GDP and household consumption are provided by Osuji Obinna (2020). The author finds that a high inflation rate can cause distortion and uncertainty in the economy so that it will reduce

aggregate consumption and dampens economic growth.

3. Model Specifications

Drawing upon the underlying economic theories and literature review in the previous section, the potential long - and short-run determinants of consumption demand are: (1) income and wealth, (2) interest rate; (3) credit availability and consumer indebtedness; (4) fiscal policy and government indebtedness; (5) Inflation; (6) uncertainty; (7) demographic change. For our study, personal disposable income (PDI)[1] is taken for income category while stock market capitalisation and Bombay Stock Exchange (BSE) index are considered for wealth effect. The interest rate is proxied by alternative measures such the weighted average call rate (WACR); weighted average lending rate (WALR) on outstanding loans of commercial banks; 1-year g-sec yield (1YRGSY); and 10-year g-sec yield (10YRGSY). Households' indebtedness is captured through personal loans outstanding, while central government debt is a measure of government indebtedness to capture the Ricardian equivalence effects. Inflation is measured by private consumption deflator. The uncertainty indices and crude oil prices are taken to capture uncertainty, while old-age dependency ratio is considered as a measure of demographic impact. The details of all variables and their sources are furnished in Annex Table A1. We have used quarterly time series for the period 2004Q2-2019Q4 in empirical estimation, restricting it till pre-pandemic for robust inferences. All data are seasonally adjusted and nominal series are converted into real series using the private consumption deflator. Furthermore, most variables are transformed into natural logarithms except for interest rates.

Based on the theoretical underpinnings discussed above, long-run and short-run equations can be estimated as:

$$logC_t = \theta_0 + \theta_1 logI_t + \theta_2 logW_{t-1} + \varepsilon_t \quad \ldots (2)$$

$$\Delta\, log(C_t) = \alpha + \beta_1 \Delta\, log(I_t) + \beta_2 \Delta log(W_{t-1}) + \beta_i \left[\Delta X_{i_{t-j}}\right] + u_t,\ i \geq 3, j \geq 0 \quad \ldots (3)$$

Where C, I and W are consumption, income, and wealth, respectively; Δ denotes quarter on quarter changes and X represents other determinants that are expected to affect private consumption in short-run only. Since wealth variables reflect stock position at the end-period, it is considered with one lag in equations following de Bondt *et al.* (2020). The selection of j is dependent upon underlying relationships.

Since variables are mostly I(1), i.e. integrated in their first difference (Appendix Table A3), and the bound test reveals the presence of long-run cointegrating relationship[2], an error correction model (ECM) framework is used to examine the long- and short-run dynamics. Furthermore, following de Bondt *et al.* (2020), the generalised method of moments (GMM) estimation approach is chosen to account for potential endogeneity among variables[3]. The baseline equation for consumption growth in the ECM specification is as under:

$$\Delta\, log(C_t) = \alpha + \beta_1 \Delta\, log(I_t) + \beta_2 \Delta log(W_{t-1}) + \beta_i \left[\Delta x_{i_t}\right] - \gamma\big(log(C_{t-1}) - \theta_0 - \theta_1 log(I_{t-1}) - \theta_2 log(W_{t-2})\big) + u_t \quad \ldots (4)$$

γ is the error correction term (ECT), while β_i and θ_i represent short-run and long-run coefficients,

[1] The annual series of personal disposable income has been interpolated into a quarterly series by using Chow-Lin method.

[2] Bound Test for co-integration: Ho: No Co-integration; H1: There is long run co-integrated relationship. The observed F statistics and p-value are 7.77 and 0.02, respectively.

[3] The correlations between univariate OLS error and independent variables (income, interest rate, and personal loans) are found to be high and statistically significant.

respectively. Five lags of the dependent variable and regressors are used as instrumental variables in GMM framework. As discussed earlier, current consumption is assumed to be dependent on wealth variables lagged by one period both in the short and long run. Other short-run determinants are assumed to be impacting consumption contemporaneously.

Thick modelling and selection of equations

For robust inferences, we adopt a "thick modelling" approach and estimate alternative model specifications with a host of permutations and combinations of independent variables following Granger and Jeon (2004); Aiolfi *et al. (2005)*; McAdam and McNelis (2005); Pierdzioch *et al. (2014)* and de Bondt *et al.* (2020). Among the short-run determinants, we consider one variable from the interest rate category in each equation and at most four other determinants each taken from different groups at each iteration. Following Granger and Jeon, 2004 and de Bondt *et al.*, 2020, we average estimated coefficients of the selected models. After estimating several equations independently, we follow a five-step selection process - three in-sample selection criteria, one theoretically founded criterion and one out of sample criterion - to filter the best ECM specifications. The three in-sample criteria are: (i) all coefficients are statistically significant at least at 5% level; (ii) R^2 at least 0.60; and (iii) no residual autocorrelation. The fourth criterion (theoretically founded) is that estimated coefficients should have signs in accordance with the existing economic theory. The fifth criterion (out-of-sample) is that the ratio of root-mean-squared error (RMSE) relative to the benchmark model should be < 0.85. The benchmark model is a simple ECM equation which only includes real personal disposable income and wealth component in both short and long run to explain consumption.

Asymmetric Impact of Interest Rate on Consumption

To test the asymmetric impact of monetary policy (interest rate) on private consumption, a modified ECM in a GMM framework is estimated with terms to capture loosening and tightening of interest rate. Following MacDonald *et al.*, 2011, the non-linear version of the above modified model can be represented as:

$$\begin{aligned}\Delta \log(C_t) = \; & \alpha + \beta_1 \Delta \log(I_t) + \\ & \beta_2 \Delta \log(W_{t-1}) + \beta_i \left[\Delta x_{i_{t-j}}\right] - \\ & \gamma(\log(C_{t-1}) - \theta_0 - \\ & \theta_1 \log(I_{t-1}) - \theta_2 \log(W_{t-2})) \\ & + [\pi_i^+ \Delta IR_t^+ \; + \; \pi_i^- \Delta IR_t^-] \\ & + u_t \end{aligned} \quad \ldots (5)$$

$\Delta IR_{i_t}^+$ and $\Delta IR_{i_t}^-$ can be defined as:

$\Delta IR_t^+ = IR_t - IR_{t-1},\ if\ IR_t - IR_{t-1} > 0, otherwise\ 0$

$\Delta IR_t^- = IR_t - IR_{t-1}, if\ IR_t - IR_{t-1} \leq 0, otherwise\ 0$

The variable ΔIR_t^+ and ΔIR_t^-separate the interest rate series into periods of tightening and easing.

4. Empirical Findings

To begin with, the correlation of private consumption with all potential determinants at lags up to 4 is assessed (Appendix Table A3). Next, we estimate ECM for each determinant separately to check whether the coefficient of each regressor on private consumption exhibits signs in line with a priori expectations (Appendix Table A4). Granger-causality analysis is also undertaken with regressors at different lags and the results are furnished in Appendix Table A5.

With various permutations and combinations of regressors described in the preceding section, we estimate a total of 103 ECM equations. Since

each ECM equation includes several variables, the outcome would rely on the model's specification and interaction among variables on the right-hand side. Next, using the three in-sample selection criteria, 33 equations are chosen which constitute around one-third of total equations estimated at the first stage. After applying the fourth criterion (i.e., signs of estimated coefficients in line with the existing economic theory), 18 equations are left out. To evaluate the fifth selection criterion (ratio of root-mean-squared error (RMSE) relative to the benchmark model should be < 0.85), the 18 short-listed equations are estimated with the sample period from 2004:Q2 to 2017:Q4 and out of sample RMSE is calculated for the period 2018:Q1 to 2019:Q4. The average RMSE over eight horizons is used to compute the relative RMSE of each specification against the benchmark model and only those specifications having a relative RMSE of less than 0.85 are selected for further analysis. A total of 12 ECM equations satisfy this criterion, and the corresponding estimated coefficients are reported in Appendix Table A7. The coefficients of the long-run equation and average coefficients of the 12 short-run equations are reported in Table 1 and Table 2, respectively.

The empirical analysis indicates a long-run co-integrating relationship between real private consumption, income and wealth (SMC), with income elasticity close to unity pointing towards a strong co-movement of consumption and income over time. In the short-run equations, interest rate, households' indebtedness, uncertainty and government indebtedness are found to be statistically significant. The results show that income and wealth positively impact consumption even in the short-run. Higher interest rates compress consumption demand, indicative of the substitution effect dominating the income effect and a role for monetary policy in demand management. Higher bank lending to households, as captured by outstanding personal loans, boosts private consumption, providing an evidence of the quantum channel of monetary policy in addition to the interest rate channel. At the same time, higher government indebtedness is also found to support private consumption, suggestive of non-Ricardian consumer behaviour, in consonance with the evidence in Athukorala *et al.* (2004). The positive impact of government debt on private consumption could be due to higher government expenditure on social transfers and subsidies which boosts purchasing power of households. Furthermore, capital spending by the government in the Indian context is also sizeable and is focused on

Table 1: Long run coefficients

Variables	Coefficients
Income	0.990
SMC	0.067
Sensex	0.063

Table 2: Average short run coefficients

Variables	Coefficients	
	Range	Average
Income	[0.400, 0.640]	0.503
Stock Market Capitalization	[0.020, 0.050]	0.030
Sensex	[0.010, 0.050]	0.028
WALR	[-1.380, -1.220]	-1.297
10YRGSY	[-1.640, -1.310]	-1.415
1YRGSY	[-1.970, -1.300]	-1.594
Personal Loans	[0.290, 0.460]	0.373
Government Debt	[0.220, 0.300]	0.251
Inflation	[-0.350, -0.190]	-0.252
Uncertainty Index	[-0.010, -0.010]	-0.010
ECT	[-0.520, -0.470]	-0.491

infrastructure upgradation, which can then crowd-in private investment, provide productivity gains and increase output growth which can then have a positive impact on private consumption. Both inflation and uncertainty index have a negative impact on private consumption, which is in line with theoretical proposition.

Next, we focus on the two best models (named as M1 and M2) out of 12 models, i.e., the models with the lowest RMSE, and use these to estimate the contribution of each factor in growth of private consumption in the short run. The results are furnished below in Table 3.

As per the model results (Table 3), income and wealth together account for an average 50 per cent share in the growth of private consumption in the short-run. The cyclical factors, including credit channel (interest rate and loans), contribute the remaining share to private consumption growth during the sample period (Charts 1 and 2).

Asymmetric effect of interest rates

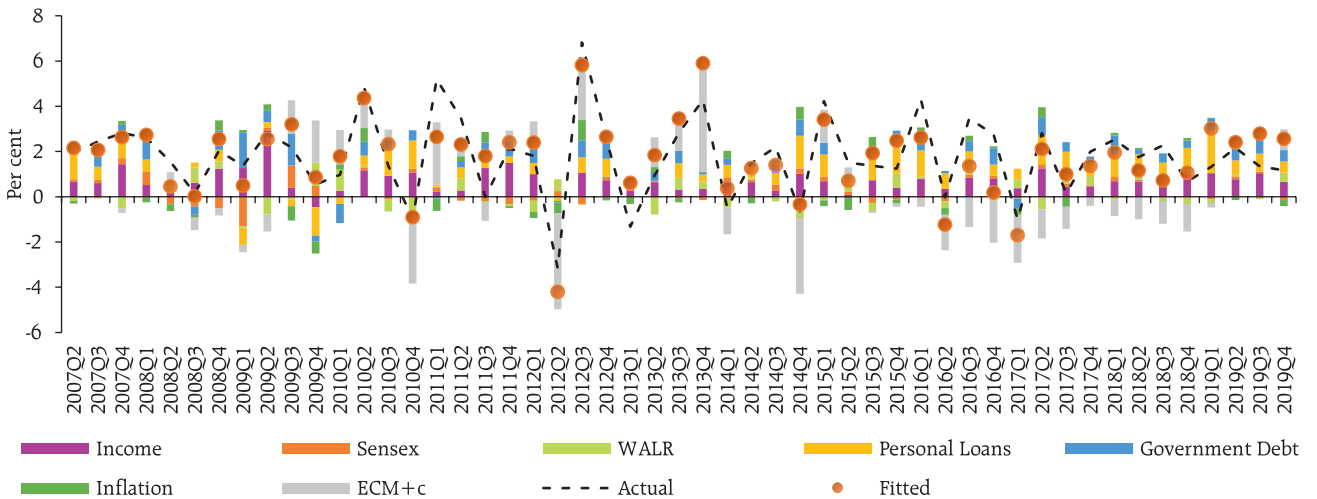
The results of models to capture asymmetric effects of interest rate on private consumption are presented in Table 4. Although direction of the impact remains same (negative influence) which is on the expected lines, the degree of impact varies signifying an asymmetric impact of interest rate on private

Table 3: Short run dynamics of the best two models

Variable	M1	M2
	Coefficients	
Income	0.41*** (13.81)	0.55*** (15.63)
Sensex	0.03*** (4.15)	
SMC		0.05*** (8.22)
WALR	-1.38*** (-6.22)	
1YRGSY		-1.30*** (-5.03)
Personal Loans	0.29*** (10.24)	0.33*** (8.06)
Government Debt	0.30*** (6.80)	
Inflation	-0.28*** (-3.32)	-0.35*** (-4.85)
ECT	-0.48** (-10.16)	-0.52*** (-10.75)
R^2	0.72	0.71
Prob (J-statistic)	0.98	0.94
Q-statistic (upto 5 lags) (p-value)	0.24	0.48

Note: ***, **, * represent statistical significance at less than 1, 5 and 10 per cent levels, respectively. Figures in parentheses are t-statistic.

Chart 1: Contribution to Consumption Growth based on M1



Note: This chart (from Table 3) represents actual and fitted private consumption growth rates (q-o-q in per cent) together with contribution from: q-o-q changes in Income (LR=0.99, SR=0.41), Sensex(LR=0.06,SR=0.03), WALR(SR=-1.38) , Personal Loans(SR=0.29), Government Debt(SR=0.30), Inflation(SR=-0.28) as well as contribution from the ECM term and a constant (SR=-0.48). Short run and long run coefficients of determinants are reported in parenthesis.

Chart 2: Contribution to Consumption Growth based on M2

Note: This chart (from Table:3) represents actual and fitted private consumption growth rates (q-o-q in per cent) together with contribution from: q-o-q changes in income (LR=0.99, SR=0.55), SMC (LR=0.07, SR=0.05), 1YRGSY(SR=-1.30) , Personal Loans(SR=0.33), Inflation(SR= -0.35) as well as contribution from the ECM term and a constant (SR= -0.52). Short run and long run coefficients of determinants are reported in parenthesis.

consumption. Additionally, the Wald test suggests that the coefficients of IR_t^+ and IR_t^- are significantly different from each other. The results indicate that higher interest rates weigh more on private consumption than an equivalent easing of interest rates, which suggests that monetary policy may be more effective in containing private consumption and domestic demand relative to boosting the same.

Table 4: GMM estimation for asymmetric test

Variables	Model 1	Model 2	Model 3	Model 4
Income	0.57***	0.57***	0.54***	0.56***
Sensex	0.01**	0.03***	0.03***	0.03***
$WALR^-$	1.19***	0.72***		
$WALR^+$	-4.40***	-4.34***		
1YRGSY-			1.22***	
$1YRGSY^+$			-4.31***	
$10YRGSY^-$				2.25***
$10YRGSY^+$				-5.36***
Government Debt	0.07*	0.13***	0.19***	0.22***
Personal loans		0.04**	0.05*	
Inflation	-0.33***	-0.39***	-0.43***	-0.46***
ECT	-0.59***	-0.53***	-0.49***	-0.53***
Wald chi^2	65.48***	58.49***	111.90***	62.09***

Note: ***, **, * represent statistical significance at less than 1, 5 and 10 per cent levels, respectively.

5. Concluding observations

Given the dominant contribution of private consumption to aggregate demand and growth, we empirically examine the macroeconomic drivers of private consumption over short and long horizons in India. It is found that there exists a long-run co-integrating relationship between real private consumption, income and wealth, with income elasticity close to unity pointing towards a strong co-movement of consumption and income over time. In the short-run, interest rate, consumer indebtedness, government indebtedness, inflation and uncertainty also impact private consumption. The interest rate channel signifies the role of monetary policy to manage domestic demand and inflation. Furthermore, the impact of interest rate is found to be asymmetric, with monetary policy more effective in containing private consumption than boosting the same. Bank credit boosts private consumption through easing liquidity and financial constraints. Government indebtedness also shores up private consumption through social transfers and subsidies boosting purchasing power of households and capex spending boosting private investment and incomes. High inflation reduces

purchasing power and consequently, it has an adverse impact on private consumption and overall growth. In the short run, as the empirical analysis shows, a bouquet of factors drive private consumption which is the mainstay of aggregate demand and an ongoing comprehensive evaluation of all such factors is essential to arrive at a realistic assessment of the evolving domestic demand conditions.

References:

Aiolfi, M., & Favero, C. A. (2005). Model uncertainty, thick modelling and the predictability of stock returns. *Journal of Forecasting, 24*(4), 233-254.

Aizenman, J., Cheung, Y. W., & Ito, H. (2019). The interest rate effect on private saving: Alternative evidence from the household survey data in Japan. *Journal of the Japanese and International Economies, 52*, 14-36.

Ando, A., & Modigliani, F. (1963). The life cycle hypothesis of saving: aggregate implications and tests. *American Economic Review, 53*(1), 55–84.

Apergis, N., & Miller, S. M. (2006). Consumption asymmetry and the stock market: empirical evidence. *Economic Letters, 93*(3), 337–342.

Athukorala, P. C., & Sen, K. (2004). The Determinants of Private Saving in India. *World Development, 32*(3), 491-503.

Auclert, A. (2019). Monetary Policy and the Redistribution Channel. *American Economic Review, 109*(6), 2333-2367.

Ayunasta, P., Setiaji, B., & Hakim, L. (2020). Debt and consumption in Indonesia: Ricardian equivalence approach. *Issues on Inclusive Growth in Developing Countries, 1*(1), 49-60.

Baker, S. R. (2018). Debt and the response to household income shocks: Validation and application of linked financial account data. *Journal of Political Economy, 126*(4), 1504-1557.

Benjamin, J. D., Chinloy, P., & Jud, G. D. (2004). Real estate versus financial wealth in consumption. *The Journal of Real Estate Finance and Economics, 29*(3), 341–354.

Boskin, M. J. (1978). Taxation, saving and the rate of interest. *Journal Political Economy, 86*(2), 3–27.

Bostic, R., Gabriel, S., & Painter, G. (2009). Housing wealth, financial wealth, and consumption: new evidence from micro data. *Regional Science and Urban Economics, 39*(1), 79–89.

Bunn, P., Le Roux, J., Reinold, K., & Surico, P. (2018). The consumption response to positive and negative income shocks. *Journal of Monetary Economics, 96*, 1-15.

Cagan, P. (1956). The Monetary Dynamics of Hyperinflation. In Friedman M. (Ed.), *Studies in the Quantity Theory of Money.* University of Chicago Press: Chicago, USA.

Carroll, C. D., & Kimball, M. S. (1996). On the concavity of the consumption function. *Econometrica, 64*(4), 981–992.

Case, K. E., Quigley, J. M., & Shiller, R. J. (2013). Wealth effects revisited 1975–2012. *Critical Finance Review, 2*(1), 101–128.

Cho, D., & Rhee, D. E. (2013). Nonlinear effects of government debt on private consumption: Evidence from OECD countries. *Economics Letters, 121*(3), 504-507.

Christelis, D., Georgarakos, D., Jappelli, T., Pistaferri, L., & Van Rooij, M. (2019). Asymmetric consumption effects of transitory income shocks. *The Economic Journal, 129*(622), 2321-2350.

D'Erasmo, P., Mendoza, E. G., & Zhang, J. (2017). What is a Sustainable Public Debt? *American Economic Review, 107*(6), 1611–1641.

Deaton, A., & Paxson, C. (1994). Saving, growth, and aging in Taiwan. *In R. F. Engle & C. W. Granger (Eds.), Long-run Economic Relationships: Readings in Cointegration* (pp. 163-195). Oxford University Press.

Debelle, G., & Lamont, O. (1997). Relative price variability and inflation: Evidence from US cities. *Journal of Political Economy, 105*(1), 132-152.

Dietz, R. D., & Haurin, D. R. (2003). The social and private micro-level consequences of homeownership. *Journal of Urban Economics, 54*(3), 401-450.

Dustmann, C., Fasani, F., & Speciale, B. (2017). Illegal migration and consumption behavior of immigrant households. *The Economic Journal, 127*(600), 1543-1578.

Edelberg, W., Guerrieri, V., & Sill, K. E. (2007). Retail prices during a housing boom: identifying supply-side distortions using census micro data. *The Review of Economics and Statistics, 89*(1), 10–23.

Engelhardt, G. V. (1996). Consumption, down payments, and liquidity constraints. *Journal of Money, Credit and Banking, 28*(2), 255–271.

Fagereng, A., Guiso, L., Malacrino, D., & Pistaferri, L. (2019). Heterogeneity and persistence in returns to wealth. *Econometrica, 87*(6), 2107-2144.

Feldstein, M. S. (1974). Social security, induced retirement, and aggregate capital accumulation. *Journal of Political Economy, 82*(5), 905-926.

Ferguson, R. W., & Peters, M. (1995). The effect of real estate wealth on household consumption in the presence of credit constraints. *Real Estate Economics, 23*(4), 417-435.

Fisher, J. D. (2006). The dynamic effects of neutral and investment-specific technology shocks. *Journal of Political Economy, 114*(3), 413-451.

Flavin, M. A. (1981). The adjustment of consumption to changing expectations about future income. *Journal of Political Economy, 89*(5), 974–1009.

Fratzscher, M., & Juvenal, L. (2018). News shocks, sovereign risk, and sovereign debt maturity. *Journal of International Economics, 112*, 109-134.

Fuster, L., Llena-Nozal, A., & Zafar, B. (2021). Housing wealth, employment, and the age of entrepreneurs. *Journal of Monetary Economics, 117*, 1068-1092.

Gabaix, X. (2011). The granular origins of aggregate fluctuations. *Econometrica, 79*(3), 733-772.

Gali, J. (1994). Government size and macroeconomic stability. *European Economic Review, 38*(1), 117–132.

Geanakoplos, J., Magill, M. J., & Quinzii, M. (2004). Demography and the long-run predictability of the stock market. *Journal of Financial Economics, 73*(3), 401–430.

Gertler, M., & Grinols, E. (1982). Monetarism, inflation, and the business cycle: Comment. *Journal of Money, Credit and Banking, 14*(4), 602–607.

Gianonne, D., Lenza, M., & Primiceri, G. E. (2017). Credit shocks and aggregate fluctuations in an economy with production heterogeneity. *Review of Economic Studies, 84*(2), 792–832.

Giglio, S., Maggiori, M., & Stroebel, J. (2020). Five facts about beliefs and portfolios. *Journal of Economic Perspectives, 34*(3), 94-121.

Goel, R., & Saunoris, J. W. (2018). Stock markets, consumption, and real activity: a cross-country analysis. *Journal of International Financial Markets, Institutions and Money, 54*, 23-49.

Greenwood, J., Hercowitz, Z., & Huffman, G. (1988). Investment, capacity utilization, and the real business cycle. *American Economic Review, 78*(3), 402–417.

Hall, R. E. (1978). Stochastic implications of the life cycle-permanent income hypothesis: theory and evidence. *Journal of Political Economy, 86*(6), 971–987.

Hamilton, J.D., Perez-Quiros, G. (1996). What do the leading indicators lead? *Journal of Business, 69*(1), 27–49.

Hanna, S., Fan, Q., Kabukcuoglu, Z., Kalcheva, K., Li, L., Metrick, A., & Yildirim, Y. (2018). House money: the effects of the 2008 mortgage crisis on consumer behavior. *The Review of Financial Studies, 31*(6), 2343–2380.

Himmelberg, C., Mayer, C., & Sinai, T. (2005). Assessing

high house prices: bubbles, fundamentals, and misperceptions. *Journal of Economic Perspectives, 19*(4), 67–92.

Huggett, M. (1993). The risk-free rate in heterogeneous-agent incomplete-insurance economies. *Journal of Economic Dynamics and Control, 17*(5-6), 953–969.

Jappelli, T., & Pistaferri, L. (2014). Does consumption inequality track income inequality in Italy? *The Economic Journal, 124*(581), 1296-1316.

Johansson, A., & Ronnqvist, M. (2015). Financial sophistication and wealth accumulation: evidence from Swedish lottery players. *Journal of Banking & Finance, 56*, 12-23.

Kaplan, G., & Violante, G. L. (2014). A model of the consumption response to fiscal stimulus payments. *Econometrica, 82*(4), 1199–1239.

Kaplanis, I. (2021). Housing market activity, unemployment, and consumption asymmetry: Evidence from Greece. *Journal of Housing Economics, 52*, 101817.

Karatheodoris, A., & Katrakilidis, C. (2012). Consumption and leisure: nonlinear dynamics in an OLG growth model with endogenous time allocation. *Journal of Macroeconomics, 34*(1), 189–207.

Keller, W., & Shiue, C. H. (2018). The paradox of power: Understanding fiscal capacity in Imperial China and absolutist regimes. *Journal of Economic History, 78*(3), 756-791.

Kim, K., & Roubini, N. (2008). Twin deficit or twin divergence? Fiscal policy, current account, and real exchange rate in the US. *Journal of International Economics, 74*(2), 362-383.

Kodila-Tedika, O., Rindermann, H., Sacko, A., & Sonedjou, I. (2019). Sonedjou I (2019). Pre-colonial institutions and modern economic growth: the case of West Africa. *Journal of Institutional Economics, 15*(2), 263-289.

Kumhof, M., Laxton, D., & Muir, D. (2012). The global integrated monetary and fiscal model (GIMF): Theoretical structure. *Journal of Economic Dynamics and Control, 34*(1), 1-45.

Leeper, E. M. (1991). Equilibria under "active" and "passive" monetary and fiscal policies. *Journal of Monetary Economics, 27*(1), 129–147.

Leeper, E. M., Sims, C. A. & Zha, T. (1996). What does monetary policy do? *Brookings Papers on Economic Activity, 2*, 1–78.

Lettau, M., & Ludvigson, S. C. (2019). Shocks and crashes. *The Review of Financial Studies, 32*(6), 2304-2341.

Li, K., Zhang, F., & Zhao, L. (2021). Stock market volatility, household consumption, and uncertainty shocks. *International Review of Financial Analysis, 73*, 101674.

Liu, Z., & Sercu, P. (2017). Asset pricing when the representative investor cares about beliefs' impact on her future wealth. *Journal of Financial Economics, 126*(3), 556-578.

Lucas Jr, R. E. (1976). Econometric policy evaluation: A critique. *Carnegie-Rochester Conference Series on Public Policy, 1*, 19–46.

Malmendier, U., & Nagel, S. (2011). Depression babies: do macroeconomic experiences affect risk taking? *Quarterly Journal of Economics, 126*(1), 373–416.

Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. *Post-Keynesian Economics*, 388–436.

Mulligan, C. B., & Sala-i-Martin, X. (1999). Social security in theory and practice (II): Efficiency theories, narrative theories, and implications for reform. *NBER Working Paper Series*, 7118.

Müller, K., Fuchs-Schündeln, N., Şahinb, A., & Içilc, S. (2019). Labor market policies and capital taxation in a labor market with search frictions. *Journal of Monetary Economics, 107*, 91-106.

Nelson, C. R., & Plosser, C. I. (1982). Trends and random

walks in macroeconmic time series: Some evidence and implications. *Journal of Monetary Economics, 10*(2), 139–162.

Okun, A. M. (1962). Potential GNP: its measurement and significance. *Proceedings of the Business and Economic Statistics Section, American Statistical Association*, 98–104.

Pagano, M., & Bianco, M. (2020). Sovereign risk, fiscal policy, and macroeconomic stability. *Journal of Monetary Economics, 115*, 114-129.

Parker, J. A. (1999). The reaction of household consumption to predictable changes in social security taxes. *American Economic Review, 89*(4), 959–973.

Pistaferri, L. (2016). *Handbook of macroeconomics*, 2A, 2305-2410.

Poterba, J. M. (1988). Comment on "Investment and Tobin's Q." *Journal of Political Economy, 96*(6), 1302-1304.

Ramey, V. A. (2016). Macroeconomic shocks and their propagation. *Journal of Economic Literature, 54*(1), 87-144.

Reis, R. (2013). The mystique surrounding the central bank's balance sheet, applied to the European crisis. *Journal of Economic Perspectives, 27*(3), 3-28.

Romer, C. D., & Romer, D. H. (1989). Does monetary policy matter? A new test in the spirit of Friedman and Schwartz. *NBER Macroeconomics Annual, 4*, 121-170.

Sims, C. A. (1992). Interpreting the macroeconomic time series facts: The effects of monetary policy. *European Economic Review, 36*(5), 975-1000.

Stock, J. H., & Watson, M. W. (2002). Macroeconomic forecasting using diffusion indexes. *Journal of Business & Economic Statistics, 20*(2), 147-162.

Summers, L. H. (2014). U.S. economic prospects: Secular stagnation, hysteresis, and the zero lower bound. *Business Economics, 49*(2), 65-73.

Taylor, J. B. (1993). Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy, 39*, 195–214.

Woodford M (2012). Inflation targeting and financial stability. *NBER Working Paper Series*, 17967.

Yao, F., Wei, J., & Yu, J. (2018). Fiscal deficit and household consumption in China: Evidence from a provincial panel analysis. *China Economic Review, 50*, 110-124.

Zeldes, S. P. (1989). Optimal consumption with stochastic income: Deviations from certainty equivalence. *The Quarterly Journal of Economics, 104*(2), 275-298.

Zhang, S., Wang, P., & Wang, J. The effects of social security on private consumption: Evidence from China. *Journal of Comparative Economics, 48*(3), 528-547.

Appendix

Table A1: List of Variables

Category	Variable	Sources
Consumption	Private consumption	National Statistical Office (NSO)
Income	Personal Disposable Income	NSO
Wealth	Sensex	BSE Limited
	Stock Market Capitalization (SMC)	BSE Limited
Interest rate	Weighted average call money rate (WACR)	RBI
	Weighted average money lending rate (WALR) on outstanding rupee loans of scheduled commercial banks	RBI
	10-year government securities yield (10YGSY)	RBI
	1-year government sec yield (1YRGSY)	RBI
Consumer indebtedness	Personal Loans	RBI
Government indebtedness	Central Government Debt	MoF
Uncertainty	Uncertainty Index	www.policyuncertainity.com
	Crude Oil Price	MoPNG
Inflation	Inflation based on PFCE	NSO
Demographic	Old-age-dependency Ratio	World Bank

Table A2: Summary Statistics

Variables	Units	Mean	Std. Dev.	Minimum	Maximum
Consumption	% yoy	1.87	1.69	-3.14	7.11
Income	% yoy	3.15	0.85	1.92	7.07
Sensex	% yoy	3.74	9.62	-32.72	36.90
SMC	% yoy	4.88	11.44	-34.75	40.10
WACR	% pa	6.50	1.60	3.20	9.80
WALR	% pa	11.60	0.80	10.10	13.10
10YGSY	% pa	7.60	0.70	5.40	8.90
1YRGSY	% pa	7.00	1.20	4.20	9.40
Personal Loans	% yoy	3.82	1.98	-1.87	11.76
Government Debt	% yoy	2.83	1.26	-0.08	7.13
Uncertainty Index	Index	95.20	46.80	34.50	234.50
Crude Oil Price	(USD/barrel)	73.10	25.00	31.70	118.80
Inflation	% yoy	1.35	0.93	-0.58	4.10
Old-age-dependency Ratio	%	7.99	0.47	7.37	9.77

Table A3: Unit Root Tests

	ADF		Phillips-Perron	
Variable	**Level**	**Diff**	**Level**	**Diff**
Consumption	-1.56	-10.73***	-1.96	-14.55***
Income	-0.49	-6.65***	-2.56*	-6.78***
Sensex	-2.99	-5.63***	-2.78*	-5.63***
SMC	-2.81	-5.25***	-2.67*	-5.25***
WACR	-2.72	-7.29***	-2.48	-7.29***
WALR	-3.15	-6.91***	-2.85*	-6.91***
10YRGSY	-2.79	-6.61***	-2.67*	-6.61***
1YRGSY	-2.51	-6.38***	-2.31	-6.38***
Personal Loans	0.19	-5.32***	-0.83	-5.32***
Government Debt	-0.12	-8.23***	-0.67	-8.23***
Uncertainty Index	-2.56	-7.37***	-2.26	-7.37***
Crude Oil Price	-1.69	-5.83***	-1.24	-5.83***
Inflation	-0.37	-5.74***	-0.38	-5.74***
Old-age-dependency Ratio	-0.50	-7.39***	8.30	-7.39***

Note: ***, ** and * represent statistical significance at 1, 5 and 10 per cent levels, respectively. The lag length in the ADF tests was chosen based on Schwarz Bayesian Criterion (SBC).

Table A4: Correlation Table

Variables	**Lag**				
	0	**1**	**2**	**3**	**4**
Income	0.99***	0.99***	0.99***	0.99***	0.99***
Sensex	0.96***	0.96***	0.96***	0.96***	0.95***
SMC	0.96***	0.96***	0.96***	0.96***	0.96***
WACR	0.15	0.12	0.09	0.08	0.04
WALR	-0.77***	-0.76***	-0.75***	-0.74***	-0.73***
10YGSY	0.04	-0.02	-0.09	-0.14	-0.19*
1YGSY	0.15	0.13	0.09	0.06	0.02
Personal Loans	0.97***	0.97***	0.97***	0.97***	0.97***
Government Debt	0.99***	0.99***	0.99***	0.99***	0.99***
Uncertainty Index	-0.08	-0.07	-0.08	-0.1	-0.13
Crude Oil Price	-0.04	-0.07	-0.11	-0.16	-0.20*
Inflation	0.95***	0.97***	0.97***	0.97***	0.95***

Note: ***, ** and * represent statistical significance at 1, 5 and 10 per cent levels, respectively.

Table A5: Determinants of Consumption

Variables	Tested sign	Expected sign
Income	[+]	[+]
Sensex	[+]	[+]
SMC	[+]	[+]
WACR	[-]	[-]
WALR	[-]	[-]
10YRGSY	[-]	[-]
1YRGSY	[-]	[-]
Personal Loans	[+]	[+]
Government Debt	[+]	Ambiguous
Uncertainty Index	[-]	[-]
Crude Oil Price	[-]	[-]
Inflation	[-]	[-]
Old-age-dependency Ratio	[+]	[+]

Note: This table represents the summary of variables included in the benchmark model. The estimated preliminary sign in the benchmark ECM for each variable separately is reported in the third column.

Table A6: Granger Causality Test Results

Null Hypothesis:	F-Statistic	Prob.
Income does not Granger Cause Consumption	1.94	0.07
Income (-1) does not Granger Cause Consumption	4.21	0.00
Sensex does not Granger Cause Consumption	0.74	0.60
Sensex (-1) does not Granger Cause Consumption	1.05	0.15
Sensex (-2) does not Granger Cause Consumption	2.56	0.08
Sensex (-3) does not Granger Cause Consumption	3.10	0.02
SMC does not Granger Cause Consumption	0.70	0.56
SMC (-1) does not Granger Cause Consumption	0.99	0.18
SMC (-2) does not Granger Cause Consumption	1.36	0.11
SMC (-3) does not Granger Cause Consumption	2.63	0.03
WACR does not Granger Cause Consumption	3.15	0.02
WACR (-1) does not Granger Cause Consumption	3.29	0.01
WALR does not Granger Cause Consumption	4.13	0.00
WALR (-1) does not Granger Cause Consumption	3.98	0.01
10YRGSY does not Granger Cause Consumption	3.78	0.01
10YRGSY (-1) does not Granger Cause Consumption	4.74	0.00
1YRGSY securities do not Granger Cause Consumption	3.18	0.02
1YRGSY (-1) does not Granger Cause Consumption	4.41	0.00
Central Government Debt does not Granger Cause Consumption	0.39	0.86
Central Government Debt (-1) does not Granger Cause Consumption	0.87	0.20
Central Government Debt (-2) does not Granger Cause Consumption	1.47	0.14
Central Government Debt (-3) does not Granger Cause Consumption	2.08	0.04
Personal Loans do not Granger Cause Consumption	0.99	0.43
Personal Loans (-1) does not Granger Cause Consumption	1.97	0.07
Personal Loans (-2) does not Granger Cause Consumption	2.52	0.05
Uncertainty index does not Granger Cause Consumption	0.70	0.22
Uncertainty index (-1) does not Granger Cause Consumption	0.60	0.25
Uncertainty index (-2) does not Granger Cause Consumption	1.62	0.13
Uncertainty index (-3) does not Granger Cause Consumption	2.34	0.07
Crude oil price does not Granger Cause Consumption	0.92	0.48
Crude oil price (-1) does not Granger Cause Consumption	0.28	0.92
Inflation does not Granger Cause Consumption	3.87	0.01
Inflation (-1) does not Granger Cause Consumption	4.44	0.00
Old-age-dependency ratio does not Granger Cause Consumption	0.90	0.49
Old-age-dependency ratio (-1) does not Granger Cause Consumption	1.50	0.21

Table A7: Short-run dynamics of the final selected models

Variables	EQ1#	EQ2#	EQ3	EQ4	EQ5	EQ6	EQ7	EQ8	EQ9	EQ10	EQ11	EQ12
Income	0.41***	0.55***	0.49**	0.64**	0.46**	0.59**	0.64**	0.41**	0.57**	0.43**	0.45**	0.40**
Sensex	0.03***		0.01**	0.02**	0.02**	0.03*	0.02**	0.04**	0.05**			
SMC		0.05***								0.02**	0.02**	0.03**
WALR	-1.38***		-1.22**							-1.29**		
10YRGSY				-1.64**	-1.31**	-1.40**					-1.32**	
1YRGSY		-1.30***					-1.97**	-1.40**	-1.80**			-1.46**
Personal Loans	0.29***	0.33***	0.37**	0.37**	0.38**	0.43**	0.38**	0.41**	0.46**	0.35**	0.34**	0.36**
Government Debt	0.30***		0.22**		0.23**			0.25**		0.25**	0.24**	0.27**
Uncertainty Index			-0.01**	-0.01**			-0.01**					
Inflation	-0.28***	-0.35***			-0.19**	-0.20**		-0.30**	-0.30**	-0.27**	-0.20**	-0.25**
ECT	-0.48**	-0.52***	-0.48**	-0.47**	-0.49**	-0.50**	-0.48**	-0.50**	-0.50**	-0.50**	-0.49**	-0.49**
R^2	0.72	0.71	0.65	0.66	0.71	0.68	0.64	0.71	0.67	0.68	0.69	0.70
Prob (J-statistic)	0.98	0.94	0.98	0.93	0.97	0.92	0.98	0.99	0.98	0.98	0.98	0.98

Note: ***, **, * represent statistical significance at less than 1, 5 and 10 per cent levels, respectively.

#: The reported two best models in Table 3: --are based on EQ1 and EQ2.

CURRENT STATISTICS

Contents

Notes: .. = Not available.
– = Nil/Negligible.
P = Preliminary/Provisional. PR = Partially Revised.

No. 1: Select Economic Indicators

Item	2022-23	2021-22	2022-23		2023-24
		Q4	Q1	Q4	Q1
	1	2	3	4	5
1 Real Sector (% Change)					
1.1 GVA at Basic Prices	7.0	3.9	11.9	6.5	7.8
1.1.1 Agriculture	4.0	4.1	2.4	5.5	3.5
1.1.2 Industry	2.4	1.3	7.3	4.7	4.6
1.1.3 Services	9.5	4.9	16.3	7.4	10.0
1.1a Final Consumption Expenditure	6.4	5.8	16.5	2.7	4.9
1.1b Gross Fixed Capital Formation	11.4	4.9	20.4	8.9	8.0
	2022-23	**2022**		**2023**	
		Jun.	**Jul.**	**Jun.**	**Jul.**
	1	2	3	4	5
1.2 Index of Industrial Production	5.2	12.6	2.2	3.8	5.7
2 Money and Banking (% Change)					
2.1 Scheduled Commercial Banks					
2.1.1 Deposits	9.6	8.6	9.2	12.9	12.0
					(12.9)
2.1.2 Credit #	15.0	13.4	14.5	16.2	14.7
					(19.7)
2.1.2.1 Non-food Credit #	15.4	13.9	15.1	16.3	14.9
					(19.8)
2.1.3 Investment in Govt. Securities	14.5	6.2	8.0	14.3	14.2
					(16.5)
2.2 Money Stock Measures					
2.2.1 Reserve Money (M0)	7.8	10.9	11.3	6.5	5.4
2.2.2 Broad Money (M3)	9.0	7.8	8.6	13.4	10.6
					(11.3)
3 Ratios (%)					
3.1 Cash Reserve Ratio	4.50	4.50	4.50	4.50	4.50
3.2 Statutory Liquidity Ratio	18.00	18.00	18.00	18.00	18.00
3.3 Cash-Deposit Ratio	5.0	5.3	5.6	5.1	5.2
					(5.2)
3.4 Credit-Deposit Ratio	75.8	73.5	72.9	75.1	74.6
					(77.2)
3.5 Incremental Credit-Deposit Ratio#	113.0	235.9	94.3	63.7	53.1
					(100.3)
3.6 Investment-Deposit Ratio	30.0	29.5	29.5	29.6	30.1
					(30.5)
3.7 Incremental Investment-Deposit Ratio	43.5	124.8	56.3	23.0	32.0
					(37.8)
4 Interest Rates (%)					
4.1 Policy Repo Rate	6.50	4.90	4.90	6.50	6.50
4.2 Fixed Reverse Repo Rate	3.35	3.35	3.35	3.35	3.35
4.3 Standing Deposit Facility (SDF) Rate *	6.25	4.65	4.65	6.25	6.25
4.4 Marginal Standing Facility (MSF) Rate	6.75	5.15	5.15	6.75	6.75
4.5 Bank Rate	6.75	5.15	5.15	6.75	6.75
4.6 Base Rate	8.65/10.10	7.25/8.80	7.75/8.80	8.75/10.10	8.85/10.10
4.7 MCLR (Overnight)	7.50/8.50	6.70/7.30	6.70/7.50	7.95/8.35	7.95/8.35
4.8 Term Deposit Rate >1 Year	6.00/7.25	5.00/5.75	5.30/5.75	6.00/7.25	6.00/7.25
4.9 Savings Deposit Rate	2.70/3.00	2.70/3.00	2.70/3.00	2.70/3.00	2.70/3.00
4.10 Call Money Rate (Weighted Average)	6.78	4.61	5.04	6.79	6.50
4.11 91-Day Treasury Bill (Primary) Yield	-	5.16	5.62	6.76	6.72
4.12 182-Day Treasury Bill (Primary) Yield	7.28	5.79	5.98	6.87	6.86
4.13 364-Day Treasury Bill (Primary) Yield	7.31	6.29	6.33	6.87	6.89
4.14 10-Year G-Sec Par Yield (FBIL)	7.31	7.50	7.32	7.10	7.17
5 Reference Rate and Forward Premia					
5.1 INR-US$ Spot Rate (Rs. Per Foreign Currency)	82.22	78.33	79.42	82.04	82.25
5.2 INR-Euro Spot Rate (Rs. Per Foreign Currency)	89.61	82.56	81.17	89.13	90.32
5.3 Forward Premia of US$ 1-month (%)	2.41	2.76	3.32	1.39	1.17
3-month (%)	2.19	2.86	3.35	1.32	1.22
6-month (%)	2.31	2.89	3.20	1.38	1.33
6 Inflation (%)					
6.1 All India Consumer Price Index	6.7	7.0	6.7	4.9	7.4
6.2 Consumer Price Index for Industrial Workers	6.1	6.2	5.8	5.6	7.5
6.3 Wholesale Price Index	9.6	16.2	14.1	-4.2	-1.4
6.3.1 Primary Articles	10.3	18.6	14.8	-3.0	7.6
6.3.2 Fuel and Power	29.4	50.9	44.6	-12.5	-12.8
6.3.3 Manufactured Products	5.7	9.3	8.2	-2.8	-2.5
7 Foreign Trade (% Change)					
7.1 Imports	16.8	52.9	38.2	-17.5	-17.0
7.2 Exports	6.9	30.1	7.9	-18.8	-10.1

Note : Financial Benchmark India Pvt. Ltd. (FBIL) has commenced publication of the G-Sec benchmarks with effect from March 31, 2018 as per RBI circularFMRD.DIRD. 7/14.03.025/2017-18 dated March 31, 2018. FBIL has started dissemination of reference rates w.e.f. July 10, 2018.
#: Bank credit growth and related ratios for all fortnights from December 3, 2021 to November 18, 2022 are adjusted for past reporting errors by select scheduled commercial banks (SCBs).
Figures in parentheses include the impact of merger of a non-bank with a bank.

Reserve Bank of India

No. 2: RBI - Liabilities and Assets *

(₹ Crore)

Item	As on the Last Friday/ Friday						
	2022-23	2022	2023				
		Aug.	Jul. 28	Aug. 04	Aug. 11	Aug. 18	Aug. 25
	1	2	3	4	5	6	7
1 Issue Department							
1.1 Liabilities							
1.1.1 Notes in Circulation	3348235	3154428	3293414	3296956	3303128	3290114	3278665
1.1.2 Notes held in Banking Department	9	13	12	11	13	13	11
1.1/1.2 Total Liabilities (Total Notes Issued) or Assets	**3348245**	**3154440**	**3293426**	**3296967**	**3303141**	**3290127**	**3278676**
1.2 Assets							
1.2.1 Gold	140766	120011	139545	139834	138773	137434	138185
1.2.2 Foreign Securities	3207202	3034085	3153606	3156898	3163978	3152335	3140180
1.2.3 Rupee Coin	277	345	276	235	390	358	311
1.2.4 Government of India Rupee Securities	-	-	-	-	-	-	-
2 Banking Department							
2.1 Liabilities							
2.1.1 Deposits	1354217	1496095	1556122	1547257	1546201	1534243	1613239
2.1.1.1 Central Government	5001	101	100	101	100	101	101
2.1.1.2 Market Stabilisation Scheme							
2.1.1.3 State Governments	42	42	42	42	42	42	42
2.1.1.4 Scheduled Commercial Banks	868940	764114	899279	901315	912040	1022142	1010361
2.1.1.5 Scheduled State Co-operative Banks	8100	7734	8475	8487	8586	8907	8808
2.1.1.6 Non-Scheduled State Co-operative Banks	5177	4104	4675	4755	4852	4880	4686
2.1.1.7 Other Banks	48260	43222	47209	46610	48939	49476	49758
2.1.1.8 Others	316490	623501	472703	464176	447390	343323	407378
2.1.1.9 Financial Institution Outside India	102207	53277	123638	121770	124252	105371	132104
2.1.2 Other Liabilities	1642294	1313445	1547468	1549374	1554322	1537338	1514949
2.1/2.2 Total Liabilities or Assets	**2996512**	**2809540**	**3103589**	**3096631**	**3100523**	**3071581**	**3128188**
2.2 Assets							
2.2.1 Notes and Coins	9	13	12	11	13	13	11
2.2.2 Balances Held Abroad	1008993	974458	1277030	1290635	1292148	1261230	1245172
2.2.3 Loans and Advances							
2.2.3.1 Central Government	48677	-	-	-	-	-	-
2.2.3.2 State Governments	792	4811	13909	23123	14255	15343	16470
2.2.3.3 Scheduled Commercial Banks	112731	98308	45028	21174	30407	52272	93310
2.2.3.4 Scheduled State Co-op.Banks	-	0	-	-	-	-	-
2.2.3.5 Industrial Dev. Bank of India	-	-	-	-	-	-	-
2.2.3.6 NABARD	-	9707	-	-	-	-	-
2.2.3.7 EXIM Bank	-	-	-	-	-	-	-
2.2.3.8 Others	24485	30905	3082	1450	2109	3122	3122
2.2.3.9 Financial Institution Outside India	102128	52039	123608	120693	123327	104543	131569
2.2.4 Bills Purchased and Discounted							
2.2.4.1 Internal	-	-	-	-	-	-	-
2.2.4.2 Government Treasury Bills	-	-	-	-	-	-	-
2.2.5 Investments	1408486	1434212	1402884	1400685	1400946	1399414	1400911
2.2.6 Other Assets	290209	205088	238037	238859	237319	235645	237622
2.2.6.1 Gold	230734	196588	229814	230290	228544	226763	228431

* Data are provisional.

No. 3: Liquidity Operations by RBI

(₹ Crore)

Date	Liquidity Adjustment Facility						Standing Liquidity Facilities	OMO (Outright)		Net Injection (+)/ Absorption (-) (1+3+5+7+9-2-4-6-8)
	Repo	Reverse Repo	Variable Rate Repo	Variable Rate Reverse Repo	MSF	SDF		Sale	Purchase	
	1	2	3	4	5	6	7	8	9	10
Jul. 1, 2023	-	-	-	-	3437	33944	-	-	-	-30507
Jul. 2, 2023	-	-	-	-	1085	12858	-	-	-	-11773
Jul. 3, 2023	-	-	-	63843	964	162473	-	-	-	-225352
Jul. 4, 2023	-	-	-	67295	1534	103924	-477	-	-	-170162
Jul. 5, 2023	-	-	-	87870	3581	86261	-599	-	-	-171149
Jul. 6, 2023	-	-	-	39000	2349	123240	605	-	-	-159286
Jul. 7, 2023	-	-	-	106224	2442	78968	-667	-	-	-183417
Jul. 8, 2023	-	-	-	-	92	11850	-	-	-	-11758
Jul. 9, 2023	-	-	-	-	133	3131	-	-	-	-2998
Jul. 10, 2023	-	-	-	-	5183	59761	-	-	-	-54578
Jul. 11, 2023	-	-	-	40291	868	100814	-	-	-	-140237
Jul. 12, 2023	-	-	-	-	935	144623	-	-	-	-143688
Jul. 13, 2023	-	-	-	-	959	170449	-	-	10	-169480
Jul. 14, 2023	-	-	-	59875	1836	135167	-	10	-	-193216
Jul. 15, 2023	-	-	-	-	2073	15287	-	-	-	-13214
Jul. 16, 2023	-	-	-	-	197	2849	-	-	-	-2652
Jul. 17, 2023	-	-	-	-	1256	91080	-	-	-	-89824
Jul. 18, 2023	-	-	-	-	1148	80680	-241	-	-	-79773
Jul. 19, 2023	-	-	-	-	1207	66194	-	-	-	-64987
Jul. 20, 2023	-	-	-	-	1131	70189	-	10	10	-69058
Jul. 21, 2023	-	-	-	-	2375	62325	667	-	-	-59283
Jul. 22, 2023	-	-	-	-	95	7390	-	-	-	-7295
Jul. 23, 2023	-	-	-	-	93	8830	-	-	-	-8737
Jul. 24, 2023	-	-	-	-	5226	68198	330	-	-	-62642
Jul. 25, 2023	-	-	-	-	1413	94250	150	-	-	-92687
Jul. 26, 2023	-	-	-	-	3123	92543	-480	-	-	-89900
Jul. 27, 2023	-	-	-	-	772	108118	-	-	-	-107346
Jul. 28, 2023	-	-	-	93761	25417	85132	476	-	-	-153000
Jul. 29, 2023	-	-	-	-	1337	9142	-	-	-	-7805
Jul. 30, 2023	-	-	-	-	135	2909	-	-	-	-2774
Jul. 31, 2023	-	-	-	-	1668	65779	-476	-	-	-64587

No. 4: Sale/ Purchase of U.S. Dollar by the RBI

i) Operations in onshore / offshore OTC segment

Item	2022-23	2022	2023	
		Jul.	Jun.	Jul.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US $ Million) (1.1-1.2)	-25516	-19049	4504	3472
1.1 Purchase (+)	187054	19721	7785	5315
1.2 Sale (–)	212570	38770	3281	1843
2 ₹ equivalent at contract rate (₹ Crores)	-217259	-152265	37063	28535
3 Cumulative (over end-March) (US $ Million)	-25516	-18802	19579	23051
(₹ Crore)	-217259	-152816	160738	189273
4 Outstanding Net Forward Sales (-)/ Purchase (+) at the end of month (US $ Million)	23600	22019	19468	19468

ii) Operations in currency futures segment

Item	2022-23	2022	2023	
		Jul.	Jun.	Jul.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US $ Million) (1.1-1.2)	0	0	0	0
1.1 Purchase (+)	10930	1695	0	0
1.2 Sale (–)	10930	1695	0	0
2 Outstanding Net Currency Futures Sales (-)/ Purchase (+) at the end of month (US $ Million)	0	0	0	0

No. 4 A : Maturity Breakdown (by Residual Maturity) of Outstanding Forwards of RBI (US $ Million)

Item	As on July 31 , 2023		
	Long (+)	Short (-)	Net (1-2)
	1	2	3
1. Upto 1 month	0	0	0
2. More than 1 month and upto 3 months	5757	881	4876
3. More than 3 months and upto 1 year	14592	0	14592
4. More than 1 year	0	0	0
Total (1+2+3+4)	**20349**	**881**	**19468**

No. 5: RBI's Standing Facilities

(₹ Crore)

Item	As on the Last Reporting Friday							
	2022-23	2022	2023					
		Aug. 26	Mar. 24	Apr. 21	May. 19	Jun. 30	Jul. 28	Aug. 25
	1	2	3	4	5	6	7	8
1 MSF	28388	4034	28388	16945	3326	31256	25417	73658
2 Export Credit Refinance for Scheduled Banks								
2.1 Limit		-	-	-	-			-
2.2 Outstanding		-	-	-	-			-
3 Liquidity Facility for PDs								
3.1 Limit	4900	4900	4900	4900	4900	4900	4900	4900
3.2 Outstanding	2442		2442	3719	3800	3319	3082	3122
4 Others								
4.1 Limit	76000	76000	76000	76000	76000	76000	76000	76000
4.2 Outstanding	15900	40159	15900	15900				
5 Total Outstanding (1+2.2+3.2+4.2)	46730	44193	46730	36564	7126	34575	28499	76780

Money and Banking

No. 6: Money Stock Measures

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/ reporting Fridays				
	2022-23	2022	2023		
		Jul. 29	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	3276436	3063746	3234636	3236671	3215903
1.1 Notes in Circulation	3348219	3156104	3329414	3321295	3293330
1.2 Circulation of Rupee Coin	29542	27868	30182	30182	30405
1.3 Circulation of Small Coins	743	743	743	743	743
1.4 Cash on Hand with Banks	102085	120969	125781	115622	108660
2 Deposit Money of the Public	2398359	2240452	2667476	2396121	2469202
2.1 Demand Deposits with Banks	2320598	2183209	2588795	2321503	2398078
2.2 'Other' Deposits with Reserve Bank	77761	57244	78680	74618	71123
3 M1 (1 + 2)	**5674795**	**5304199**	**5902112**	**5632793**	**5685104**
4 Post Office Saving Bank Deposits	200257	194162	200257	200257	200257
5 M2 (3 + 4)	**5875052**	**5498361**	**6102369**	**5833050**	**5885361**
6 Time Deposits with Banks	16668966	15728149	17521249	17510889	17574691
				(17664884)	(17725150)
7 M3 (3 + 6)	22343760	21032348	23423360	23143681	23259795
				(23297676)	(23410255)
8 Total Post Office Deposits	1113230	1056254	1113230	1113230	1113230
9 M4 (7 + 8)	23456990	22088602	24536590	24256911	24373025
				(24410906)	(24523485)

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 7: Sources of Money Stock (M_3)

(₹ Crore)

Sources	Outstanding as on March 31/last reporting Fridays of the month/ reporting Fridays				
	2022-23	2022	2023		
		Jul. 29	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
1 Net Bank Credit to Government	**7165533**	**6408664**	**7190341**	**7250238**	**7224878**
				(7362706)	(7337446)
1.1 RBI's net credit to Government (1.1.1–1.1.2)	1451126	1098524	1220251	1244914	1197085
1.1.1 Claims on Government	1456169	1444172	1414555	1423335	1415005
1.1.1.1 Central Government	1455377	1438088	1404719	1405739	1401096
1.1.1.2 State Governments	792	6083	9835	17596	13909
1.1.2 Government deposits with RBI	5043	345648	194303	178421	217920
1.1.2.1 Central Government	5001	345606	194261	178378	217877
1.1.2.2 State Governments	42	42	42	42	42
1.2 Other Banks' Credit to Government	5714407	5310141	5970090	6005324	6027793
				(6117792)	(6140360)
2 Bank Credit to Commercial Sector	**14429636**	**13116787**	**15131380**	**14886227**	**14930581**
				(15499738)	(15540861)
2.1 RBI's credit to commercial sector	26549	34706	5383	4044	5144
2.2 Other banks' credit to commercial sector	14403087	13082081	15125997	14882183	14925437
				(15495694)	(15535716)
2.2.1 Bank credit by commercial banks	13675235	12369350	14391695	14148290	14191819
				(14761800)	(14802098)
2.2.2 Bank credit by co-operative banks	710187	695813	717536	717060	716715
2.2.3 Investments by commercial and co-operative banks in other securities	17665	16918	16766	16833	16904
				(16833)	(16904)
3 Net Foreign Exchange Assets of Banking Sector (3.1 + 3.2)	**4911766**	**4649029**	**5041656**	**5160324**	**5124114**
3.1 RBI's net foreign exchange assets (3.1.1–3.1.2)	4587355	4393436	4717246	4835914	4799704
3.1.1 Gross foreign assets	4587616	4393676	4717503	4836173	4799965
3.1.2 Foreign liabilities	260	240	257	260	262
3.2 Other banks' net foreign exchange assets	324410	255593	324410	324410	324410
4 Government's Currency Liabilities to the Public	**30285**	**28611**	**30925**	**30925**	**31148**
5 Banking Sector's Net Non-monetary Liabilities	**4193459**	**3170743**	**3970942**	**4184032**	**4050926**
				(4756016)	(4623314)
5.1 Net non-monetary liabilities of RBI	1587565	1332885	1481797	1588524	1543892
5.2 Net non-monetary liabilities of other banks (residual)	2605895	1837858	2489145	2595509	2507033
				(3167492)	(3079421)
M_3(1+2+3+4–5)	**22343760**	**21032348**	**23423360**	**23143681**	**23259795**
				(23297676)	(23410255)

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 8: Monetary Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2022-23	2022	2023		
		Jul. 29	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
Monetary Aggregates					
NM_1 (1.1+1.2.1+1.3)	5674795	5304199	5902112	5632793	5685104
NM_2 (NM_1 + 1.2.2.1)	13103413	12322838	13707800	13432117	13513174
				(13501414)	(13580881)
NM_3 (NM_2 +1.2.2.2 + 1.4 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	22628165	21254776	23723089	23752395	23865157
				(23906390)	(24015617)
1 Components					
1.1 Currency with the Public	3276436	3063746	3234636	3236671	3215903
1.2 Aggregate Deposits of Residents	18828639	17780186	19934769	19653334	19793790
				(19807329)	(19944249)
1.2.1 Demand Deposits	2320598	2183209	2588795	2321503	2398078
1.2.2 Time Deposits of Residents	16508041	15596977	17345973	17331831	17395711
				(17485826)	(17546170)
1.2.2.1 Short-term Time Deposits	7428619	7018640	7805688	7799324	7828070
				(7868622)	(7895777)
1.2.2.1.1 Certificates of Deposits (CDs)	303993	233740	283125	279000	303026
1.2.2.2 Long-term Time Deposits	9079423	8578338	9540285	9532507	9567641
				(9617204)	(9650394)
1.3 'Other' Deposits with RBI	77761	57244	78680	74618	71123
1.4 Call/Term Funding from Financial Institutions	445329	353600	475004	787772	784342
2 Sources					
2.1 Domestic Credit	22710730	20597841	23405785	23272079	23293961
				(23998058)	(24016807)
2.1.1 Net Bank Credit to the Government	7165533	6408664	7190341	7250238	7224878
				(7362706)	(7337446)
2.1.1.1 Net RBI credit to the Government	1451126	1098524	1220251	1244914	1197085
2.1.1.2 Credit to the Government by the Banking System	5714407	5310141	5970090	6005324	6027793
				(6117792)	(6140360)
2.1.2 Bank Credit to the Commercial Sector	15545198	14189177	16215444	16021841	16069082
				(16635352)	(16679362)
2.1.2.1 RBI Credit to the Commercial Sector	26549	44374	5383	4044	5144
2.1.2.2 Credit to the Commercial Sector by the Banking System	15518649	14144802	16210061	16017797	16063938
				(16631308)	(16674218)
2.1.2.2.1 Other Investments (Non-SLR Securities)	1096333	1047900	1069467	1117051	1119938
2.2 Government's Currency Liabilities to the Public	30285	28611	30925	30925	31148
2.3 Net Foreign Exchange Assets of the Banking Sector	4699822	4598008	4751750	4847202	4837647
2.3.1 Net Foreign Exchange Assets of the RBI	4587355	4393436	4717246	4835914	4799704
2.3.2 Net Foreign Currency Assets of the Banking System	112467	204572	34504	11288	37943
2.4 Capital Account	3446786	3291876	3771997	3955128	3932839
2.5 Other items (net)	1365887	677807	693374	1014666	937147

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 9: Liquidity Aggregates

(₹ Crore)

Aggregates	2022-23	2022	2023		
		Jul.	May	Jun.	Jul.
	1	2	3	4	5
1 NM_3	**22628165**	**21254776**	**23050135**	**23723089**	**23865157**
					(24015617)
2 Postal Deposits	668887	623802	656356	656356	656356
3 L_1 (1 + 2)	**23297052**	**21878578**	**23706491**	**24379445**	**24521513**
					(24671973)
4 Liabilities of Financial Institutions	54724	52881	65082	73056	73298
4.1 Term Money Borrowings	1692	1924	1802	1164	1107
4.2 Certificates of Deposit	46407	43145	53485	62185	62185
4.3 Term Deposits	6625	7812	9795	9707	10006
5 L_2 (3 + 4)	**23351776**	**21931459**	**23771573**	**24452502**	**24594811**
					(24745270)
6 Public Deposits with Non-Banking Financial Companies	85254	..	..	91373	..
7 L_3 (5 + 6)	**23437030**	**..**	**..**	**24543875**	**..**

Note : 1. Figures in the columns might not add up to the total due to rounding off of numbers.
2. Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 10: Reserve Bank of India Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/ reporting Fridays				
	2022-23	2022	2023		
		Jul. 29	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
1 Components					
1.1 Currency in Circulation	3378521	3184715	3360417	3352294	3324563
1.2 Bankers' Deposits with the RBI	930477	892045	931226	926964	959639
1.2.1 Scheduled Commercial Banks	868940	834457	871167	866893	899279
1.3 'Other' Deposits with the RBI	77761	57244	78680	74618	71123
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	4386759	4134003	4370324	4353876	4355324
2 Sources					
2.1 RBI's Domestic Credit	1356683	1044841	1103951	1075562	1068365
2.1.1 Net RBI credit to the Government	1451126	1098524	1220251	1244914	1197085
2.1.1.1 Net RBI credit to the Central Government (2.1.1.1.1 + 2.1.1.1.2 + 2.1.1.1.3 + 2.1.1.1.4 – 2.1.1.1.5)	1450376	1092483	1210459	1227361	1183219
2.1.1.1.1 Loans and Advances to the Central Government	48677	-	-	-	-
2.1.1.1.2 Investments in Treasury Bills	-	-	-	-	-
2.1.1.1.3 Investments in dated Government Securities	1406423	1437624	1404284	1405386	1400820
2.1.1.1.3.1 Central Government Securities	1406423	1437624	1404284	1405386	1400820
2.1.1.1.4 Rupee Coins	277	465	435	353	276
2.1.1.1.5 Deposits of the Central Government	5001	345606	194261	178378	217877
2.1.1.2 Net RBI credit to State Governments	749	6041	9793	17553	13866
2.1.2 RBI's Claims on Banks	-120992	-98057	-121683	-173396	-133864
2.1.2.1 Loans and Advances to Scheduled Commercial Banks	-120992	-88389	-121683	-173396	-133864
2.1.3 RBI's Credit to Commercial Sector	26549	44374	5383	4044	5144
2.1.3.1 Loans and Advances to Primary Dealers	8476	1655	3319	2180	3082
2.1.3.2 Loans and Advances to NABARD	-	9668	-	-	-
2.2 Government's Currency Liabilities to the Public	30285	28611	30925	30925	31148
2.3 Net Foreign Exchange Assets of the RBI	4587355	4393436	4717246	4835914	4799704
2.3.1 Gold	371500	314274	359585	371364	369359
2.3.2 Foreign Currency Assets	4215873	4079180	4357678	4464567	4430362
2.4 Capital Account	1505657	1387980	1636418	1721157	1685487
2.5 Other Items (net)	81908	-55096	-154620	-132634	-141594

No. 11: Reserve Money - Components and Sources

(₹ Crore)

Item	2022-23	Outstanding as on March 31/last Fridays of the month/Fridays					
		2022	2023				
		Jul. 29	Jun. 30	Jul. 7	Jul. 14	Jul. 21	Jul. 28
	1	2	3	4	5	6	7
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 + 2.4 + 2.5 – 2.6)	4386759	4134003	4370324	4363556	4353876	4342972	4355324
1 Components							
1.1 Currency in Circulation	3378521	3184715	3360417	3365805	3352294	3339215	3324563
1.2 Bankers' Deposits with RBI	930477	892045	931226	923629	926964	932546	959639
1.3 'Other' Deposits with RBI	77761	57244	78680	74121	74618	71211	71123
2 Sources							
2.1 Net Reserve Bank Credit to Government	1451126	1098524	1220251	1249527	1244914	1149692	1197085
2.2 Reserve Bank Credit to Banks	-120992	-88389	-121683	-174924	-173396	-100214	-133864
2.3 Reserve Bank Credit to Commercial Sector	26549	34706	5383	4239	4044	4669	5144
2.4 Net Foreign Exchange Assets of RBI	4587355	4393436	4717246	4767660	4835914	4808127	4799704
2.5 Government's Currency Liabilities to the Public	30285	28611	30925	30925	30925	30925	31148
2.6 Net Non- Monetary Liabilities of RBI	1587565	1332885	1481797	1513871	1588524	1550226	1543892

No. 12: Commercial Bank Survey

(₹ Crore)

Item	Outstanding as on last reporting Fridays of the month/ reporting Fridays of the month				
	2022-23	2022	2023		
		Jul. 29	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
1 Components					
1.1 Aggregate Deposits of Residents	17882989	16841141	18979328	18697719	18837814
				(18851714)	(18988273)
1.1.1 Demand Deposits	2180431	2042035	2447471	2181422	2257972
1.1.2 Time Deposits of Residents	15702559	14799106	16531857	16516298	16579842
				(16670293)	(16730301)
1.1.2.1 Short-term Time Deposits	7066151	6659598	7439336	7432334	7460929
1.1.2.1.1 Certificates of Deposits (CDs)	303993	233740	283125	279000	303026
1.1.2.2 Long-term Time Deposits	8636407	8139508	9092521	9083964	9118913
1.2 Call/Term Funding from Financial Institutions	445329	353600	475004	787772	784342
2 Sources					
2.1 Domestic Credit	20197246	18437669	21137680	20980491	21048413
				(21706469)	(21771260)
2.1.1 Credit to the Government	5414322	5013472	5669865	5704531	5726039
				(5817000)	(5838607)
2.1.2 Credit to the Commercial Sector	14782924	13424197	15467815	15275959	15322374
				(15889469)	(15932654)
2.1.2.1 Bank Credit	13675235	12369350	14391695	14148290	14191819
				(14761800)	(14802098)
2.1.2.1.1 Non-food Credit	13655330	12337006	14363789	14123986	14170982
				(14737496)	(14781262)
2.1.2.2 Net Credit to Primary Dealers	19491	15084	14859	18826	18826
2.1.2.3 Investments in Other Approved Securities	826	825	756	755	753
2.1.2.4 Other Investments (in non-SLR Securities)	1087371	1038938	1060505	1108088	1110976
2.2 Net Foreign Currency Assets of Commercial Banks (2.2.1-2.2.2-2.2.3)	112467	204572	34504	11288	37943
2.2.1 Foreign Currency Assets	351387	395107	296323	295993	328316
2.2.2 Non-resident Foreign Currency Repatriable Fixed Deposits	160924	131172	175275	179058	178980
2.2.3 Overseas Foreign Currency Borrowings	77996	59363	86544	105648	111393
2.3 Net Bank Reserves (2.3.1+2.3.2-2.3.3)	833002	1031308	1106704	1143772	1130067
2.3.1 Balances with the RBI	809907	834457	871167	866893	899279
2.3.2 Cash in Hand	90263	108463	113854	103483	96924
2.3.3 Loans and Advances from the RBI	67168	-88389	-121683	-173396	-133864
2.4 Capital Account	1916959	1879725	2111408	2209800	2223182
2.5 Other items (net) (2.1+2.2+2.3-2.4-1.1-1.2)	897438	599083	713148	440259	371086
2.5.1 Other Demand and Time Liabilities (net of 2.2.3)	711655	601122	741104	697225	709381

Note: Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 13: Scheduled Commercial Banks' Investments

(₹ Crore)

Item	As on March 24, 2023	2022	2023		
		Jul. 29	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
1 SLR Securities	5415148	5014297	5670620	5817755	5839360
				(5705286)	(5726793)
2 Other Government Securities (Non-SLR)	182265	155767	180605	180341	180324
3 Commercial Paper	65058	65956	59999	54500	54410
4 Shares issued by					
4.1 PSUs	9736	9643	9630	9576	9178
4.2 Private Corporate Sector	71099	69316	71997	84438	84154
4.3 Others	4500	5039	4671	4615	5964
5 Bonds/Debentures issued by					
5.1 PSUs	92304	100216	89816	90063	89456
5.2 Private Corporate Sector	325035	321684	297118	292409	291299
5.3 Others	99384	91718	112399	109869	108987
6 Instruments issued by					
6.1 Mutual funds	48810	38111	42908	87376	92814
6.2 Financial institutions	189180	181488	190568	194902	194388

Note: Figures in parentheses exclude the impact of the merger.

No. 14: Business in India - All Scheduled Banks and All Scheduled Commercial Banks

(₹ Crore)

Item	As on the Last Reporting Friday (in case of March)/ Last Friday							
	All Scheduled Banks				All Scheduled Commercial Banks			
	2022-23	2022	2023		2022-23	2022	2023	
		Jul.	Jun.	Jul.		Jul.	Jun.	Jul.
	1	2	3	4	5	6	7	8
Number of Reporting Banks	212	213	211	212	137	137	136	137
1 Liabilities to the Banking System	**355252**	**277258**	**362097**	**508006**	**351843**	**273313**	**358882**	**504934**
1.1 Demand and Time Deposits from Banks	228517	189750	260058	249124	226119	186516	257646	246865
1.2 Borrowings from Banks	67566	44571	39861	193384	67199	44372	39731	193269
1.3 Other Demand and Time Liabilities	59170	42937	62178	65498	58524	42425	61504	64799
2 Liabilities to Others	**19730504**	**18429970**	**20917143**	**21232186**	**19278894**	**17986398**	**20455895**	**20772369**
2.1 Aggregate Deposits	18477677	17398112	19598267	19609588	18043914	16972313	19156018	19167253
				(19459129)				(19016794)
2.1.1 Demand	2225416	2088492	2494898	2303968	2180431	2042035	2448921	2257972
2.1.2 Time	16252261	15309620	17103368	17305620	15863483	14930278	16707097	16909281
2.2 Borrowings	449945	358861	480435	789050	445329	353600	475004	784342
2.3 Other Demand and Time Liabilities	802881	672997	838442	833548	789651	660484	824873	820774
3 Borrowings from Reserve Bank	**165085**	**94387**	**50867**	**45028**	**165085**	**94387**	**50867**	**45028**
3.1 Against Usance Bills /Promissory Notes	-	-	-	-	-	-	-	-
3.2 Others	165085	94387	50867	45028	165085	94387	50867	45028
4 Cash in Hand and Balances with Reserve Bank	920953	965461	1008078	1018462	900170	942920	985049	996203
4.1 Cash in Hand	92788	111672	116514	99363	90263	108463	113882	96924
4.2 Balances with Reserve Bank	828165	853789	891564	919099	809907	834457	871167	899279
5 Assets with the Banking System	**397974**	**333523**	**399804**	**392498**	**326601**	**276885**	**335423**	**328271**
5.1 Balances with Other Banks	232378	207109	242322	234631	193422	173373	198986	191351
5.1.1 In Current Account	18939	17015	19964	14007	15528	13871	15084	10234
5.1.2 In Other Accounts	213440	190094	222357	220624	177894	159502	183903	181117
5.2 Money at Call and Short Notice	49763	30718	43022	39714	24864	12456	27198	23111
5.3 Advances to Banks	45330	37757	30275	29062	41184	37065	28362	27762
5.4 Other Assets	70503	57938	84186	89091	67130	53991	80876	86047
6 Investment	**5560664**	**5158861**	**5815448**	**5985866**	**5415148**	**5014297**	**5670620**	**5839360**
				(5873299)				(5726793)
6.1 Government Securities	5553702	5152646	5809384	5979665	5414322	5013472	5669865	5838607
6.2 Other Approved Securities	6963	6215	6064	6201	826	825	756	753
7 Bank Credit	**14078261**	**12736418**	**14787746**	**15203781**	**13675235**	**12369350**	**14383718**	**14802098**
				(14593501)				(14191819)
7a Food Credit	65622	78064	79878	72807	19906	32345	27906	20836
7.1 Loans, Cash-credits and Overdrafts	13824693	12490742	14521900	14941676	13424906	12126412	14120923	14543116
7.2 Inland Bills-Purchased	39446	34760	43766	43575	39435	34745	43753	43561
7.3 Inland Bills-Discounted	165428	161899	176389	174369	162910	159962	174035	171949
7.4 Foreign Bills-Purchased	19758	18685	19478	18756	19545	18453	19262	18528
7.5 Foreign Bills-Discounted	28936	30331	26212	25405	28439	29778	25744	24944

Note: Figures in parentheses exclude the impact of the merger.

No. 15: Deployment of Gross Bank Credit by Major Sectors

(₹ Crore)

Sector	Outstanding as on				Growth(%)	
	Mar. 24, 2023	2022	2023		Financial year so far	Y-o-Y
		Jul. 29	Jun. 30	Jul. 28	2023-24	2023
	1	2	3	4	%	%
I. Bank Credit (II + III)	**13675235**	**12369350**	**14391693**	**14803212**	**8.2**	**19.7**
				(14186270)	(3.7)	(14.7)
II. Food Credit	**19906**	**32344**	**27906**	**20836**	**4.7**	**-35.6**
III. Non-food Credit	**13655330**	**12337006**	**14363787**	**14782375**	**8.3**	**19.8**
				(14165434)	(3.7)	(14.8)
1. Agriculture & Allied Activities	**1687191**	**1529206**	**1796940**	**1786829**	**5.9**	**16.8**
2. Industry (Micro and Small, Medium and Large)	**3336722**	**3182010**	**3423957**	**3365105**	**0.9**	**5.8**
				(3347144)	(0.3)	(5.2)
2.1 Micro and Small	598390	556461	625589	613436	2.5	10.2
2.2 Medium	253384	231995	263291	254561	0.5	9.7
2.3 Large	2484949	2393554	2535077	2497107	0.5	4.3
3. Services	**3608574**	**3171545**	**3885235**	**3904927**	**8.2**	**23.1**
				(3788106)	(5.0)	(19.4)
3.1 Transport Operators	176239	155202	188084	187420	6.3	20.8
3.2 Computer Software	21559	20925	22867	22015	2.1	5.2
3.3 Tourism, Hotels & Restaurants	66466	65089	68408	70952	6.8	9.0
3.4 Shipping	6677	7306	6023	5726	-14.2	-21.6
3.5 Aviation	28330	22498	42033	40134	41.7	78.4
3.6 Professional Services	134661	118567	145311	142178	5.6	19.9
3.7 Trade	819921	720086	860317	843121	2.8	17.1
3.7.1. Wholesale Trade[1]	396631	366135	429403	420825	6.1	14.9
3.7.2 Retail Trade	423291	353950	430914	422296	-0.2	19.3
3.8 Commercial Real Estate	314604	294842	333046	407282	29.5	38.1
				(331156)	(5.3)	(12.3)
3.9 Non-Banking Financial Companies (NBFCs)[2] of which,	1331097	1114325	1424106	1377165	3.5	23.6
3.9.1 Housing Finance Companies (HFCs)	314678	311661	330186	316817	0.7	1.7
3.9.2 Public Financial Institutions (PFIs)	175614	145293	192634	182824	4.1	25.8
3.10 Other Services[3]	709020	652707	795040	808934	14.1	23.9
				(782693)	(10.4)	(19.9)
4. Personal Loans	**4085168**	**3594218**	**4260973**	**4731833**	**15.8**	**31.7**
				(4256382)	(4.2)	(18.4)
4.1 Consumer Durables	20044	18959	21431	21169	5.6	11.7
4.2 Housing	1936428	1767458	1999950	2428202	25.4	37.4
				(1998537)	(3.2)	(13.1)
4.3 Advances against Fixed Deposits	121897	87991	120427	109254	-10.4	24.2
4.4 Advances to Individuals against share & bonds	6778	6473	6934	6720	-0.8	3.8
4.5 Credit Card Outstanding	194282	162839	209376	213592	9.9	31.2
4.6 Education	96847	86090	101839	103181	6.5	19.9
4.7 Vehicle Loans	500299	436997	523441	529435	5.8	21.2
4.8 Loan against gold jewellery	88428	77785	95347	95746	8.3	23.1
4.9 Other Personal Loans	1120165	949627	1182229	1224534	9.3	28.9
				(1179345)	(5.3)	(24.2)
5. Priority Sector (Memo)						
(i) Agriculture & Allied Activities[4]	1708951	1535442	1818792	1800225	5.3	17.2
(ii) Micro & Small Enterprises[5]	1570231	1436346	1695793	1678935	6.9	16.9
(iii) Medium Enterprises[6]	399260	367377	418443	407279	2.0	10.9
(iv) Housing	621376	606970	630609	756732	21.8	24.7
				(654784)	(5.4)	(7.9)
(v) Education Loans	59507	57499	59873	60338	1.4	4.9
(vi) Renewable Energy	4656	4239	4568	4532	-2.7	6.9
(vii) Social Infrastructure	2464	2535	2653	2580	4.7	1.8
(viii) Export Credit	15424	18101	9745	8920	-42.2	-50.7
(ix) Others	59659	52485	68321	51555	-13.6	-1.8
(x) Weaker Sections including net PSLC- SF/MF	1384249	1219078	1405152	1429701	3.3	17.3

Notes: (1) Data are provisional. Bank credit, Food credit and Non-food credit data are based on Section-42 return, which covers all scheduled commercial banks (SCBs), while sectoral non-food credit data are based on sector-wise and industry-wise bank credit (SIBC) return, which covers select banks accounting for about 93 per cent of total non-food credit extended by all SCBs, pertaining to the last reporting Friday of the month.
(2) With effect from January 2019, 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 changes.
(3) Credit data are adjusted for past reporting errors by select SCBs from December 2021 onwards.
(4) Data since July 28, 2023 include the impact of the merger of a non-bank with a bank. Figures in parentheses exclude the impact of the merger.
1 Wholesale trade includes food procurement credit outside the food credit consortium.
2 NBFCs include HFCs, PFIs, Microfinance Institutions (MFIs), NBFCs engaged in gold loan and others.
3 "Other Services" include Mutual Fund (MFs), Banking and Finance other than NBFCs and MFs and other services which are not indicated elsewhere under services.
4 "Agriculture and Allied Activities" under the priority sector also include priority sector lending certificates (PSLCs).
5 "Micro and Small Enterprises" under the priority sector include credit to micro and small enterprises in industry and services sectors and also include PSLCs.
6 "Medium Enterprises" under the priority sector include credit to medium enterprises in industry and services sectors.

No. 16: Industry-wise Deployment of Gross Bank Credit

(₹ Crore)

Industry	Outstanding as on				Growth(%)	
	Mar. 24, 2023	2022	2023		Financial year so far	Y-o-Y
		Jul. 29	Jun. 30	Jul. 28	2023-24	2023
	1	2	3	4	%	%
2 Industries (2.1 to 2.19)	3336722	3182010	3423957	3365105	0.9	5.8
				(3347144)	(0.3)	(5.2)
2.1 Mining & Quarrying (incl. Coal)	58812	50525	52875	51309	-12.8	1.6
2.2 Food Processing	182878	169002	187229	176928	-3.3	4.7
2.2.1 Sugar	22867	21764	22160	19738	-13.7	-9.3
2.2.2 Edible Oils & Vanaspati	19737	16393	19723	18542	-6.1	13.1
2.2.3 Tea	5162	5810	5549	5421	5.0	-6.7
2.2.4 Others	135112	125034	139797	133228	-1.4	6.6
2.3 Beverage & Tobacco	23362	17098	22368	22266	-4.7	30.2
2.4 Textiles	227843	213990	237574	232047	1.8	8.4
2.4.1 Cotton Textiles	91095	83098	93766	91267	0.2	9.8
2.4.2 Jute Textiles	3867	3631	3948	3668	-5.1	1.0
2.4.3 Man-Made Textiles	40354	38354	42011	40636	0.7	5.9
2.4.4 Other Textiles	92527	88907	97849	96476	4.3	8.5
2.5 Leather & Leather Products	11675	11428	11960	11600	-0.6	1.5
2.6 Wood & Wood Products	19963	16951	20763	20527	2.8	21.1
2.7 Paper & Paper Products	43010	41083	43387	42373	-1.5	3.1
2.8 Petroleum, Coal Products & Nuclear Fuels	149363	113550	130273	113113	-24.3	-0.4
2.9 Chemicals & Chemical Products	216481	210273	220118	209741	-3.1	-0.3
2.9.1 Fertiliser	33805	35529	37462	31429	-7.0	-11.5
2.9.2 Drugs & Pharmaceuticals	67130	62263	69835	67249	0.2	8.0
2.9.3 Petro Chemicals	20661	21485	21201	21124	2.2	-1.7
2.9.4 Others	94885	90995	91619	89939	-5.2	-1.2
2.10 Rubber, Plastic & their Products	79037	72485	79215	78188	-1.1	7.9
2.11 Glass & Glassware	8100	6088	8278	8071	-0.4	32.6
2.12 Cement & Cement Products	56592	49356	56697	56764	0.3	15.0
2.13 Basic Metal & Metal Product	343507	299621	355672	354913	3.3	18.5
2.13.1 Iron & Steel	228860	196997	235577	235778	3.0	19.7
2.13.2 Other Metal & Metal Product	114646	102624	120095	119135	3.9	16.1
2.14 All Engineering	175260	165512	185058	182957	4.4	10.5
2.14.1 Electronics	41781	39505	44212	44253	5.9	12.0
2.14.2 Others	133479	126007	140846	138704	3.9	10.1
2.15 Vehicles, Vehicle Parts & Transport Equipment	96603	91404	101817	101427	5.0	11.0
2.16 Gems & Jewellery	77718	73652	80249	84674	9.0	15.0
2.17 Construction	122880	116875	130330	124857	1.6	6.8
2.18 Infrastructure	1201983	1214513	1232460	1232559	2.5	1.5
2.18.1 Power	620425	627053	624567	616326	-0.7	-1.7
2.18.2 Telecommunications	111334	129063	124439	131346	18.0	1.8
2.18.3 Roads	284793	279600	293771	295093	3.6	5.5
2.18.4 Airports	9492	8673	7579	7691	-19.0	-11.3
2.18.5 Ports	8175	8028	8954	9543	16.7	18.9
2.18.6 Railways	11169	11561	12082	12164	8.9	5.2
2.18.7 Other Infrastructure	156593	150534	161067	160396	2.4	6.6
2.19 Other Industries	241656	248604	267636	260790	7.9	4.9

Notes: (1) Data since July 28, 2023 include the impact of the merger of a non-bank with a bank. Figures in parentheses exclude the impact of the merger.
(2) With effect from January 2019, 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 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								
	2022-23	2022	2023						
		Jun. 24	Apr. 28	May 05	May 19	May 26	Jun. 02	Jun. 16	Jun. 30
	1	2	3	4	5	6	7	8	9
Number of Reporting Banks	33	31	33	33	33	33	33	33	33
1 Aggregate Deposits (2.1.1.2+2.2.1.2)	**144701.9**	**126829.8**	**135132.5**	**140169.0**	**139189.0**	**138906.0**	**138772.4**	**138742.0**	**138579.7**
2 Demand and Time Liabilities									
2.1 Demand Liabilities	**30241.2**	**25537.9**	**27666.5**	**29397.0**	**28216.0**	**27948.0**	**27392.9**	**27086.6**	**28185.3**
2.1.1 Deposits									
2.1.1.1 Inter-Bank	6893.3	5984.1	8403.6	9132.0	6199.7	6050.4	6680.5	6522.8	6015.4
2.1.1.2 Others	18195.4	13855.6	14616.2	15282.0	15219.4	15165.1	15199.5	15451.1	15613.8
2.1.2 Borrowings from Banks	0.0	869.7							439.8
2.1.3 Other Demand Liabilities	5152.4	4828.5	4646.7	4982.5	6797.3	6732.0	5512.8	5112.7	6116.4
2.2 Time Liabilities	**194129.9**	**176762.7**	**175563.3**	**184464.0**	**183196.0**	**182295.0**	**182351.9**	**181741.0**	**182740.2**
2.2.1 Deposits									
2.2.1.1 Inter-Bank	65875.0	60401.5	53288.9	57778.7	57475.0	56779.6	56939.9	56097.2	57869.2
2.2.1.2 Others	126506.5	112974.1	120516.3	124887.3	123969.4	123740.9	123572.9	123290.9	122965.9
2.2.2 Borrowings from Banks	845.8	994.8	843.1	843.1	842.0	841.5	841.0	1320.5	839.7
2.2.3 Other Time Liabilities	902.6	2392.3	915.1	954.4	909.9	933.4	998.1	1032.4	1065.4
3 Borrowing from Reserve Bank	0.0			26.0					
4 Borrowings from a notified bank / Government	84382.5	59486.6	72437.7	78657.0	77945.0	76779.0	77822.6	76606.3	73630.1
4.1 Demand	20545.9	13779.8	19096.3	18565.9	17930.9	16752.6	16509.4	16603.5	15253.8
4.2 Time	63836.7	45706.8	53341.1	60091.5	60014.4	60026.4	61313.2	60002.8	58376.2
5 Cash in Hand and Balances with Reserve Bank	**12386.8**	**11058.8**	**11764.2**	**11900.0**	**11433.0**	**11133.0**	**11860.0**	**11642.1**	**11981.9**
5.1 Cash in Hand	1540.1	1230.4	763.2	920.6	812.6	842.0	857.9	861.8	845.0
5.2 Balance with Reserve Bank	10846.7	9828.3	11001.0	10979.8	10620.1	10291.0	11002.1	10780.3	11136.9
6 Balances with Other Banks in Current Account	**3500.7**	**1223.5**	**2745.1**	**2781.8**	**2660.8**	**2848.2**	**3192.9**	**3037.1**	**2666.2**
7 Investments in Government Securities	**80906.4**	**70895.2**	**74288.0**	**75413.4**	**72927.0**	**72717.9**	**73176.7**	**72011.3**	**72286.7**
8 Money at Call and Short Notice	**34771.6**	**23946.6**	**22225.7**	**22396.1**	**21362.0**	**21303.2**	**20792.4**	**20027.0**	**19661.2**
9 Bank Credit (10.1+11)	**124978.1**	**119438.2**	**121128.0**	**127234.0**	**127600.0**	**128078.0**	**127852.7**	**128449.8**	**128006.9**
10 Advances									
10.1 Loans, Cash-Credits and Overdrafts	**124928.2**	**119417.3**	**121063.0**	**127164.9**	**127531.0**	**128009.3**	**127783.3**	**128377.8**	**127932.8**
10.2 Due from Banks	131095.9	104576.7	121140.9	124984.8	123369.8	121063.9	121239.6	121397.0	120521.3
11 Bills Purchased and Discounted	49.9	20.8	65.0	69.0	68.6	68.5	69.4	71.9	74.2

Prices and Production

No. 18: Consumer Price Index (Base: 2012=100)

Group/Sub group	2022-23			Rural			Urban			Combined		
	Rural	Urban	Combined	Aug.22	Jul. 23	Aug. 23 (P)	Aug. 22	Jul. 23	Aug. 23 (P)	Aug. 22	Jul. 23	Aug. 23 (P)
	1	2	3	4	5	6	7	8	9	10	11	12
1 Food and beverages	**173.9**	**179.7**	**176.0**	**173.9**	**190.0**	**189.5**	**180.4**	**199.4**	**197.6**	**176.3**	**193.5**	**192.5**
1.1 Cereals and products	163.3	165.3	164.0	159.5	176.5	179.0	162.1	177.8	179.8	160.3	176.9	179.3
1.2 Meat and fish	208.7	215.2	211.0	204.1	215.5	211.1	210.9	222.0	219.5	206.5	217.8	214.1
1.3 Egg	174.7	177.1	175.6	168.3	180.0	174.3	170.6	184.8	180.0	169.2	181.9	176.5
1.4 Milk and products	170.1	170.7	170.3	167.9	180.6	181.1	168.4	180.3	181.2	168.1	180.5	181.1
1.5 Oils and fats	197.0	181.1	191.2	198.1	165.3	165.3	182.5	158.7	159.0	192.4	162.9	163.0
1.6 Fruits	164.1	169.6	166.7	169.2	173.4	174.3	177.1	186.7	186.2	172.9	179.6	179.9
1.7 Vegetables	160.8	198.7	173.6	173.1	227.0	216.5	213.1	295.3	272.5	186.7	250.2	235.5
1.8 Pulses and products	168.1	168.2	168.2	167.1	185.3	187.8	167.3	187.9	191.5	167.2	186.2	189.0
1.9 Sugar and confectionery	119.9	122.2	120.7	120.2	123.8	124.8	122.2	125.8	127.0	120.9	124.5	125.5
1.10 Spices	199.4	193.5	197.5	195.6	234.5	242.1	189.7	224.6	231.4	193.6	231.2	238.5
1.11 Non-alcoholic beverages	175.4	161.3	169.6	174.8	179.7	180.3	160.5	167.3	167.7	168.8	174.5	175.0
1.12 Prepared meals, snacks, sweets	185.1	190.4	187.6	184.0	192.0	192.9	188.9	199.2	200.1	186.3	195.3	196.2
2 Pan, tobacco and intoxicants	**195.0**	**199.9**	**196.3**	**193.7**	**201.0**	**201.7**	**198.7**	**205.2**	**206.7**	**195.0**	**202.1**	**203.0**
3 Clothing and footwear	**184.5**	**172.9**	**179.9**	**183.0**	**191.9**	**192.3**	**171.6**	**180.2**	**180.8**	**178.5**	**187.3**	**187.7**
3.1 Clothing	184.8	175.0	180.9	183.2	192.4	192.9	173.7	182.2	182.8	179.5	188.4	188.9
3.2 Footwear	182.7	161.4	173.9	181.7	189.0	189.1	160.0	169.0	169.8	172.7	180.7	181.1
4 Housing	**--**	**170.0**	**170.0**	**--**	**--**	**--**	**169.0**	**175.3**	**176.4**	**169.0**	**175.3**	**176.4**
5 Fuel and light	**179.7**	**178.4**	**179.2**	**179.1**	**185.5**	**185.9**	**178.4**	**187.4**	**187.4**	**178.8**	**186.2**	**186.5**
6 Miscellaneous	**173.8**	**166.5**	**170.3**	**172.6**	**180.7**	**181.2**	**165.4**	**172.9**	**173.4**	**169.1**	**176.9**	**177.4**
6.1 Household goods and services	173.7	165.1	169.6	172.3	180.9	181.3	164.2	170.8	171.2	168.5	176.1	176.5
6.2 Health	181.3	174.6	178.7	179.4	189.1	189.9	172.6	183.5	184.3	176.8	187.0	187.8
6.3 Transport and communication	167.3	158.8	162.8	166.6	170.6	171.1	157.7	161.1	161.3	161.9	165.6	165.9
6.4 Recreation and amusement	170.0	165.8	167.6	169.3	175.1	175.6	165.1	170.5	170.8	166.9	172.5	172.9
6.5 Education	175.6	169.7	172.2	175.7	183.8	184.5	169.9	178.9	179.8	172.3	180.9	181.7
6.6 Personal care and effects	173.2	173.4	173.3	171.1	184.4	184.7	171.4	185.4	185.7	171.2	184.8	185.1
General Index (All Groups)	**175.8**	**173.5**	**174.7**	**175.3**	**187.6**	**187.6**	**173.1**	**184.7**	**184.5**	**174.3**	**186.3**	**186.2**

Source: National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India.
P: Provisional

No. 19: Other Consumer Price Indices

Item	Base Year	Linking Factor	2022-23	2022	2023	
				Jul.	Jun.	Jul.
	1	2	3	4	5	6
1 Consumer Price Index for Industrial Workers	2016	2.88	131.1	129.9	136.4	139.7
2 Consumer Price Index for Agricultural Labourers	1986-87	5.89	1148	1131	1196	1215
3 Consumer Price Index for Rural Labourers	1986-87	-	1160	1143	1207	1226

Source: Labour Bureau, Ministry of Labour and Employment, Government of India.

No. 20: Monthly Average Price of Gold and Silver in Mumbai

Item	2022-23	2022	2023	
		Jul.	Jun.	Jul.
	1	2	3	4
1 Standard Gold (₹ per 10 grams)	52731	50784	59056	58922
2 Silver (₹ per kilogram)	61991	55994	71190	72945

Source: India Bullion & Jewellers Association Ltd., Mumbai for Gold and Silver prices in Mumbai.

No. 21: Wholesale Price Index

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Aug.	Jun.	Jul.(P)	Aug.(P)
	1	2	3	4	5	6
1 ALL COMMODITIES	**100.000**	**152.5**	**153.2**	**148.9**	**151.9**	**152.4**
1.1 PRIMARY ARTICLES	**22.618**	**176.8**	**178.3**	**176.1**	**190.5**	**189.6**
1.1.1 FOOD ARTICLES	**15.256**	**179.5**	**182.0**	**184.9**	**204.4**	**201.3**
1.1.1.1 Food Grains (Cereals+Pulses)	3.462	178.6	177.0	185.2	187.4	190.9
1.1.1.2 Fruits & Vegetables	3.475	200.6	216.4	193.9	277.1	263.6
1.1.1.3 Milk	4.440	167.8	165.5	178.3	177.8	178.4
1.1.1.4 Eggs,Meat & Fish	2.402	170.6	171.2	180.0	176.2	166.1
1.1.1.5 Condiments & Spices	0.529	187.2	187.0	209.7	234.5	251.2
1.1.1.6 Other Food Articles	0.948	178.1	174.9	180.5	179.5	179.8
1.1.2 NON-FOOD ARTICLES	**4.119**	**172.1**	**175.1**	**158.9**	**162.4**	**162.8**
1.1.2.1 Fibres	0.839	203.0	220.6	170.1	168.4	169.4
1.1.2.2 Oil Seeds	1.115	205.2	207.3	186.2	188.1	187.8
1.1.2.3 Other non-food Articles	1.960	131.2	129.8	132.4	134.8	135.1
1.1.2.4 Floriculture	0.204	257.4	246.4	217.6	262.4	265.3
1.1.3 MINERALS	**0.833**	**203.5**	**192.9**	**207.4**	**208.0**	**215.4**
1.1.3.1 Metallic Minerals	0.648	191.7	177.5	193.3	193.3	202.7
1.1.3.2 Other Minerals	0.185	245.2	247.0	257.0	259.7	260.3
1.1.4 CRUDE PETROLEUM & NATURAL GAS	**2.410**	**158.4**	**155.3**	**138.6**	**144.7**	**152.3**
1.2 FUEL & POWER	**13.152**	**159.5**	**159.2**	**146.2**	**145.3**	**149.6**
1.2.1 COAL	**2.138**	**133.3**	**134.3**	**137.6**	**137.6**	**137.6**
1.2.1.1 Coking Coal	0.647	143.4	143.4	143.4	143.4	143.4
1.2.1.2 Non-Coking Coal	1.401	119.8	119.8	125.8	125.8	125.8
1.2.1.3 Lignite	0.090	271.1	294.6	279.8	279.8	279.8
1.2.2 MINERAL OILS	**7.950**	**172.9**	**174.6**	**152.8**	**151.8**	**157.9**
1.2.3 ELECTRICITY	**3.064**	**143.3**	**136.5**	**135.2**	**133.9**	**136.3**
1.3 MANUFACTURED PRODUCTS	**64.231**	**142.6**	**143.2**	**139.9**	**139.6**	**139.8**
1.3.1 MANUFACTURE OF FOOD PRODUCTS	**9.122**	**165.3**	**166.7**	**158.8**	**159.7**	**160.7**
1.3.1.1 Processing and Preserving of meat	0.134	143.7	143.4	143.6	144.6	143.9
1.3.1.2 Processing and Preserving of fish, Crustaceans, Molluscs and products thereof	0.204	144.9	151.0	140.8	140.2	140.5
1.3.1.3 Processing and Preserving of fruit and Vegetables	0.138	125.8	125.2	130.8	128.7	131.6
1.3.1.4 Vegetable and Animal oils and Fats	2.643	181.9	186.4	145.0	147.3	147.5
1.3.1.5 Dairy products	1.165	167.0	163.9	178.6	179.0	178.3
1.3.1.6 Grain mill products	2.010	162.1	161.5	168.7	170.0	173.7
1.3.1.7 Starches and Starch products	0.110	158.9	159.4	150.7	150.9	150.6
1.3.1.8 Bakery products	0.215	163.0	163.7	165.1	164.9	164.3
1.3.1.9 Sugar, Molasses & honey	1.163	126.8	126.4	131.1	131.3	133.4
1.3.1.10 Cocoa, Chocolate and Sugar confectionery	0.175	135.9	134.4	138.9	138.3	137.9
1.3.1.11 Macaroni, Noodles, Couscous and Similar farinaceous products	0.026	155.8	157.2	149.4	148.3	148.4
1.3.1.12 Tea & Coffee products	0.371	178.2	186.5	190.5	189.7	183.9
1.3.1.13 Processed condiments & salt	0.163	176.5	176.5	187.8	188.5	190.3
1.3.1.14 Processed ready to eat food	0.024	141.2	139.4	144.7	144.6	145.6
1.3.1.15 Health supplements	0.225	179.4	180.3	181.4	177.3	179.2
1.3.1.16 Prepared animal feeds	0.356	208.8	212.6	206.1	207.8	210.8
1.3.2 MANUFACTURE OF BEVERAGES	**0.909**	**128.9**	**128.3**	**130.7**	**131.1**	**131.2**
1.3.2.1 Wines & spirits	0.408	129.3	128.3	132.1	132.2	132.9
1.3.2.2 Malt liquors and Malt	0.225	134.5	134.8	134.5	135.3	136.2
1.3.2.3 Soft drinks; Production of mineral waters and Other bottled waters	0.275	123.7	123.0	125.6	125.8	124.8

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Aug.	Jun.	Jul.(P)	Aug.(P)
	1	2	3	4	5	6
1.3.3 MANUFACTURE OF TOBACCO PRODUCTS	**0.514**	**165.3**	**164.2**	**173.7**	**171.5**	**172.9**
1.3.3.1 Tobacco products	0.514	165.3	164.2	173.7	171.5	172.9
1.3.4 MANUFACTURE OF TEXTILES	**4.881**	**142.7**	**146.5**	**134.8**	**134.1**	**134.1**
1.3.4.1 Preparation and Spinning of textile fibres	2.582	133.2	139.0	120.1	119.1	119.4
1.3.4.2 Weaving & Finishing of textiles	1.509	158.9	159.8	158.1	157.9	157.0
1.3.4.3 Knitted and Crocheted fabrics	0.193	129.9	134.5	120.0	119.3	120.1
1.3.4.4 Made-up textile articles, Except apparel	0.299	153.6	155.8	156.2	156.6	157.0
1.3.4.5 Cordage, Rope, Twine and Netting	0.098	156.8	161.0	139.6	139.9	141.8
1.3.4.6 Other textiles	0.201	132.2	133.9	129.7	127.3	124.9
1.3.5 MANUFACTURE OF WEARING APPAREL	**0.814**	**148.7**	**149.3**	**149.7**	**149.5**	**150.8**
1.3.5.1 Manufacture of Wearing Apparel (woven), Except fur Apparel	0.593	147.3	148.0	148.5	148.3	149.3
1.3.5.2 Knitted and Crocheted apparel	0.221	152.2	152.5	152.9	152.6	154.7
1.3.6 MANUFACTURE OF LEATHER AND RELATED PRODUCTS	**0.535**	**122.2**	**123.3**	**124.7**	**125.3**	**126.8**
1.3.6.1 Tanning and Dressing of leather; Dressing and Dyeing of fur	0.142	105.6	106.7	111.4	111.3	114.1
1.3.6.2 Luggage, HandbAgs, Saddlery and Harness	0.075	141.0	140.8	140.4	141.6	140.9
1.3.6.3 Footwear	0.318	125.2	126.6	126.9	127.7	129.2
1.3.7 MANUFACTURE OF WOOD AND PRODUCTS OF WOOD AND CORK	**0.772**	**143.2**	**144.1**	**145.2**	**144.6**	**144.8**
1.3.7.1 Saw milling and Planing of wood	0.124	137.6	138.1	138.1	137.9	137.6
1.3.7.2 Veneer sheets; Manufacture of plywood, Laminboard, Particle board and Other panels and Boards	0.493	141.8	142.4	143.3	143.5	143.7
1.3.7.3 Builder's carpentry and Joinery	0.036	204.0	203.1	207.3	201.8	201.8
1.3.7.4 Wooden containers	0.119	136.7	139.7	141.6	139.1	139.8
1.3.8 MANUFACTURE OF PAPER AND PAPER PRODUCTS	**1.113**	**152.0**	**154.5**	**143.6**	**141.6**	**138.5**
1.3.8.1 Pulp, Paper and Paperboard	0.493	158.4	161.2	150.6	147.8	146.4
1.3.8.2 Corrugated paper and Paperboard and Containers of paper and Paperboard	0.314	148.3	150.6	139.0	140.2	139.2
1.3.8.3 Other articles of paper and Paperboard	0.306	145.6	147.8	137.1	133.1	125.1
1.3.9 PRINTING AND REPRODUCTION OF RECORDED MEDIA	**0.676**	**172.5**	**167.6**	**179.9**	**180.4**	**183.0**
1.3.9.1 Printing	0.676	172.5	167.6	179.9	180.4	183.0
1.3.10 MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS	**6.465**	**145.4**	**146.6**	**137.9**	**137.3**	**136.3**
1.3.10.1 Basic chemicals	1.433	159.2	162.3	141.4	139.7	138.6
1.3.10.2 Fertilizers and Nitrogen compounds	1.485	144.8	144.9	144.3	143.6	141.4
1.3.10.3 Plastic and Synthetic rubber in primary form	1.001	143.2	142.7	133.0	133.0	132.2
1.3.10.4 Pesticides and Other agrochemical products	0.454	143.4	145.9	134.0	134.3	131.9
1.3.10.5 Paints, Varnishes and Similar coatings, Printing ink and Mastics	0.491	145.0	146.1	143.0	143.3	144.0
1.3.10.6 Soap and Detergents, Cleaning and Polishing preparations, Perfumes and Toilet preparations	0.612	140.8	141.4	140.8	140.6	140.0
1.3.10.7 Other chemical products	0.692	142.1	143.4	135.0	134.3	134.7
1.3.10.8 Man-made fibres	0.296	110.7	113.2	103.5	102.9	103.4
1.3.11 MANUFACTURE OF PHARMACEUTICALS, MEDICINAL CHEMICAL AND BOTANICAL PRODUCTS	**1.993**	**140.9**	**140.6**	**143.4**	**142.4**	**142.0**
1.3.11.1 Pharmaceuticals, Medicinal chemical and Botanical products	1.993	140.9	140.6	143.4	142.4	142.0
1.3.12 MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS	**2.299**	**129.7**	**129.4**	**127.1**	**126.8**	**127.0**
1.3.12.1 Rubber Tyres and Tubes; Retreading and Rebuilding of Rubber Tyres	0.609	111.8	112.2	113.6	112.7	113.3
1.3.12.2 Other Rubber Products	0.272	106.4	108.1	106.3	107.3	106.7
1.3.12.3 Plastics products	1.418	141.8	140.9	136.8	136.6	136.8

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Aug.	Jun.	Jul.(P)	Aug.(P)
	1	2	3	4	5	6
1.3.13 MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS	**3.202**	**133.7**	**133.5**	**134.7**	**134.9**	**135.2**
1.3.13.1 Glass and Glass products	0.295	158.1	156.1	164.0	164.3	163.5
1.3.13.2 Refractory products	0.223	119.0	120.0	119.0	119.0	123.1
1.3.13.3 Clay Building Materials	0.121	135.3	132.5	130.0	123.9	123.5
1.3.13.4 Other Porcelain and Ceramic Products	0.222	118.0	118.8	121.3	121.4	121.8
1.3.13.5 Cement, Lime and Plaster	1.645	137.2	137.1	137.4	137.7	137.9
1.3.13.6 Articles of Concrete, Cement and Plaster	0.292	134.4	134.9	137.3	138.4	138.0
1.3.13.7 Cutting, Shaping and Finishing of Stone	0.234	125.6	125.8	127.1	130.0	130.7
1.3.13.8 Other Non-Metallic Mineral Products	0.169	105.9	105.4	105.2	103.1	103.0
1.3.14 MANUFACTURE OF BASIC METALS	**9.646**	**148.7**	**148.9**	**141.6**	**140.3**	**140.4**
1.3.14.1 Inputs into steel making	1.411	159.7	163.0	142.0	136.7	136.2
1.3.14.2 Metallic Iron	0.653	165.9	170.7	156.3	155.5	155.1
1.3.14.3 Mild Steel - Semi Finished Steel	1.274	127.0	127.0	121.8	122.3	120.9
1.3.14.4 Mild Steel -Long Products	1.081	149.7	149.4	141.7	139.4	140.7
1.3.14.5 Mild Steel - Flat products	1.144	155.0	153.4	144.5	143.2	142.1
1.3.14.6 Alloy steel other than Stainless Steel- Shapes	0.067	146.9	147.0	139.7	136.1	135.3
1.3.14.7 Stainless Steel - Semi Finished	0.924	151.9	154.6	141.5	136.7	139.8
1.3.14.8 Pipes & tubes	0.205	175.4	174.6	169.7	169.0	169.0
1.3.14.9 Non-ferrous metals incl. precious metals	1.693	145.9	141.8	144.2	144.3	144.0
1.3.14.10 Castings	0.925	130.7	130.7	134.0	138.2	138.4
1.3.14.11 Forgings of steel	0.271	172.4	172.9	172.2	173.0	174.5
1.3.15 MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT	**3.155**	**139.0**	**140.0**	**139.3**	**138.6**	**138.3**
1.3.15.1 Structural Metal Products	1.031	132.7	134.6	132.2	131.6	131.1
1.3.15.2 Tanks, Reservoirs and Containers of Metal	0.660	161.1	161.6	160.4	159.0	158.3
1.3.15.3 Steam generators, Except Central Heating Hot Water Boilers	0.145	100.5	97.3	109.4	105.8	103.4
1.3.15.4 Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy	0.383	135.2	136.9	139.3	139.4	143.5
1.3.15.5 Cutlery, Hand Tools and General Hardware	0.208	112.2	112.6	108.8	108.7	108.5
1.3.15.6 Other Fabricated Metal Products	0.728	145.0	146.0	145.0	144.5	143.0
1.3.16 MANUFACTURE OF COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS	**2.009**	**116.6**	**116.8**	**118.3**	**118.5**	**119.4**
1.3.16.1 Electronic Components	0.402	115.0	116.2	114.9	116.1	115.3
1.3.16.2 Computers and Peripheral Equipment	0.336	135.0	134.9	135.1	135.1	135.1
1.3.16.3 Communication Equipment	0.310	129.4	129.5	131.5	131.5	136.9
1.3.16.4 Consumer Electronics	0.641	99.7	99.3	104.1	103.5	103.4
1.3.16.5 Measuring, Testing, Navigating and Control equipment	0.181	112.8	113.1	111.6	111.6	114.2
1.3.16.6 Watches and Clocks	0.076	151.2	152.6	154.7	155.4	156.6
1.3.16.7 Irradiation, Electromedical and Electrotherapeutic equipment	0.055	108.9	107.6	107.3	109.9	111.0
1.3.16.8 Optical instruments and Photographic equipment	0.008	100.5	101.6	103.6	103.6	103.9
1.3.17 MANUFACTURE OF ELECTRICAL EQUIPMENT	**2.930**	**128.8**	**128.6**	**130.5**	**130.5**	**131.7**
1.3.17.1 Electric motors, Generators, Transformers and Electricity distribution and Control apparatus	1.298	126.3	127.0	128.2	128.0	130.4

No. 21: Wholesale Price Index (Concld.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2022	2023		
			Aug.	Jun.	Jul.(P)	Aug.(P)
	1	2	3	4	5	6
1.3.17.2 Batteries and Accumulators	0.236	131.9	132.2	136.8	136.9	136.5
1.3.17.3 Fibre optic cables for data transmission or live transmission of images	0.133	116.6	117.0	123.7	123.7	124.7
1.3.17.4 Other electronic and Electric wires and Cables	0.428	146.3	142.1	145.5	146.2	146.9
1.3.17.5 Wiring devices, Electric lighting & display equipment	0.263	117.2	116.4	117.0	115.8	116.0
1.3.17.6 Domestic appliances	0.366	134.1	135.1	134.5	134.8	135.4
1.3.17.7 Other electrical equipment	0.206	117.4	117.3	120.7	121.6	121.1
1.3.18 MANUFACTURE OF MACHINERY AND EQUIPMENT	**4.789**	**126.2**	**126.1**	**128.0**	**128.5**	**128.3**
1.3.18.1 Engines and Turbines, Except aircraft, Vehicle and Two wheeler engines	0.638	126.9	127.5	127.1	126.9	127.9
1.3.18.2 Fluid power equipment	0.162	128.4	127.3	131.6	131.0	130.7
1.3.18.3 Other pumps, Compressors, Taps and Valves	0.552	117.6	117.9	117.0	117.1	116.6
1.3.18.4 Bearings, Gears, Gearing and Driving elements	0.340	124.2	124.5	126.5	126.4	125.8
1.3.18.5 Ovens, Furnaces and Furnace burners	0.008	79.8	78.9	83.0	83.5	84.4
1.3.18.6 Lifting and Handling equipment	0.285	126.3	125.6	127.4	127.9	128.5
1.3.18.7 Office machinery and Equipment	0.006	130.2	130.2	130.2	130.2	130.2
1.3.18.8 Other general-purpose machinery	0.437	143.0	141.6	143.4	146.0	144.7
1.3.18.9 Agricultural and Forestry machinery	0.833	137.2	136.4	141.4	141.1	141.4
1.3.18.10 Metal-forming machinery and Machine tools	0.224	120.5	121.3	121.9	121.9	121.9
1.3.18.11 Machinery for mining, Quarrying and Construction	0.371	84.9	84.5	88.4	89.1	88.3
1.3.18.12 Machinery for food, Beverage and Tobacco processing	0.228	127.7	130.0	124.9	124.9	124.4
1.3.18.13 Machinery for textile, Apparel and Leather production	0.192	130.0	129.9	135.0	136.4	136.8
1.3.18.14 Other special-purpose machinery	0.468	140.6	140.0	143.9	145.0	144.1
1.3.18.15 Renewable electricity generating equipment	0.046	69.2	68.5	71.3	71.5	71.0
1.3.19 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS	**4.969**	**127.6**	**127.0**	**127.8**	**128.0**	**128.2**
1.3.19.1 Motor vehicles	2.600	126.0	124.4	127.0	127.6	128.6
1.3.19.2 Parts and Accessories for motor vehicles	2.368	129.3	129.9	128.7	128.4	127.9
1.3.20 MANUFACTURE OF OTHER TRANSPORT EQUIPMENT	**1.648**	**137.4**	**137.2**	**142.1**	**142.4**	**142.8**
1.3.20.1 Building of ships and Floating structures	0.117	162.5	163.5	163.7	163.7	163.7
1.3.20.2 Railway locomotives and Rolling stock	0.110	105.5	105.5	105.9	105.9	106.4
1.3.20.3 Motor cycles	1.302	137.6	137.1	143.7	143.9	144.4
1.3.20.4 Bicycles and Invalid carriages	0.117	139.8	140.8	137.0	138.6	138.5
1.3.20.5 Other transport equipment	0.002	152.5	150.5	158.1	155.2	157.5
1.3.21 MANUFACTURE OF FURNITURE	**0.727**	**157.2**	**157.2**	**160.1**	**160.2**	**159.8**
1.3.21.1 Furniture	0.727	157.2	157.2	160.1	160.2	159.8
1.3.22 OTHER MANUFACTURING	**1.064**	**147.7**	**148.0**	**157.7**	**152.3**	**154.3**
1.3.22.1 Jewellery and Related articles	0.996	146.5	146.7	157.3	151.5	153.7
1.3.22.2 Musical instruments	0.001	189.3	190.5	181.1	193.1	193.1
1.3.22.3 Sports goods	0.012	150.5	149.3	154.8	155.3	155.5
1.3.22.4 Games and Toys	0.005	159.0	159.3	159.7	159.7	160.0
1.3.22.5 Medical and Dental instruments and Supplies	0.049	170.4	172.0	164.5	164.5	164.5
2 FOOD INDEX	**24.378**	**174.2**	**176.2**	**175.1**	**187.7**	**186.1**

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, Government of India.

No. 22: Index of Industrial Production (Base:2011-12=100)

Industry	Weight	2021-22	2022-23	April-July		July	
				2022-23	2023-24	2022	2023
	1	2	3	4	5	6	7
General Index	100.00	131.6	138.5	136.3	142.8	134.4	142.0
1 Sectoral Classification							
1.1 Mining	14.37	113.3	119.9	113.0	121.2	101.1	111.9
1.2 Manufacturing	77.63	131.0	137.1	134.5	140.9	135.0	141.2
1.3 Electricity	7.99	170.1	185.2	195.1	200.8	188.9	204.0
2 Use-Based Classification							
2.1 Primary Goods	34.05	129.5	139.2	138.8	145.1	131.7	141.7
2.2 Capital Goods	8.22	88.7	100.3	96.2	100.8	97.1	101.6
2.3 Intermediate Goods	17.22	143.9	149.4	149.2	153.4	149.0	151.8
2.4 Infrastructure/ Construction Goods	12.34	148.2	160.7	151.3	169.8	151.3	168.5
2.5 Consumer Durables	12.84	113.8	114.5	117.8	114.6	121.4	118.1
Consumer non-durables	15.33	146.7	147.7	141.0	150.6	141.7	152.2

Source : Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India.

Government Accounts and Treasury Bills

No. 23: Union Government Accounts at a Glance

(Amount in ₹ Crore)

Item	Financial Year	April – July			
	2023-24 (Budget Estimates)	2023-24 (Actuals)	2022-23 (Actuals)	Percentage to Budget Estimates	
				2023-24	2022-23
	1	2	3	4	5
1 Revenue Receipts	**2632281**	**761389**	**755795**	**28.9**	**34.3**
1.1 Tax Revenue (Net)	2330631	582585	666212	25.0	34.4
1.2 Non-Tax Revenue	301650	178804	89583	59.3	33.2
2 Non Debt Capital Receipt	**84000**	**13718**	**30119**	**16.3**	**38.0**
2.1 Recovery of Loans	23000	8253	5559	35.9	38.9
2.2 Other Receipts	61000	5465	24560	9.0	37.8
3 Total Receipts (excluding borrowings) (1+2)	**2716281**	**775107**	**785914**	**28.5**	**34.4**
4 Revenue Expenditure of which :	3502136	1063621	918075	30.4	28.7
4.1 Interest Payments	1079971	299889	283870	27.8	30.2
5 Capital Expenditure	1000961	317079	208670	31.7	27.8
6 Total Expenditure (4+5)	**4503097**	**1380700**	**1126745**	**30.7**	**28.6**
7 Revenue Deficit (4-1)	**869855**	**302232**	**162280**	**34.7**	**16.4**
8 Fiscal Deficit (6-3)	**1786816**	**605593**	**340831**	**33.9**	**20.5**
9 Gross Primary Deficit (8-4.1)	**706845**	**305704**	**56961**	**43.2**	**7.9**

Source: Controller General of Accounts (CGA), Ministry of Finance, Government of India and Union Budget 2023-24.

No. 24: Treasury Bills – Ownership Pattern

(₹ Crore)

Item	2022-23	2022	2023					
		Jul. 29	Jun. 23	Jun. 30	Jul. 7	Jul. 14	Jul. 21	Jul. 28
	1	2	3	4	5	6	7	8
1 91-day								
1.1 Banks	6191	9560	13055	20917	14458	13843	18065	20183
1.2 Primary Dealers	20071	35008	20369	22503	21916	21384	18840	19282
1.3 State Governments	8038	58800	34098	35098	35898	31508	30008	35727
1.4 Others	80638	124142	125276	128280	133326	132472	127295	122735
2 182-day								
2.1 Banks	53154	89277	69623	72494	64927	62031	66186	63735
2.2 Primary Dealers	97274	99464	131033	131141	125305	125205	120206	119595
2.3 State Governments	2592	38187	17634	18791	19291	19466	18791	20791
2.4 Others	110072	113260	132344	135365	143768	141764	139108	138170
3 364-day								
3.1 Banks	101834	104496	83513	78636	79034	80472	81949	81443
3.2 Primary Dealers	146080	178252	159693	173343	176791	179789	182132	182603
3.3 State Governments	48284	26571	51846	50712	50817	50824	49524	49427
3.4 Others	149086	132252	153794	145021	142175	138739	135918	136953
4 14-day Intermediate								
4.1 Banks								
4.2 Primary Dealers								
4.3 State Governments	212758	129551	179213	171431	118830	171552	190683	172959
4.4 Others	926	338	1802	956	1191	854	184	730
Total Treasury Bills (Excluding 14 day Intermediate T Bills) #	823313	1009269	992279	1012301	1007706	997498	988023	990645

#: 14D intermediate T-Bills are non-marketable unlike 91D, 182D and 364D T-Bills. These bills are 'intermediate' by nature as these are liquidated to replenish shortfall in the daily minimum cash balances of State Governments.
Note: Primary Dealers (PDs) include banks undertaking PD business.

No. 25: Auctions of Treasury Bills

(Amount in ₹ Crore)

Date of Auction	Notified Amount	Bids Received			Bids Accepted			Total Issue (6+7)	Cut-off Price (₹)	Implicit Yield at Cut-off Price (per cent)
		Number	Total Face Value		Number	Total Face Value				
			Competitive	Non-Competitive		Competitive	Non-Competitive			
	1	2	3	4	5	6	7	8	9	10
91-day Treasury Bills										
2023-24										
Jun. 28	12000	147	39355	2045	37	11955	2045	14000	98.34	6.7599
Jul. 5	10000	139	29665	1532	43	9968	1532	11500	98.35	6.7200
Jul. 12	10000	133	35038	644	61	9966	644	10610	98.35	6.7399
Jul. 19	10000	167	52547	6544	23	9956	6544	16500	98.35	6.7138
Jul. 26	10000	167	36898	6474	52	9969	6474	16443	98.35	6.7200
182-day Treasury Bills										
2023-24										
Jun. 28	12000	189	42575	1173	19	11984	1173	13156	96.69	6.8684
Jul. 5	8000	158	19554	520	82	7980	520	8500	96.71	6.8279
Jul. 12	8000	147	17733	226	111	7974	226	8200	96.69	6.8680
Jul. 19	8000	168	27908	1547	62	7978	1547	9525	96.69	6.8601
Jul. 26	8000	181	32473	2025	42	7975	2025	10000	96.69	6.8609
364-day Treasury Bills										
2023-24										
Jun. 28	8000	101	23579	17	14	7988	17	8005	93.59	6.8685
Jul. 5	6000	104	15705	139	69	5967	139	6106	93.61	6.8480
Jul. 12	6000	117	14458	16	80	5990	16	6007	93.58	6.8793
Jul. 19	6000	141	18954	16	48	5984	16	6000	93.57	6.8856
Jul. 26	6000	189	23603	166	64	5983	166	6149	93.57	6.8925

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
July 03 ,2023	5.40-6.75	6.39
July 04 ,2023	5.00-6.50	6.38
July 05 ,2023	5.00-6.50	6.41
July 06 ,2023	5.00-6.55	6.44
July 07 ,2023	5.00-6.65	6.59
July 10 ,2023	5.00-6.85	6.56
July 11 ,2023	5.00-6.65	6.56
July 12 ,2023	5.00-6.50	6.45
July 13 ,2023	5.00-6.50	6.41
July 14 ,2023	5.40-6.45	6.41
July 15 ,2023	5.75-6.60	6.10
July 17 ,2023	5.30-6.50	6.45
July 18 ,2023	5.30-6.50	6.45
July 19 ,2023	5.30-6.50	6.42
July 20 ,2023	5.00-6.65	6.52
July 21 ,2023	5.30-6.70	6.60
July 24 ,2023	5.00-6.65	6.59
July 25 ,2023	5.30-6.70	6.58
July 26 ,2023	5.00-6.55	6.44
July 27 ,2023	5.00-6.45	6.37
July 28 ,2023	5.00-6.85	6.48
July 31 ,2023	5.00-6.60	6.51
August 01 ,2023	5.00-6.45	6.39
August 02 ,2023	5.00-6.45	6.34
August 03 ,2023	5.00-6.40	6.35
August 04 ,2023	5.30-6.40	6.34
August 05 ,2023	5.60-6.50	6.30
August 07 ,2023	5.30-6.45	6.36
August 08 ,2023	5.30-6.40	6.36
August 09 ,2023	5.00-6.45	6.39
August 10 ,2023	5.00-6.55	6.45
August 11 ,2023	5.00-6.70	6.59
August 14 ,2023	5.30-6.85	6.63

Note: Includes Notice Money.

No. 27: Certificates of Deposit

Item	2022	2023			
	Jul. 29	Jun. 16	Jun. 30	Jul. 14	Jul. 28
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	249062.16	287339.03	287157.00	297670.83	307002.89
1.1 Issued during the fortnight (₹ Crore)	29372.29	29746.39	20253.00	18265.42	25601.63
2 Rate of Interest (per cent)	5.33-6.38	6.72-7.88	6.76-7.88	6.79-7.81	6.76-7.89

No. 28: Commercial Paper

Item	2022	2023			
	Jul. 31	Jun. 15	Jun. 30	Jul. 15	Jul. 31
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	374226.45	446509.90	433212.15	434827.80	444567.60
1.1 Reported during the fortnight (₹ Crore)	48380.15	83468.30	67287.35	26230.40	65987.70
2 Rate of Interest (per cent)	5.05-12.40	6.71-11.80	6.77-12.37	6.72-13.10	6.75-12.23

No. 29: Average Daily Turnover in Select Financial Markets

(₹ Crore)

Item	2022-23	2022	2023					
		Jul. 29	Jun. 23	Jun. 30	Jul. 7	Jul. 14	Jul. 21	Jul. 28
	1	2	3	4	5	6	7	8
1 Call Money	19987	21115	16547	18286	19676	19259	21986	21447
2 Notice Money	2605	4246	223	4366	158	5558	167	185
3 Term Money	612	318	549	1140	744	737	917	491
4 Triparty Repo	697245	724049	564438	652452	517000	604355	504737	615266
5 Market Repo	504418	515023	578936	655035	516567	642464	544797	651665
6 Repo in Corporate Bond	2085	183	3240	285	2186	272	976	1178
7 Forex (US $ million)	89155	98204	94474	107572	83645	87079	75674	96828
8 Govt. of India Dated Securities	66200	70519	100011	99704	76690	107250	83009	90813
9 State Govt. Securities	5450	5865	5399	4202	3998	3207	2521	4199
10 Treasury Bills								
10.1 91-Day	4380	2921	2275	6688	12485	4925	3268	3955
10.2 182-Day	4480	5438	10386	17354	9096	5014	5187	4788
10.3 364-Day	2900	1597	11673	16258	3685	1979	1190	2426
10.4 Cash Management Bills								
11 Total Govt. Securities (8+9+10)	83410	86341	129744	144205	105954	122374	95174	106181
11.1 RBI	660	442	299	42	711	422	138	24

No. 30: New Capital Issues by Non-Government Public Limited Companies

(Amount in ₹ Crore)

Security & Type of Issue	2022-23		2022-23 (Apr. - Jul.)		2023-24 (Apr. - Jul.) *		Jul. 2022		Jul. 2023 *	
	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount
	1	2	3	4	5	6	7	8	9	10
1 Equity Shares	**237**	**45266**	**59**	**18469**	**81**	**14723**	**14**	**281**	**28**	**3983**
1A Premium	218	42408	54	17590	75	13997	12	206	27	3749
1.1 Public	164	38515	42	17215	57	10491	11	222	21	3610
1.1.1 Premium	161	37158	40	16630	57	10040	10	188	21	3301
1.2 Rights	73	6751	17	1254	24	4232	3	59	7	373
1.2.1 Premium	57	5250	14	960	18	3956	2	18	6	448
2 Preference Shares	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2.1 Public	-	-	-	-	-	-	-	-	-	-
2.2 Rights	-	-	-	-	-	-	-	-	-	-
3 Bonds & Debentures	**34**	**9221**	**12**	**2823**	**12**	**3416**	**1**	**298**	**3**	**841**
3.1 Convertible	-	-	-	-	-	-	-	-	-	-
3.1.1 Public	-	-	-	-	-	-	-	-	-	-
3.1.2 Rights	-	-	-	-	-	-	-	-	-	-
3.2 Non-Convertible	34	9221	12	2823	12	3416	1	298	3	841
3.2.1 Public	34	9221	12	2823	12	3416	1	298	3	841
3.2.2 Rights	-	-	-	-	-	-	-	-	-	-
4 Total (1+2+3)	**271**	**54487**	**71**	**21292**	**93**	**18139**	**15**	**579**	**31**	**4824**
4.1 Public	198	47736	54	20038	69	13907	12	520	24	4451
4.2 Rights	73	6751	17	1254	24	4232	3	59	7	373

Note : 1. Since April 2020, monthly data on equity issues is compiled on the basis of their listing date.
2. Figures in the columns might not add up to the total due to rounding off numbers.

Source : Securities and Exchange Board of India.

* : Data is Provisional.

External Sector

No. 31: Foreign Trade

Item	Unit	2022-23	2022	2023				
			Jul.	Mar.	Apr.	May	Jun.	Jul.
		1	2	3	4	5	6	7
1 Exports	₹ Crore	3621550	305159	345265	284247	288067	282471	283221
	US $ Million	451070	38336	41958	34655	34984	34350	34475
1.1 Oil	₹ Crore	782303	64972	68687	52741	48303	55590	55150
	US $ Million	97468	8162	8347	6430	5866	6760	6713
1.2 Non-oil	₹ Crore	2839247	240188	276578	231505	239765	226881	228071
	US $ Million	353602	30174	33611	28225	29118	27590	27762
2 Imports	₹ Crore	5749801	507630	501309	411270	469319	436670	435043
	US $ Million	715969	63771	60921	50142	56995	53101	52956
2.1 Oil	₹ Crore	1682475	147711	148300	124431	128454	103124	96717
	US $ Million	209418	18556	18022	15171	15600	12540	11773
2.2 Non-oil	₹ Crore	4067326	359920	353009	286839	340865	333547	338326
	US $ Million	506551	45215	42899	34971	41396	40561	41183
3 Trade Balance	₹ Crore	-2128251	-202471	-156044	-127024	-181252	-154199	-151822
	US $ Million	-264899	-25436	-18963	-15487	-22012	-18751	-18481
3.1 Oil	₹ Crore	-900172	-82739	-79613	-71690	-80152	-47534	-41567
	US $ Million	-111950	-10394	-9675	-8740	-9734	-5780	-5060
3.2 Non-oil	₹ Crore	-1228079	-119732	-76430	-55333	-101101	-106666	-110255
	US $ Million	-152949	-15041	-9288	-6746	-12278	-12971	-13421

Source: DGCI&S and Ministry of Commerce & Industry.

No. 32: Foreign Exchange Reserves

Item	Unit	2022	2023					
		Sep. 02	Jul. 21	Jul. 28	Aug. 04	Aug. 11	Aug. 18	Aug. 25
		1	2	3	4	5	6	7
1 Total Reserves	**₹ Crore**	**4413659**	**4975431**	**4967138**	**4982323**	**4988363**	**4943746**	**4916873**
	US $ Million	**553105**	**607035**	**603870**	**601453**	**602161**	**594888**	**594858**
1.1 Foreign Currency Assets	₹ Crore	3926994	4407539	4403421	4418603	4427048	4386111	4358044
	US $ Million	492117	537752	535337	533400	534399	527786	527249
1.2 Gold	₹ Crore	305654	373862	369359	370124	367317	364196	366616
	US $ Million	38303	45614	44904	44680	44340	43824	44354
	Volume (Metric Tonnes)	781.29	797.72	797.72	797.72	797.72	798.66	799.59
1.3 SDRs	SDRs Million	13658	13674	13674	13674	13681	13681	13681
	₹ Crore	141897	151414	151715	151376	151801	151292	150383
	US $ Million	17782	18474	18444	18274	18324	18205	18194
1.4 Reserve Tranche Position in IMF	₹ Crore	39114	42616	42642	42220	42198	42147	41828
	US $ Million	4902	5196	5185	5099	5098	5072	5061

* Difference, if any, is due to rounding off.

No. 33: Non-Resident Deposits

(US $ Million)

Scheme	Outstanding				Flows	
	2022-23	2022	2023		2022-23	2023-24
		Jul.	Jun.	Jul. (P)	Apr.-Jul.	Apr.-Jul.(P)
	1	2	3	4	5	6
1 NRI Deposits	**138879**	**135397**	**141345**	**141847**	**1418**	**3010**
1.1 FCNR(B)	19363	15878	20485	20808	-1040	1445
1.2 NR(E)RA	95817	97925	96512	96349	1281	566
1.3 NRO	23699	21594	24349	24690	1177	1000

P: Provisional.

No. 34: Foreign Investment Inflows

(US $ Million)

Item	2022-23	2022-23	2023-24	2022	2023	
		Apr.-Jul.	Apr.-Jul.	Jul.	Jun.	Jul.
	1	2	3	4	5	6
1.1 Net Foreign Direct Investment (1.1.1-1.1.2)	**27986**	**17286**	**5701**	**3893**	**-550**	**749**
1.1.1 Direct Investment to India (1.1.1.1-1.1.1.2)	**42006**	**20825**	**8773**	**4563**	**205**	**1639**
1.1.1.1 Gross Inflows/Gross Investments	**71355**	**29638**	**21959**	**7164**	**5330**	**4392**
1.1.1.1.1 Equity	47600	22044	13976	5097	3281	2672
1.1.1.1.1.1 Government (SIA/FIPB)	692	439	98	60	5	53
1.1.1.1.1.2 RBI	37097	16561	10985	4155	2519	1721
1.1.1.1.1.3 Acquisition of shares	8245	4561	2409	756	638	772
1.1.1.1.1.4 Equity capital of unincorporated bodies	1566	484	484	126	119	126
1.1.1.1.2 Reinvested earnings	19105	5947	5947	1557	1463	1557
1.1.1.1.3 Other capital	4650	1646	2036	510	586	163
1.1.1.2 Repatriation/Disinvestment	**29349**	**8812**	**13186**	**2601**	**5125**	**2753**
1.1.1.2.1 Equity	27094	8167	11867	2370	5072	2511
1.1.1.2.2 Other capital	2255	645	1319	231	53	243
1.1.2 Foreign Direct Investment by India (1.1.2.1+1.1.2.2+1.1.2.3-1.1.2.4)	**14020**	**3540**	**3072**	**670**	**755**	**890**
1.1.2.1 Equity capital	8771	1788	2174	534	459	424
1.1.2.2 Reinvested Earnings	4412	1471	1471	368	368	368
1.1.2.3 Other Capital	4714	1235	1465	169	201	648
1.1.2.4 Repatriation/Disinvestment	3877	953	2038	401	272	550
1.2 Net Portfolio Investment (1.2.1+1.2.2+1.2.3-1.2.4)	**-5152**	**-14260**	**19578**	**370**	**7775**	**4285**
1.2.1 GDRs/ADRs	-	-	-	-	-	-
1.2.2 FIIs	-4828	-14166	19807	493	7837	4340
1.2.3 Offshore funds and others	-	-	-	-	-	-
1.2.4 Portfolio investment by India	324	94	229	123	62	56
1 Foreign Investment Inflows	**22834**	**3026**	**25279**	**4263**	**7226**	**5034**

No. 35: Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals

(US $ Million)

Item	2022-23	2022	2023		
		Jul.	May	Jun.	Jul.
	1	2	3	4	5
1 Outward Remittances under the LRS	**27140.65**	**1982.44**	**2887.80**	**3890.83**	**2359.51**
1.1 Deposit	1011.07	79.96	99.89	227.23	50.12
1.2 Purchase of immovable property	188.73	11.65	21.22	45.85	14.89
1.3 Investment in equity/debt	1256.15	59.71	106.81	314.73	58.06
1.4 Gift	3005.27	216.33	390.72	643.95	233.96
1.5 Donations	12.78	1.18	0.98	2.22	0.65
1.6 Travel	13662.15	1015.27	1495.35	1482.81	1419.42
1.7 Maintenance of close relatives	4174.06	292.72	490.73	890.89	282.30
1.8 Medical Treatment	55.74	4.29	5.19	7.64	4.22
1.9 Studies Abroad	3427.81	276.03	247.33	237.32	267.28
1.10 Others	346.89	25.30	29.59	38.20	28.62

No. 36: Indices of Nominal Effective Exchange Rate (NEER) and Real Effective Exchange Rate (REER) of the Indian Rupee

Item	2021-22	2022-23	2022	2023	
			Aug.	Jul.	Aug.
	1	2	3	4	5
40-Currency Basket (Base: 2015-16=100)					
1 Trade-Weighted					
1.1 NEER	93.13	91.27	92.05	90.77	90.91
1.2 REER	104.66	102.82	104.03	105.51	104.83
2 Export-Weighted					
2.1 NEER	93.55	93.03	93.97	92.58	92.68
2.2 REER	103.47	101.07	102.45	102.93	102.11
6-Currency Basket (Trade-weighted)					
1 Base : 2015-16 =100					
1.1 NEER	87.04	85.93	87.17	83.75	83.77
1.2 REER	102.22	101.90	103.59	103.69	103.50
2 Base : 2021-22 =100					
2.1 NEER	100.00	98.72	100.14	96.22	96.24
2.2 REER	100.00	99.69	101.34	101.44	101.25

No. 37: External Commercial Borrowings (ECBs) – Registrations

(Amount in US $ Million)

Item	2022-23	2022	2023	
		Jul.	Jun.	Jul.
	1	2	3	4
1 Automatic Route				
1.1 Number	1093	96	138	93
1.2 Amount	24156	2316	5885	485
2 Approval Route				
2.1 Number	9	1	3	2
2.2 Amount	2473	300	2074	2074
3 Total (1+2)				
3.1 Number	1102	97	141	95
3.2 Amount	26629	2616	7959	2559
4 Weighted Average Maturity (in years)	5.72	4.64	5.30	5.00
5 Interest Rate (per cent)				
5.1 Weighted Average Margin over 6-month LIBOR or reference rate for Floating Rate Loans	1.68	1.28	1.49	0.83
5.2 Interest rate range for Fixed Rate Loans	0.00-11.80	0.00-11.15	0.00-11.67	0.00-11.25
Borrower Category				
I. Corporate Manufacturing	6925	296	4820	223
II. Corporate-Infrastructure	8396	288	2116	1635
a.) Transport	333	36	14	43
b.) Energy	2235	60	0	2
c.) Water and Sanitation	32	0	27	0
d.) Communication	1538	0	1750	1590
e.) Social and Commercial Infrastructure	530	0	3	0
f.) Exploration,Mining and Refinery	2085	164	30	0
g.) Other Sub-Sectors	1643	28	292	0
III. Corporate Service-Sector	1773	118	10	101
IV. Other Entities	1805	303	0	0
a.) units in SEZ	6	3	0	0
b.) SIDBI	0	0	0	0
c.) Exim Bank	1800	300	0	0
V. Banks	0	0	0	0
VI. Financial Institution (Other than NBFC)	0	0	0	0
VII. NBFCs	7540	1611	905	562
a). NBFC- IFC/AFC	3031	340	332	505
b). NBFC-MFI	313	51	288	2
c). NBFC-Others	4196	1220	285	55
VIII. Non-Government Organization (NGO)	0	0	0	0
IX. Micro Finance Institution (MFI)	0	0	0	0
X. Others	189	0	108	38

Note: Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

No. 38: India's Overall Balance of Payments

(US$ Million)

Item	Jan-Mar 2022			Jan-Mar 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance Of Payments (1+2+3)	**384903**	**400927**	**-16024**	**391827**	**386248**	**5579**
1 Current Account (1.1+ 1.2)	**218823**	**232247**	**-13424**	**238010**	**239366**	**-1356**
1.1 Merchandise	**118020**	**172503**	**-54483**	**115821**	**168408**	**-52587**
1.2 Invisibles (1.2.1+1.2.2+1.2.3)	**100803**	**59744**	**41059**	**122189**	**70959**	**51231**
1.2.1 Services	69876	41557	28319	85833	46758	39075
1.2.1.1 Travel	2757	5133	-2376	8445	7698	747
1.2.1.2 Transportation	9398	11002	-1604	7956	8091	-135
1.2.1.3 Insurance	904	428	476	824	455	369
1.2.1.4 G.n.i.e.	160	271	-111	144	307	-163
1.2.1.5 Miscellaneous	56657	24723	31934	68464	30207	38256
1.2.1.5.1 Software Services	32786	3520	29266	38473	4103	34370
1.2.1.5.2 Business Services	16835	13867	2968	22260	16314	5945
1.2.1.5.3 Financial Services	1615	1504	111	2093	1303	790
1.2.1.5.4 Communication Services	763	269	494	2558	2217	341
1.2.2 Transfers	23723	2591	21132	28650	3888	24762
1.2.2.1 Official	21	239	-218	24	342	-318
1.2.2.2 Private	23702	2353	21350	28627	3547	25080
1.2.3 Income	7204	15596	-8392	7706	20312	-12606
1.2.3.1 Investment Income	5589	14792	-9202	6010	19395	-13385
1.2.3.2 Compensation of Employees	1614	804	810	1695	917	778
2 Capital Account (2.1+2.2+2.3+2.4+2.5)	**166081**	**167787**	**-1707**	**153422**	**146882**	**6540**
2.1 Foreign Investment (2.1.1+2.1.2)	**95111**	**96550**	**-1439**	**83781**	**79091**	**4691**
2.1.1 Foreign Direct Investment	24396	10620	13777	17084	10730	6355
2.1.1.1 In India	23281	6028	17253	15858	6538	9319
2.1.1.1.1 Equity	15845	5177	10669	9708	6254	3454
2.1.1.1.2 Reinvested Earnings	5229		5229	4976		4976
2.1.1.1.3 Other Capital	2207	851	1356	1173	284	889
2.1.1.2 Abroad	1115	4592	-3477	1227	4191	-2964
2.1.1.2.1 Equity	1115	2132	-1017	1227	2123	-896
2.1.1.2.2 Reinvested Earnings	0	845	-845	0	1103	-1103
2.1.1.2.3 Other Capital	0	1615	-1615	0	965	-965
2.1.2 Portfolio Investment	70715	85930	-15215	66697	68361	-1664
2.1.2.1 In India	70254	84543	-14289	66117	67704	-1588
2.1.2.1.1 FIIs	70254	84543	-14289	66117	67704	-1588
2.1.2.1.1.1 Equity	62553	75636	-13083	57476	59959	-2483
2.1.2.1.1.2 Debt	7701	8907	-1206	8640	7745	895
2.1.2.1.2 ADR/GDRs	0		0	0		0
2.1.2.2 Abroad	461	1387	-926	580	657	-77
2.2 Loans (2.2.1+2.2.2+2.2.3)	**33737**	**20826**	**12911**	**26512**	**23457**	**3055**
2.2.1 External Assistance	3988	1331	2657	3240	1522	1718
2.2.1.1 By India	13	16	-3	8	22	-14
2.2.1.2 To India	3976	1315	2661	3232	1500	1732
2.2.2 Commercial Borrowings	11346	7913	3433	7323	5698	1624
2.2.2.1 By India	514	373	141	272	382	-110
2.2.2.2 To India	10832	7540	3292	7051	5316	1735
2.2.3 Short Term to India	18403	11582	6821	15950	16237	-287
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	14571	11582	2988	15950	13646	2305
2.2.3.2 Suppliers' Credit up to 180 days	3833	0	3833	0	2592	-2592
2.3 Banking Capital (2.3.1+2.3.2)	**27241**	**33202**	**-5961**	**27997**	**32047**	**-4050**
2.3.1 Commercial Banks	27195	32602	-5407	27922	32047	-4125
2.3.1.1 Assets	13120	17970	-4850	4274	13260	-8986
2.3.1.2 Liabilities	14075	14632	-557	23648	18787	4861
2.3.1.2.1 Non-Resident Deposits	13468	13309	159	21066	17485	3581
2.3.2 Others	46	600	-554	75	0	75
2.4 Rupee Debt Service	**0**	**12**	**-12**		**7**	**-7**
2.5 Other Capital	**9991**	**17196**	**-7205**	**15131**	**12280**	**2852**
3 Errors & Omissions	**0**	**893**	**-893**	**395**	**0**	**395**
4 Monetary Movements (4.1+ 4.2)	**16024**	**0**	**16024**	**0**	**5579**	**-5579**
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	16024	0	16024	0	5579	-5579

Note: P: Preliminary.

No. 39: India's Overall Balance of Payments

(₹ Crore)

Item	Jan-Mar 2022			Jan-Mar 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance Of Payments (1+2+3)	**2895618**	**3016163**	**-120545**	**3223390**	**3177490**	**45899**
1 Current Account (1.1+ 1.2)	**1646199**	**1747190**	**-100991**	**1958005**	**1969160**	**-11155**
1.1 Merchandise	**887863**	**1297738**	**-409875**	**952809**	**1385415**	**-432606**
1.2 Invisibles (1.2.1+1.2.2+1.2.3)	**758336**	**449452**	**308883**	**1005196**	**583745**	**421451**
1.2.1 Services	525672	312631	213042	706112	384660	321451
1.2.1.1 Travel	20740	38617	-17877	69476	63331	6145
1.2.1.2 Transportation	70702	82770	-12068	65454	66565	-1111
1.2.1.3 Insurance	6801	3218	3583	6777	3740	3037
1.2.1.4 G.n.i.e.	1201	2035	-834	1185	2525	-1339
1.2.1.5 Miscellaneous	426228	185990	240238	563219	248500	314719
1.2.1.5.1 Software Services	246649	26481	220167	316497	33753	282744
1.2.1.5.2 Business Services	126651	104321	22330	183122	134212	48910
1.2.1.5.3 Financial Services	12147	11313	834	17215	10718	6497
1.2.1.5.4 Communication Services	5742	2024	3718	21041	18237	2804
1.2.2 Transfers	178471	19496	158975	235693	31986	203706
1.2.2.1 Official	158	1796	-1638	194	2810	-2616
1.2.2.2 Private	178313	17700	160613	235499	29176	206322
1.2.3 Income	54193	117326	-63133	63392	167098	-103707
1.2.3.1 Investment Income	42047	111277	-69230	49444	159555	-110111
1.2.3.2 Compensation of Employees	12145	6049	6096	13948	7544	6404
2 Capital Account (2.1+2.2+2.3+2.4+2.5)	**1249419**	**1262257**	**-12838**	**1262134**	**1208330**	**53804**
2.1 Foreign Investment (2.1.1+2.1.2)	**715520**	**726343**	**-10823**	**689231**	**650644**	**38587**
2.1.1 Foreign Direct Investment	183534	79893	103640	140546	88268	52278
2.1.1.1 In India	175144	45346	129797	130453	53788	76665
2.1.1.1.1 Equity	119205	38945	80260	79863	51450	28413
2.1.1.1.2 Reinvested Earnings	39334	0	39334	40937	0	40937
2.1.1.1.3 Other Capital	16605	6401	10203	9652	2338	7315
2.1.1.2 Abroad	8390	34547	-26157	10093	34480	-24387
2.1.1.2.1 Equity	8390	16040	-7650	10093	17465	-7372
2.1.1.2.2 Reinvested Earnings	0	6355	-6355	0	9073	-9073
2.1.1.2.3 Other Capital	0	12153	-12153	0	7941	-7941
2.1.2 Portfolio Investment	531986	646450	-114463	548685	562376	-13691
2.1.2.1 In India	528521	636017	-107496	543912	556972	-13060
2.1.2.1.1 FIIs	528521	636017	-107496	543912	556972	-13060
2.1.2.1.1.1 Equity	470586	569008	-98422	472831	493254	-20423
2.1.2.1.1.2 Debt	57935	67009	-9074	71080	63718	7363
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	3465	10433	-6968	4774	5404	-631
2.2 Loans (2.2.1+2.2.2+2.2.3)	**253804**	**156675**	**97128**	**218106**	**192973**	**25133**
2.2.1 External Assistance	30003	10013	19989	26652	12519	14133
2.2.1.1 By India	95	120	-26	63	180	-117
2.2.1.2 To India	29908	9893	20015	26589	12339	14250
2.2.2 Commercial Borrowings	85354	59528	25826	60240	46876	13363
2.2.2.1 By India	3867	2804	1062	2237	3144	-907
2.2.2.2 To India	81487	56723	24764	58003	43732	14271
2.2.3 Short Term to India	138447	87134	51313	131214	133577	-2364
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	109614	87134	22479	131214	112256	18958
2.2.3.2 Suppliers' Credit up to 180 days	28833	0	28833	0	21322	-21322
2.3 Banking Capital (2.3.1+2.3.2)	**204931**	**249778**	**-44847**	**230320**	**263635**	**-33315**
2.3.1 Commercial Banks	204584	245264	-40680	229701	263635	-33934
2.3.1.1 Assets	98701	135191	-36490	35162	109084	-73921
2.3.1.2 Liabilities	105884	110073	-4190	194539	154551	39988
2.3.1.2.1 Non-Resident Deposits	101318	100121	1197	173302	143842	29461
2.3.2 Others	347	4514	-4167	619	0	619
2.4 Rupee Debt Service	**0**	**93**	**-93**	**0**	**60**	**-60**
2.5 Other Capital	**75165**	**129368**	**-54203**	**124477**	**101018**	**23459**
3 Errors & Omissions	**0**	**6716**	**-6716**	**3250**	**0**	**3250**
4 Monetary Movements (4.1+ 4.2)	**120545**	**0**	**120545**	**0**	**45899**	**-45899**
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	120545	0	120545	0	45899	-45899

Note: P: Preliminary.

No. 40: Standard Presentation of BoP in India as per BPM6

(US$ Million)

Item	Jan-Mar 2022			Jan-Mar 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	**218822**	**232225**	**-13404**	**238010**	**239346**	**-1336**
1.A Goods and Services (1.A.a+1.A.b)	**187896**	**214060**	**-26164**	**201654**	**215166**	**-13512**
1.A.a Goods (1.A.a.1 to 1.A.a.3)	**118020**	**172503**	**-54483**	**115821**	**168408**	**-52587**
1.A.a.1 General merchandise on a BOP basis	118046	164299	-46253	115268	161779	-46511
1.A.a.2 Net exports of goods under merchanting	-26	0	-26	553	0	553
1.A.a.3 Nonmonetary gold		8204	-8204	0	6629	-6629
1.A.b Services (1.A.b.1 to 1.A.b.13)	**69876**	**41557**	**28319**	**85833**	**46758**	**39075**
1.A.b.1 Manufacturing services on physical inputs owned by others	214	24	190	327	52	275
1.A.b.2 Maintenance and repair services n.i.e.	44	440	-397	56	644	-587
1.A.b.3 Transport	9398	11002	-1604	7956	8091	-135
1.A.b.4 Travel	2757	5133	-2376	8445	7698	747
1.A.b.5 Construction	596	720	-124	1099	705	394
1.A.b.6 Insurance and pension services	904	428	476	824	455	369
1.A.b.7 Financial services	1615	1504	111	2093	1303	790
1.A.b.8 Charges for the use of intellectual property n.i.e.	193	2518	-2325	290	2729	-2438
1.A.b.9 Telecommunications, computer, and information services	33629	4009	29620	41116	6606	34509
1.A.b.10 Other business services	16835	13867	2968	22260	16314	5945
1.A.b.11 Personal, cultural, and recreational services	970	1224	-253	1045	1390	-346
1.A.b.12 Government goods and services n.i.e.	160	271	-111	144	307	-163
1.A.b.13 Others n.i.e.	2560	416	2145	178	464	-286
1.B Primary Income (1.B.1 to 1.B.3)	**7204**	**15596**	**-8392**	**7706**	**20312**	**-12606**
1.B.1 Compensation of employees	1614	804	810	1695	917	778
1.B.2 Investment income	4303	13417	-9113	4839	18772	-13934
1.B.2.1 Direct investment	3206	8193	-4987	2156	10609	-8453
1.B.2.2 Portfolio investment	80	1591	-1511	78	2755	-2676
1.B.2.3 Other investment	96	3629	-3533	210	5246	-5035
1.B.2.4 Reserve assets	922	4	918	2393	163	2231
1.B.3 Other primary income	1286	1375	-89	1172	623	549
1.C Secondary Income (1.C.1+1.C.2)	**23722**	**2570**	**21153**	**28650**	**3868**	**24782**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	23702	2353	21350	28627	3547	25080
1.C.1.1 Personal transfers (Current transfers between resident and/non-resident households)	22943	1677	21267	27984	2631	25352
1.C.1.2 Other current transfers	759	676	83	643	915	-272
1.C.2 General government	20	217	-197	23	321	-298
2 Capital Account (2.1+2.2)	**244**	**173**	**71**	**272**	**260**	**12**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	117	29	88	120	35	85
2.2 Capital transfers	127	144	-17	152	225	-73
3 Financial Account (3.1 to 3.5)	**181861**	**167636**	**14226**	**153151**	**152222**	**929**
3.1 Direct Investment (3.1A+3.1B)	**24396**	**10620**	**13777**	**17084**	**10730**	**6355**
3.1.A Direct Investment in India	23281	6028	17253	15858	6538	9319
3.1.A.1 Equity and investment fund shares	21074	5177	15897	14684	6254	8430
3.1.A.1.1 Equity other than reinvestment of earnings	15845	5177	10669	9708	6254	3454
3.1.A.1.2 Reinvestment of earnings	5229		5229	4976	0	4976
3.1.A.2 Debt instruments	2207	851	1356	1173	284	889
3.1.A.2.1 Direct investor in direct investment enterprises	2207	851	1356	1173	284	889
3.1.B Direct Investment by India	1115	4592	-3477	1227	4191	-2964
3.1.B.1 Equity and investment fund shares	1115	2977	-1862	1227	3226	-1999
3.1.B.1.1 Equity other than reinvestment of earnings	1115	2132	-1017	1227	2123	-896
3.1.B.1.2 Reinvestment of earnings		845	-845	0	1103	-1103
3.1.B.2 Debt instruments	0	1615	-1615	0	965	-965
3.1.B.2.1 Direct investor in direct investment enterprises		1615	-1615	0	965	-965
3.2 Portfolio Investment	**70715**	**85930**	**-15215**	**66697**	**68361**	**-1664**
3.2.A Portfolio Investment in India	70254	84543	-14289	66117	67704	-1588
3.2.1 Equity and investment fund shares	62553	75636	-13083	57476	59959	-2483
3.2.2 Debt securities	7701	8907	-1206	8640	7745	895
3.2.B Portfolio Investment by India	461	1387	-926	580	657	-77
3.3 Financial derivatives (other than reserves) and employee stock options	**4629**	**7403**	**-2774**	**3661**	**6332**	**-2671**
3.4 Other investment	**66098**	**63683**	**2415**	**65708**	**61219**	**4489**
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	13514	13909	-395	21141	17485	3656
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	46	600	-554	75	0	75
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	13468	13309	159	21066	17485	3581
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)	29061	28537	524	17418	21782	-4364
3.4.3.A Loans to India	28534	28148	386	17139	21378	-4239
3.4.3.B Loans by India	527	389	138	280	404	-125
3.4.4 Insurance, pension, and standardized guarantee schemes	40	17	22	41	30	11
3.4.5 Trade credit and advances	18403	11582	6821	15950	16237	-287
3.4.6 Other accounts receivable/payable - other	5080	9637	-4557	11157	5685	5472
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	**16024**	**0**	**16024**	**0**	**5579**	**-5579**
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)	16024	0	16024	0	5579	-5579
4 Total assets/liabilities	**181861**	**167636**	**14226**	**153151**	**152222**	**929**
4.1 Equity and investment fund shares	89872	92596	-2725	77670	76458	1212
4.2 Debt instruments	70886	65402	5484	64323	64499	-176
4.3 Other financial assets and liabilities	21104	9637	11466	11157	11265	-107
5 Net errors and omissions		**893**	**-893**	**395**	**0**	**395**

Note: P: Preliminary.

No. 41: Standard Presentation of BoP in India as per BPM6

(₹ Crore)

Item	Jan-Mar 2022			Jan-Mar 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	**1646190**	**1747025**	**-100835**	**1958000**	**1968993**	**-10992**
1.A Goods and Services (1.A.a+1.A.b)	**1413535**	**1610368**	**-196833**	**1658921**	**1770076**	**-111155**
1.A.a Goods (1.A.a.1 to 1.A.a.3)	**887863**	**1297738**	**-409875**	**952809**	**1385415**	**-432606**
1.A.a.1 General merchandise on a BOP basis	888059	1236020	-347961	948262	1330884	-382622
1.A.a.2 Net exports of goods under merchanting	-196	0	-196	4548	0	4548
1.A.a.3 Nonmonetary gold	0	61718	-61718	0	54532	-54532
1.A.b Services (1.A.b.1 to 1.A.b.13)	**525672**	**312631**	**213042**	**706112**	**384660**	**321451**
1.A.b.1 Manufacturing services on physical inputs owned by others	1613	184	1429	2689	425	2264
1.A.b.2 Maintenance and repair services n.i.e.	329	3313	-2984	464	5295	-4831
1.A.b.3 Transport	70702	82770	-12068	65454	66565	-1111
1.A.b.4 Travel	20740	38617	-17877	69476	63331	6145
1.A.b.5 Construction	4482	5418	-937	9040	5797	3244
1.A.b.6 Insurance and pension services	6801	3218	3583	6777	3740	3037
1.A.b.7 Financial services	12147	11313	834	17215	10718	6497
1.A.b.8 Charges for the use of intellectual property n.i.e.	1454	18944	-17489	2389	22449	-20059
1.A.b.9 Telecommunications, computer, and information services	252989	30162	222827	338240	54349	283891
1.A.b.10 Other business services	126651	104321	22330	183122	134212	48910
1.A.b.11 Personal, cultural, and recreational services	7300	9206	-1906	8596	11438	-2842
1.A.b.12 Government goods and services n.i.e.	1201	2035	-834	1185	2525	-1339
1.A.b.13 Others n.i.e.	19262	3129	16133	1463	3817	-2354
1.B Primary Income (1.B.1 to 1.B.3)	**54193**	**117326**	**-63133**	**63392**	**167098**	**-103707**
1.B.1 Compensation of employees	12145	6049	6096	13948	7544	6404
1.B.2 Investment income	32373	100933	-68559	39805	154433	-114627
1.B.2.1 Direct investment	24116	61632	-37516	17740	87278	-69538
1.B.2.2 Portfolio investment	602	11973	-11371	644	22661	-22016
1.B.2.3 Other investment	721	27299	-26578	1731	43156	-41425
1.B.2.4 Reserve assets	6935	29	6906	19690	1338	18352
1.B.3 Other primary income	9674	10344	-670	9638	5122	4516
1.C Secondary Income (1.C.1+1.C.2)	**178462**	**19331**	**159131**	**235688**	**31819**	**203869**
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	178313	17700	160613	235499	29176	206322
1.C.1.1 Personal transfers (Current transfers between resident and/non-resident households)	172602	12613	159989	230210	21647	208563
1.C.1.2 Other current transfers	5711	5086	624	5288	7529	-2241
1.C.2 General government	149	1631	-1482	189	2642	-2453
2 Capital Account (2.1+2.2)	**1836**	**1303**	**533**	**2237**	**2137**	**100**
2.1 Gross acquisitions (DR.)/disposals (CR.) of non-produced nonfinancial assets	879	220	660	986	288	698
2.2 Capital transfers	957	1084	-127	1250	1849	-599
3 Financial Account (3.1 to 3.5)	**1368137**	**1261119**	**107018**	**1259902**	**1252260**	**7643**
3.1 Direct Investment (3.1A+3.1B)	**183534**	**79893**	**103640**	**140546**	**88268**	**52278**
3.1.A Direct Investment in India	175144	45346	129797	130453	53788	76665
3.1.A.1 Equity and investment fund shares	158539	38945	119594	120800	51450	69350
3.1.A.1.1 Equity other than reinvestment of earnings	119205	38945	80260	79863	51450	28413
3.1.A.1.2 Reinvestment of earnings	39334	0	39334	40937	0	40937
3.1.A.2 Debt instruments	16605	6401	10203	9652	2338	7315
3.1.A.2.1 Direct investor in direct investment enterprises	16605	6401	10203	9652	2338	7315
3.1.B Direct Investment by India	8390	34547	-26157	10093	34480	-24387
3.1.B.1 Equity and investment fund shares	8390	22395	-14005	10093	26539	-16446
3.1.B.1.1 Equity other than reinvestment of earnings	8390	16040	-7650	10093	17465	-7372
3.1.B.1.2 Reinvestment of earnings	0	6355	-6355	0	9073	-9073
3.1.B.2 Debt instruments	0	12153	-12153	0	7941	-7941
3.1.B.2.1 Direct investor in direct investment enterprises	0	12153	-12153	0	7941	-7941
3.2 Portfolio Investment	**531986**	**646450**	**-114463**	**548685**	**562376**	**-13691**
3.2.A Portfolio Investment in India	528521	636017	-107496	543912	556972	-13060
3.2.1 Equity and investment fund shares	470586	569008	-98422	472831	493254	-20423
3.2.2 Debt securities	57935	67009	-9074	71080	63718	7363
3.2.B Portfolio Investment by India	3465	10433	-6968	4774	5404	-631
3.3 Financial derivatives (other than reserves) and employee stock options	**34822**	**55690**	**-20868**	**30121**	**52094**	**-21973**
3.4 Other investment	**497250**	**479086**	**18164**	**540550**	**503623**	**36927**
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	101664	104634	-2970	173921	143842	30080
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	347	4514	-4167	619	0	619
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	101318	100121	1197	173302	143842	29461
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)	218623	214684	3939	143291	179189	-35898
3.4.3.A Loans to India	214662	211760	2902	140991	175865	-34873
3.4.3.B Loans by India	3961	2925	1037	2300	3324	-1024
3.4.4 Insurance, pension, and standardized guarantee schemes	300	131	169	337	245	92
3.4.5 Trade credit and advances	138447	87134	51313	131214	133577	-2364
3.4.6 Other accounts receivable/payable - other	38216	72502	-34286	91787	46770	45017
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	**120545**	**0**	**120545**	**0**	**45899**	**-45899**
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)	120545	0	120545	0	45899	-45899
4 Total assets/liabilities	**1368137**	**1261119**	**107018**	**1259902**	**1252260**	**7643**
4.1 Equity and investment fund shares	676102	696601	-20499	638957	628987	9970
4.2 Debt instruments	533274	492016	41258	529159	530604	-1445
4.3 Other financial assets and liabilities	158761	72502	86259	91787	92669	-883
5 Net errors and omissions	**0**	**6716**	**-6716**	**3250**	**0**	**3250**

Note: P: Preliminary.

No. 42: India's International Investment Position

(US $ Million)

Item	As on Financial Year/Quarter End							
	2022-23		2022				2023	
			Mar.		Dec.		Mar.	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
	1	2	3	4	5	6	7	8
1. Direct investment Abroad/in India	225592	523335	211573	521653	222628	510748	225592	523335
1.1 Equity Capital*	142071	493896	132765	493987	140072	482123	142071	493896
1.2 Other Capital	83521	29439	78807	27666	82556	28626	83521	29439
2. Portfolio investment	10966	243351	10642	268635	10890	243885	10966	243351
2.1 Equity	4958	138958	1110	156381	8624	140469	4958	138958
2.2 Debt	6008	104393	9533	112253	2266	103416	6008	104393
3. Other investment	87717	503891	90974	488484	79507	494503	87717	503891
3.1 Trade credit	27507	124301	18561	117788	26063	124588	27507	124301
3.2 Loan	10714	203127	10474	197498	8628	197219	10714	203127
3.3 Currency and Deposits	30526	141133	42081	140994	27093	136132	30526	141133
3.4 Other Assets/Liabilities	18970	35330	19858	32203	17723	36564	18970	35330
4. Reserves	578449		607309		562721		578449	
5. Total Assets/ Liabilities	902725	1270577	920498	1278772	875745	1249136	902725	1270577
6. Net IIP (Assets - Liabilities)	-367852		-358274		-373391		-367852	

Note: * Equity capital includes share of investment funds and reinvested earnings.

Payment and Settlement Systems

No.43: Payment System Indicators

PART I - Payment System Indicators - Payment & Settlement System Statistics

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2022	2023		FY 2022-23	2022	2023	
		Jul.	Jun.	Jul.		Jul.	Jun.	Jul.
	1	2	3	4	5	6	7	8
A. Settlement Systems								
Financial Market Infrastructures (FMIs)								
1 CCIL Operated Systems (1.1 to 1.3)	41.44	3.39	3.81	3.83	258797336	21126044	22638088	21113033
1.1 Govt. Securities Clearing (1.1.1 to 1.1.3)	15.00	1.33	1.54	1.53	172251292	14218681	15259736	14338395
1.1.1 Outright	7.99	0.71	0.88	0.87	10090700	851204	1299039	1200245
1.1.2 Repo	4.07	0.34	0.45	0.46	68032487	5764070	7312076	6722022
1.1.3 Tri-party Repo	2.94	0.28	0.21	0.20	94128105	7603407	6648621	6416128
1.2 Forex Clearing	25.16	1.93	2.17	2.17	78932050	6272728	6854522	5937050
1.3 Rupee Derivatives @	1.27	0.13	0.10	0.13	7613994	634635	523830	837588
B. Payment Systems								
I Financial Market Infrastructures (FMIs)	-	-	-	-	-	-	-	-
1 Credit Transfers - RTGS (1.1 to 1.2)	2425.62	189.26	212.30	211.89	149946286	11551440	14336617	13124561
1.1 Customer Transactions	2411.19	188.06	211.10	210.72	131667176	9927091	12739932	11615417
1.2 Interbank Transactions	14.43	1.20	1.20	1.17	18279111	1624349	1596685	1509144
II Retail								
2 Credit Transfers - Retail (2.1 to 2.6)	983620.84	74673.64	106299.38	114189.63	55009620	4267239	5151213	5250943
2.1 AePS (Fund Transfers) @	5.90	0.68	0.30	0.32	356	40	20	22
2.2 APBS $	17833.95	1259.99	1875.41	2850.05	247535	12511	25772	45524
2.3 IMPS	56532.64	4608.30	4681.02	4897.10	5585441	444541	500482	512312
2.4 NACH Cr $	19257.19	1892.88	1294.91	1322.80	1541815	119677	109983	110184
2.5 NEFT	52847.43	4018.39	5097.12	5476.79	33719541	2627354	3039491	3049364
2.6 UPI @	837143.73	62893.40	93350.61	99642.56	13914932	1063117	1475464	1533536
2.6.1 of which USSD @	17.21	1.62	2.18	2.77	197	18	30	43
3 Debit Transfers and Direct Debits (3.1 to 3.3)	15343.05	1217.97	1453.92	1473.10	1289611	100581	129549	130931
3.1 BHIM Aadhaar Pay @	214.22	21.26	14.83	14.42	6791	621	487	457
3.2 NACH Dr $	13502.52	1067.05	1296.38	1327.06	1280219	99754	128819	130240
3.3 NETC (linked to bank account) @	1626.31	129.66	142.71	131.62	2601	207	243	233
4 Card Payments (4.1 to 4.2)	63324.72	5481.80	4731.29	4872.12	2152245	180371	188284	198050
4.1 Credit Cards (4.1.1 to 4.1.2)	29145.24	2348.34	2629.05	2770.81	1432255	115856	137234	144737
4.1.1 PoS based $	15598.46	1220.69	1378.71	1428.18	541932	41767	48854	49628
4.1.2 Others $	13546.79	1127.64	1250.34	1342.63	890323	74089	88380	95108
4.2 Debit Cards (4.2.1 to 4.2.1)	34179.48	3133.47	2102.24	2101.31	719989	64515	51049	53313
4.2.1 PoS based $	22904.86	2052.26	1499.66	1485.21	476520	41198	33778	33513
4.2.2 Others $	11274.61	1081.20	602.58	616.10	243470	23317	17271	19801
5 Prepaid Payment Instruments (5.1 to 5.2)	74667.44	6195.34	6464.03	6393.08	287111	25309	23114	23238
5.1 Wallets	59112.76	4855.87	5294.78	5045.31	221896	18775	19767	19724
5.2 Cards (5.2.1 to 5.2.2)	15554.69	1339.48	1169.24	1347.78	65215	6534	3347	3514
5.2.1 PoS based $	1013.09	85.43	681.07	725.68	14777	1285	1016	782
5.2.2 Others $	14541.60	1254.05	488.17	622.10	50438	5250	2331	2733
6 Paper-based Instruments (6.1 to 6.2)	7109.28	588.67	539.36	555.48	7172904	579381	578306	587310
6.1 CTS (NPCI Managed)	7109.28	588.67	539.36	555.48	7172904	579381	578306	587310
6.2 Others	0.00	–	–	–	–	–	–	–
Total - Retail Payments (2+3+4+5+6)	1144065.34	88157.42	119487.97	127483.42	65911490	5152881	6070466	6190471
Total Payments (1+2+3+4+5+6)	1146490.96	88346.69	119700.27	127695.32	215857776	16704320	20407083	19315032
Total Digital Payments (1+2+3+4+5)	1139381.68	87758.02	119160.91	127139.84	208684872	16124940	19828777	18727722

PART II - Payment Modes and Channels

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2022	2023		FY 2022-23	2022	2023	
		Jul.	Jun.	Jul.		Jul.	Jun.	Jul.
	1	2	3	4	5	6	7	8
A. Other Payment Channels								
1 Mobile Payments (mobile app based) (1.1 to 1.2)	806541.16	61437.98	88411.48	93608.38	22031617	1699580	2243149	2316947
1.1 Intra-bank $	62306.61	4902.43	6145.85	6400.10	4191430	324003	416271	428287
1.2 Inter-bank $	744234.54	56535.55	82265.63	87208.27	17840187	1375577	1826878	1888659
2 Internet Payments (Netbanking / Internet Browser Based) @ (2.1 to 2.2)	42630.64	3756.52	3564.77	3939.72	91539296	7387328	8354438	8157915
2.1 Intra-bank @	10703.78	934.78	929.63	1107.74	53506133	4450729	4456179	4353820
2.2 Inter-bank @	31926.86	2821.73	2635.13	2831.98	38033163	2936599	3898259	3804095
B. ATMs								
3 Cash Withdrawal at ATMs $ (3.1 to 3.3)	69468.87	5777.88	5398.31	5397.59	3305008	272103	268351	263323
3.1 Using Credit Cards $	88.37	6.95	7.43	7.56	4296	342	352	356
3.2 Using Debit Cards $	68975.18	5735.52	5361.29	5360.64	3286749	270609	266925	261896
3.3 Using Pre-paid Cards $	405.32	35.42	29.58	29.39	13963	1152	1074	1071
4 Cash Withdrawal at PoS $ (4.1 to 4.2)	27.73	2.26	2.29	2.23	278	22	23	22
4.1 Using Debit Cards $	27.41	2.25	2.29	2.23	276	22	23	22
4.2 Using Pre-paid Cards $	0.33	0.01	0.01	0.01	2	0	0	0
5 Cash Withrawal at Micro ATMs @	12375.16	1082.22	943.77	1078.92	333966	29517	25991	28950
5.1 AePS @	12375.16	1082.22	943.77	1078.92	333966	29517	25991	28950

PART III - Payment Infrastructures (Lakh)

System	As on March 2023	2022	2023	
		Jul.	Jun.	Jul.
	1	2	3	4
Payment System Infrastructures				
1 Number of Cards (1.1 to 1.2)	10465.62	10083.90	10645.15	10606.14
1.1 Credit Cards	853.03	802.56	886.82	898.73
1.2 Debit Cards	9612.59	9281.34	9758.33	9707.41
2 Number of PPIs @ (2.1 to 2.2)	16185.22	15621.99	16530.40	16646.95
2.1 Wallets @	13384.65	12922.65	13409.21	13513.24
2.2 Cards @	2800.57	2699.35	3121.20	3133.71
3 Number of ATMs (3.1 to 3.2)	2.59	2.54	2.59	2.59
3.1 Bank owned ATMs $	2.23	2.20	2.23	2.24
3.2 White Label ATMs $	0.36	0.34	0.36	0.36
4 Number of Micro ATMs @	16.11	11.36	14.96	15.37
5 Number of PoS Terminals	77.90	68.19	80.94	81.23
6 Bharat QR @	53.82	45.21	56.88	58.06
7 UPI QR *	2563.77	2013.02	2720.15	2807.25

@: New inclusion w.e.f. November 2019
#: Data reported by Co-operative Banks, LABs and RRBs included with effect from December 2021.
$: Inclusion separately initiated from November 2019 - would have been part of other items hitherto.
*: New inclusion w.e.f. September 2020; Includes only static UPI QR Code
Note : 1. Data is provisional.
2. ECS (Debit and Credit) has been merged with NACH with effect from January 31, 2020.
3. The data from November 2019 onwards for card payments (Debit/Credit cards) and Prepaid Payment Instruments (PPIs) may not be comparable with earlier months/ periods, as more granular data is being published along with revision in data definitions.
4. Only domestic financial transactions are considered. The new format captures e-commerce transactions; transactions using FASTags, digital bill payments and card-to-card transfer through ATMs, *etc.*. Also, failed transactions, chargebacks, reversals, expired cards/ wallets, are excluded.
Part I-A. Settlement systems
1.1.3: Tri- party Repo under the securities segment has been operationalised from November 05, 2018.
Part I-B. Payments systems
4.1.2: 'Others' includes e-commerce transactions and digital bill payments through ATMs, *etc.*
4.2.2: 'Others' includes e-commerce transactions, card to card transfers and digital bill payments through ATMs, *etc.*
5: Available from December 2010.
5.1: includes purchase of goods and services and fund transfer through wallets.
5.2.2: includes usage of PPI Cards for online transactions and other transactions.
6.1: Pertain to three grids – Mumbai, New Delhi and Chennai.
6.2: 'Others' comprises of Non-MICR transactions which pertains to clearing houses managed by 21 banks.
Part II-A. Other payment channels
1: Mobile Payments –
o Include transactions done through mobile apps of banks and UPI apps.
o The data from July 2017 includes only individual payments and corporate payments initiated, processed, and authorised using mobile device. Other corporate payments which are not initiated, processed, and authorised using mobile device are excluded.
2: Internet Payments – includes only e-commerce transactions through 'netbanking' and any financial transaction using internet banking website of the bank.
Part II-B. ATMs
3.3 and 4.2: only relates to transactions using bank issued PPIs.
Part III. Payment systems infrastructure
3: Includes ATMs deployed by Scheduled Commercial Banks (SCBs) and White Label ATM Operators (WLAOs). WLAs are included from April 2014 onwards.

Occasional Series

No. 44: Small Savings

(₹ Crore)

Scheme		2021-22	2021	2022		
			Dec.	Oct.	Nov.	Dec.
		1	2	3	4	5
1 Small Savings	**Receipts**	**203175**	**18175**	**10387**	**9057**	**11632**
	Outstanding	**1463777**	**1397878**	**1556375**	**1565352**	**1576921**
1.1 Total Deposits	**Receipts**	**144749**	**13855**	**7696**	**6204**	**9136**
	Outstanding	**1012241**	**969847**	**1082284**	**1088482**	**1097617**
1.1.1 Post Office Saving Bank Deposits	Receipts	17581	2630	6	-393	3806
	Outstanding	188433	179437	196446	196053	199859
1.1.2 Sukanya Samriddhi Yojna	Receipts	23748	1845	1394	1597	1890
	Outstanding	58783	47264	70176	71773	73663
1.1.3 National Saving Scheme, 1987	Receipts	-1524	-366	-20	-20	-22
	Outstanding	1894	3200	1701	1680	1659
1.1.4 National Saving Scheme, 1992	Receipts	-352	2	-2	-2	-2
	Outstanding	-177	150	-195	-198	-200
1.1.5 Monthly Income Scheme	Receipts	14441	1228	506	275	-125
	Outstanding	235820	232747	240671	240946	240821
1.1.6 Senior Citizen Scheme 2004	Receipts	22281	1929	1491	1256	935
	Outstanding	119333	114134	130652	131908	132843
1.1.7 Post Office Time Deposits	Receipts	43725	3926	1900	1547	527
	Outstanding	251282	241034	272186	273732	274259
1.1.7.1 1 year Time Deposits	Outstanding	118282	116043	124019	124073	123599
1.1.7.2 2 year Time Deposits	Outstanding	8008	7931	8553	8686	8765
1.1.7.3 3 year Time Deposits	Outstanding	6918	6983	6879	6913	6938
1.1.7.4 5 year Time Deposits	Outstanding	118074	110077	132735	134060	134957
1.1.8 Post Office Recurring Deposits	Receipts	24840	2662	2421	1941	2125
	Outstanding	156869	151885	170550	172491	174616
1.1.9 Post Office Cumulative Time Deposits	Receipts	7	-1	0	0	0
	Outstanding	-19	-25	-19	-19	-19
1.1.10 Other Deposits	Receipts	2	0	0	0	0
	Outstanding	23	21	22	22	22
1.1.11 PM Care for children	Receipts			0	3	2
	Outstanding			94	94	94
1.2 Saving Certificates	**Receipts**	**45307**	**3978**	**2545**	**2564**	**2115**
	Outstanding	**333189**	**321027**	**353818**	**356308**	**358362**
1.2.1 National Savings Certificate VIII issue	Receipts	19696	1860	791	627	446
	Outstanding	155043	150513	162152	162779	163224
1.2.2 Indira Vikas Patras	Receipts	-16	0	0	0	0
	Outstanding	143	158	142	142	142
1.2.3 Kisan Vikas Patras	Receipts	-1115	-426	-134	-165	-238
	Outstanding	-7891	-8455	-9302	-9466	-9704
1.2.4 Kisan Vikas Patras - 2014	Receipts	26619	2544	1888	2102	1907
	Outstanding	174560	168720	189654	191756	193663
1.2.5 National Saving Certificate VI issue	Receipts	92	0	0	0	0
	Outstanding	-22	-114	-22	-22	-22
1.2.6 National Saving Certificate VII issue	Receipts	31	0	0	0	0
	Outstanding	-44	-74	-44	-44	-44
1.2.7 Other Certificates	Outstanding	11400	10279	11238	11163	11103
1.3 Public Provident Fund	**Receipts**	**13119**	**342**	**146**	**289**	**381**
	Outstanding	**118347**	**107004**	**120273**	**120562**	**120942**

Note : Data on receipts from April 2017 are net receipts, *i.e.,* gross receipt *minus* gross payment.
Source: Accountant General, Post and Telegraphs.

No. 45 : Ownership Pattern of Central and State Governments Securities

(Per cent)

Central Government Dated Securities					
Category	2022			2023	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(A) Total (in ₹. Crore)	**8784931**	**9098788**	**9373372**	**9645776**	**9898751**
1 Commercial Banks	36.16	36.44	36.13	36.61	36.58
2 Co-operative Banks	1.84	1.80	1.70	1.64	1.56
3 Non-Bank PDs	0.33	0.38	0.44	0.49	0.73
4 Insurance Companies	26.34	25.94	26.14	25.97	26.21
5 Mutual Funds	2.32	2.58	2.87	2.81	2.69
6 Provident Funds	4.77	4.66	4.67	4.71	4.59
7 Pension Funds	3.61	3.84	3.91	3.98	4.18
8 Financial Institutions	1.09	0.98	1.07	0.98	1.20
9 Corporates	1.52	1.58	1.57	1.62	1.22
10 Foreign Portfolio Investors	1.43	1.38	1.31	1.36	1.59
11 RBI	16.06	15.28	14.73	14.26	13.78
12 Others	4.57	5.14	5.45	5.57	5.67
12.1 State Governments	1.84	1.83	1.88	2.03	2.03

State Governments Securities					
Category	2022			2023	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(B) Total (in ₹. Crore)	**4472011**	**4589128**	**4712902**	**4929079**	**5050874**
1 Commercial Banks	34.22	34.37	34.34	33.91	34.13
2 Co-operative Banks	4.06	3.89	3.80	3.64	3.68
3 Non-Bank PDs	0.41	0.36	0.44	0.62	0.50
4 Insurance Companies	28.39	27.71	27.42	26.80	26.73
5 Mutual Funds	1.89	2.08	2.02	1.94	2.08
6 Provident Funds	20.52	20.18	20.31	21.29	21.19
7 Pension Funds	4.43	4.73	4.74	4.81	4.84
8 Financial Institutions	1.73	1.71	1.77	1.84	1.82
9 Corporates	1.98	1.85	1.94	2.00	1.92
10 Foreign Portfolio Investors	0.02	0.02	0.02	0.02	0.02
11 RBI	0.79	0.79	0.75	0.72	0.70
12 Others	1.56	2.32	2.45	2.42	2.39
12.1 State Governments	0.21	0.21	0.24	0.27	0.27

Treasury Bills					
Category	2022			2023	
	Jun.	Sep.	Dec.	Mar.	Jun.
	1	2	3	4	5
(C) Total (in ₹. Crore)	**1022053**	**920205**	**839931**	**823313**	**1012301**
1 Commercial Banks	51.37	50.91	49.15	53.92	47.64
2 Co-operative Banks	1.34	1.48	1.27	1.29	1.20
3 Non-Bank PDs	2.49	2.12	2.17	2.85	1.99
4 Insurance Companies	5.34	5.46	5.81	6.11	4.93
5 Mutual Funds	14.86	11.98	14.23	15.30	17.04
6 Provident Funds	1.70	3.21	1.37	0.10	1.46
7 Pension Funds	0.05	0.02	0.02	0.07	0.01
8 Financial Institutions	3.73	4.17	4.52	3.72	7.96
9 Corporates	4.27	3.86	3.59	4.99	4.42
10 Foreign Portfolio Investors	0.40	0.53	0.50	0.40	0.12
11 RBI	0.00	0.00	0.00	0.00	0.00
12 Others	14.45	16.25	17.37	11.25	13.23
12.1 State Governments	10.99	12.27	13.38	7.16	10.33

No. 46: Combined Receipts and Disbursements of the Central and State Governments

(₹ Crore)

Item	2017-18	2018-19	2019-20	2020-21	2021-22 RE	2022-23 BE
	1	2	3	4	5	6
1 Total Disbursements	**4515946**	**5040747**	**5410887**	**6353359**	**7453320**	**8008684**
1.1 Developmental	2635110	2882758	3074492	3823423	4489442	4761567
1.1.1 Revenue	2029044	2224367	2446605	3150221	3444624	3536719
1.1.2 Capital	519356	596774	588233	550358	963856	1144725
1.1.3 Loans	86710	61617	39654	122844	80962	80123
1.2 Non-Developmental	1812455	2078276	2253027	2442941	2864084	3140466
1.2.1 Revenue	1741432	1965907	2109629	2271637	2653832	2928102
1.2.1.1 Interest Payments	814757	894520	955801	1060602	1244104	1408929
1.2.2 Capital	69370	111029	141457	169155	178038	209892
1.2.3 Loans	1654	1340	1941	2148	32214	2472
1.3 Others	68381	79713	83368	86995	99794	106652
2 Total Receipts	**4528422**	**5023352**	**5734166**	**6397162**	**7193029**	**7944834**
2.1 Revenue Receipts	3376416	3797731	3851563	3688030	4894050	5497245
2.1.1 Tax Receipts	2978134	3278947	3231582	3193390	4026487	4551271
2.1.1.1 Taxes on commodities and services	1853859	2030050	2012578	2076013	2608666	2904479
2.1.1.2 Taxes on Income and Property	1121189	1246083	1216203	1114805	1414088	1642678
2.1.1.3 Taxes of Union Territories (Without Legislature)	3086	2814	2800	2572	3732	4115
2.1.2 Non-Tax Receipts	398282	518783	619981	494640	867564	945974
2.1.2.1 Interest Receipts	34224	36273	31137	33448	40481	46552
2.2 Non-debt Capital Receipts	142433	140287	110094	64994	117937	90824
2.2.1 Recovery of Loans & Advances	42213	44667	59515	16951	33188	19835
2.2.2 Disinvestment proceeds	100219	95621	50578	48044	84748	70989
3 Gross Fiscal Deficit [1 - (2.1 + 2.2)]	**997097**	**1102729**	**1449230**	**2600335**	**2441333**	**2420614**
3A Sources of Financing: Institution-wise						
3A.1 Domestic Financing	989167	1097210	1440548	2530155	2421587	2401363
3A.1.1 Net Bank Credit to Government	144792	387091	571872	890012	627255	-----
3A.1.1.1 Net RBI Credit to Government	-144847	325987	190241	107493	350911	-----
3A.1.2 Non-Bank Credit to Government	844375	710119	868676	1640143	1794332	2401363
3A.2 External Financing	7931	5519	8682	70180	19746	19251
3B Sources of Financing: Instrument-wise						
3B.1 Domestic Financing	989167	1097210	1440548	2530155	2421587	2401363
3B.1.1 Market Borrowings (net)	794856	795845	971378	1696012	1377060	1808401
3B.1.2 Small Savings (net)	71222	88961	209232	458801	565522	398870
3B.1.3 State Provident Funds (net)	42351	51004	38280	41273	45133	44731
3B.1.4 Reserve Funds	18423	-18298	10411	4545	-1675	5824
3B.1.5 Deposits and Advances	25138	66289	-14227	25682	32945	34029
3B.1.6 Cash Balances	-12476	17395	-323279	-43802	260291	63850
3B.1.7 Others	49653	96014	548753	347643	142310	45659
3B.2 External Financing	7931	5519	8682	70180	19746	19251
4 Total Disbursements as per cent of GDP	*26.4*	*26.7*	*27.0*	*32.1*	*31.5*	*31.0*
5 Total Receipts as per cent of GDP	*26.5*	*26.6*	*28.6*	*32.3*	*30.4*	*30.8*
6 Revenue Receipts as per cent of GDP	*19.8*	*20.1*	*19.2*	*18.6*	*20.7*	*21.3*
7 Tax Receipts as per cent of GDP	*17.4*	*17.3*	*16.1*	*16.1*	*17.0*	*17.6*
8 Gross Fiscal Deficit as per cent of GDP	*5.8*	*5.8*	*7.2*	*13.1*	*10.3*	*9.4*

…: Not available. RE: Revised Estimates; BE: Budget Estimates

Source : Budget Documents of Central and State Governments.

No. 47: Financial Accommodation Availed by State Governments under various Facilities

(₹ Crore)

Sr. No	State/Union Territory	During July-2023					
		Special Drawing Facility (SDF)		Ways and Means Advances (WMA)		Overdraft (OD)	
		Average amount availed	Number of days availed	Average amount availed	Number of days availed	Average amount availed	Number of days availed
	1	2	3	4	5	6	7
1	Andhra Pradesh	1020.02	30	1630.49	30	1847.44	7
2	Arunachal Pradesh	-	-	-	-	-	-
3	Assam	403.02	3	-	-	-	-
4	Bihar	-	-	-	-	-	-
5	Chhattisgarh	-	-	-	-	-	-
6	Goa	-	-	-	-	-	-
7	Gujarat	-	-	-	-	-	-
8	Haryana	-	-	-	-	-	-
9	Himachal Pradesh	-	-	270.64	2	-	-
10	Jammu & Kashmir UT	-	-	873.58	24	719.32	13
11	Jharkhand	-	-	-	-	-	-
12	Karnataka	-	-	-	-	-	-
13	Kerala	273.37	10	1641.04	10	1241.88	7
14	Madhya Pradesh	-	-	-	-	-	-
15	Maharashtra	-	-	-	-	-	-
16	Manipur	-	-	189.63	29	56.45	6
17	Meghalaya	-	-	-	-	-	-
18	Mizoram	-	-	154.04	29	120.62	5
19	Nagaland	-	-	-	-	-	-
20	Odisha	-	-	-	-	-	-
21	Puducherry	-	-	-	-	-	-
22	Punjab	1899.77	28	-	-	-	-
23	Rajasthan	7750.50	30	-	-	-	-
24	Tamil Nadu	-	-	-	-	-	-
25	Telangana	1115.28	30	1503.99	26	788.03	19
26	Tripura	-	-	-	-	-	-
27	Uttar Pradesh	-	-	-	-	-	-
28	Uttarakhand	490.04	8	55.31	5	-	-
29	West Bengal	-	-	-	-	-	-

Notes: 1. SDF is availed by State Governments against the collateral of Consolidated Sinking Fund (CSF), Guarantee Redemption Fund (GRF) & Auction Treasury Bills (ATBs) balances and other investments in government securities.
2. WMA is advance by Reserve Bank of India to State Governments for meeting temporary cash mismatches.
3. OD is advanced to State Governments beyond their WMA limits.
4. Average amount availed is the total accommodation (SDF/WMA/OD) availed divided by number of days for which accommodation was extended during the month.
5. - : Nil.

Source: Reserve Bank of India.

No. 48: Investments by State Governments

(₹ Crore)

Sr. No	State/Union Territory	As on end of July 2023			
		Consolidated Sinking Fund (CSF)	Guarantee Redemption Fund (GRF)	Government Securities	Auction Treasury Bills (ATBs)
	1	2	3	4	5
1	Andhra Pradesh	10327	1020	0	0
2	Arunachal Pradesh	2317	4	0	1860
3	Assam	5907	80	0	0
4	Bihar	8370	-	0	200
5	Chhattisgarh	6567	5	1	3100
6	Goa	850	409	0	0
7	Gujarat	11042	597	0	17000
8	Haryana	1831	1520	0	0
9	Himachal Pradesh	-	-	0	0
10	Jammu & Kashmir UT	-	-	0	0
11	Jharkhand	1608	-	0	0
12	Karnataka	14541	323	0	38543
13	Kerala	2735	-	0	0
14	Madhya Pradesh	-	1143	0	0
15	Maharashtra	61205	1499	0	4000
16	Manipur	62	125	0	0
17	Meghalaya	1057	83	8	0
18	Mizoram	380	44	0	0
19	Nagaland	1596	41	0	0
20	Odisha	16283	1833	105	24742
21	Puducherry	482	-	0	1250
22	Punjab	7060	0	0	0
23	Rajasthan	-	-	129	11600
24	Tamil Nadu	8353	-	0	2825
25	Telangana	7057	1543	0	0
26	Tripura	1002	21	0	825
27	Uttarakhand	4495	189	0	0
28	Uttar Pradesh	5894	-	89	0
29	West Bengal	11445	830	239	0
	Total	**192468**	**11312**	**571**	**105945**

Notes: 1. CSF and GRF are reserve funds maintained by some State Governments with the Reserve Bank of India.
2. ATBs include Treasury bills of 91 days, 182 days and 364 days invested by State Governments in the primary market.
3. - : Not Applicable (not a member of the scheme).

No. 49: Market Borrowings of State Governments

(₹ Crore)

Sr. No.	State	2021-22		2022-23		2023-24						Total amount raised, so far in 2023-24	
						May		June		July			
		Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross	Net
	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Andhra Pradesh	46443	36103	57478	45814	9500	8917	7000	7000	7000	7000	29500	28334
2	Arunachal Pradesh	563	530	559	389	-	-	-	-	-	-	-	-
3	Assam	12753	10753	17100	16105	3000	3000	1000	1000	1000	1000	6000	6000
4	Bihar	28489	24334	36800	27467	-	-	-	-	4000	-	4000	-
5	Chhattisgarh	4000	913	2000	-2287	-	-800	3000	3000	-	-700	3000	1500
6	Goa	2000	1450	1350	500	-	-200	200	200	200	-	400	-
7	Gujarat	31054	13554	43000	28300	1500	1500	3000	1000	-	-	5500	2500
8	Haryana	30500	20683	45158	28638	4500	3500	3500	1925	2000	-462	12000	6300
9	Himachal Pradesh	4000	1875	14000	11941	-	-	800	200	1000	1000	1800	950
10	Jammu & Kashmir UT	8562	5373	8473	5969	800	600	1500	1200	400	-100	2700	1500
11	Jharkhand	5000	3191	4000	-155	-	-	-	-	-	-300	-	-300
12	Karnataka	59000	49000	36000	26000	-	-	-	-	-	-	-	-
13	Kerala	27000	18120	30839	15620	4000	2500	3000	2000	5500	5000	12500	8500
14	Madhya Pradesh	22000	13900	40158	26849	2000	2000	4000	4000	-	-	6000	5500
15	Maharashtra	68750	40790	72000	42815	12000	12000	10000	8500	4000	-3500	29000	20000
16	Manipur	1476	1326	1422	1147	350	350	-	-	150	150	500	500
17	Meghalaya	1608	1298	1753	1356	150	150	350	350	200	200	700	600
18	Mizoram	747	447	1315	1129	250	250	100	50	80	60	430	280
19	Nagaland	1727	1222	1854	1199	450	370	150	150	-	-	900	700
20	Odisha	0	-6473	0	-7500	-	-500	-	-	-	-1000	-	-1500
21	Puducherry	1374	841	1200	698	-	-	-	-	-	-	-	-
22	Punjab	25814	12428	45500	33660	6700	5300	4300	2558	3500	2471	17000	10829
23	Rajasthan	51149	38243	46057	30110	8000	7000	3500	-312	4500	3000	20500	12688
24	Sikkim	1511	1471	1414	1320	300	300	-	-	-	-	300	300
25	Tamil Nadu	87000	72500	87000	65722	11000	8000	14000	12000	15000	5000	40000	22000
26	Telangana	45716	39256	40150	30922	4000	3583	6000	6000	5000	5000	17000	16166
27	Tripura	300	0	0	-645	-	-	-	-	-	-	-	-
28	Uttar Pradesh	62500	42355	55612	41797	4000	2000	2500	-733	3000	3000	9500	4267
29	Uttarakhand	3200	1800	3200	1450	-	-	-	-	-	-	-	-
30	West Bengal	67390	45199	63000	42500	5000	4000	-	-2000	1500	-500	6500	500
	Grand Total	701626	492483	758392	518829	77500	63820	67900	48088	58030	26319	225730	148114

- : Nil.

Note: The State of J&K has ceased to exist constitutionally from October 31, 2019 and the liabilities of the State continue to remain as liabilities of the new UT of Jammu and Kashmir.

Source: Reserve Bank of India.

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise

(Amount in ₹ Crore)

Item	2020-21				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**583412.7**	**554437.6**	**463583.5**	**679174.4**	**2280608.2**
Per cent of GDP	*15.0*	*11.7*	*8.5*	*11.8*	*11.5*
I. Financial Assets	**788786.3**	**592945.3**	**633317.9**	**1047276.1**	**3062325.6**
Per cent of GDP	*20.3*	*12.5*	*11.6*	*18.2*	*15.4*
of which:					
1.Total Deposits (a+b)	**297412.4**	**278631.7**	**158172.2**	**506213.3**	**1240429.7**
(a) Bank Deposits	**281191.3**	**264565.3**	**147096.0**	**507719.3**	**1200571.8**
i. Commercial Banks	279010.5	262033.7	143558.6	462689.8	1147292.5
ii. Co-operative Banks	2180.8	2531.6	3537.3	45029.5	53279.3
(b) Non-Bank Deposits	**16221.1**	**14066.4**	**11076.3**	**-1506.0**	**39857.9**
of which:					
Other Financial Institutions (i+ii)	**11040.9**	**8886.2**	**5896.0**	**-6686.2**	**19137.0**
i. Non-Banking Financial Companies	1441.0	3763.0	3514.8	3521.2	12240.0
ii. Housing Finance Companies	9599.9	5123.2	2381.3	-10207.3	6897.0
2. Life Insurance Funds	**124387.9**	**143462.2**	**157535.1**	**142216.5**	**567601.8**
3. Provident and Pension Funds (including PPF)	**114496.3**	**107087.9**	**105344.6**	**175769.3**	**502698.2**
4. Currency	**202432.7**	**21286.9**	**91456.0**	**66800.5**	**381976.1**
5. Investments	**6249.8**	**-12956.4**	**67659.3**	**63624.0**	**124576.7**
of which:					
(a) Mutual Funds	-16021.0	-28837.7	57675.4	51267.0	64083.8
(b) Equity	18599.4	8291.5	5307.1	6333.3	38531.2
6. Small Savings (excluding PPF)	**42751.6**	**54377.4**	**52095.1**	**91597.0**	**240821.1**
II. Financial Liabilities	**205373.6**	**38507.7**	**169734.4**	**368101.7**	**781717.4**
Per cent of GDP	*5.3*	*0.8*	*3.1*	*6.4*	*3.9*
Loans/Borrowings					
1. Financial Corporations (a+b)	**205490.3**	**38624.3**	**169851.0**	**368219.1**	**782184.7**
(a) Banking Sector	**211058.8**	**13213.0**	**139622.0**	**276579.8**	**640473.6**
of which:					
i. Commercial Banks	211259.3	13213.8	140514.3	240050.4	605037.9
(b) Other Financial Institutions	**-5568.6**	**25411.3**	**30229.0**	**91639.4**	**141711.1**
i. Non-Banking Financial Companies	-15450.4	21627.1	15921.2	64881.1	86979.0
ii. Housing Finance Companies	10516.6	2875.1	13048.5	25336.1	51776.2
iii. Insurance Corporations	-634.8	909.2	1259.3	1422.2	2955.9
2. Non-Financial Corporations (Private Corporate Business)	**33.8**	**33.8**	**33.8**	**33.0**	**134.4**
3. General Government	**-150.4**	**-150.4**	**-150.4**	**-150.4**	**-601.7**

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Contd.)

(Amount in ₹ Crore)

Item	2021-22				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**370115.8**	**334234.9**	**489774.4**	**503089.0**	**1696155.6**
Per cent of GDP	*7.2*	*6.0*	*7.9*	*7.7*	*7.2*
I. Financial Assets	**364661.7**	**527896.1**	**818355.4**	**887657.3**	**2597511.9**
Per cent of GDP	*7.1*	*9.4*	*13.1*	*13.6*	*11.1*
of which:					
1.Total Deposits (a+b)	**-82726.1**	**204033.6**	**426977.3**	**277625.7**	**824852.1**
(a) Bank Deposits	**-106428.9**	**197105.1**	**422392.9**	**264882.9**	**777952.1**
i. Commercial Banks	-107940.7	195441.8	418267.0	262326.1	768094.3
ii. Co-operative Banks	1511.8	1663.4	4125.9	2556.8	9857.8
(b) Non-Bank Deposits	**23702.8**	**6928.5**	**4584.5**	**12742.8**	**46900.0**
of which:					
Other Financial Institutions (i+ii)	**16950.0**	**170.7**	**-2178.3**	**5960.0**	**20902.3**
i. Non-Banking Financial Companies	4972.6	-765.5	73.3	4211.8	8492.2
ii. Housing Finance Companies	11977.3	936.2	-2251.6	1748.2	12410.1
2. Life Insurance Funds	**114711.5**	**127449.8**	**103248.6**	**121541.6**	**466951.5**
3. Provident and Pension Funds (including PPF)	**127624.0**	**115463.1**	**98146.0**	**221372.4**	**562605.5**
4. Currency	**128660.2**	**-68631.2**	**62793.3**	**146845.0**	**269667.4**
5. Investments	**24929.6**	**82305.4**	**69760.9**	**50972.1**	**227967.9**
of which:					
(a) Mutual Funds	14573.0	63151.3	37912.2	44963.7	160600.1
(b) Equity	4502.5	13218.5	27808.2	3084.1	48613.3
6. Small Savings (excluding PPF)	**50405.2**	**66218.1**	**56372.0**	**68243.2**	**241238.4**
II. Financial Liabilities	**-5454.1**	**193661.2**	**328581.0**	**384568.3**	**901356.3**
Per cent of GDP	*-0.1*	*3.5*	*5.3*	*5.9*	*3.8*
Loans/Borrowings					
1. Financial Corporations (a+b)	**-5562.3**	**193553.0**	**328472.8**	**384460.1**	**900923.7**
(a) Banking Sector	**21436.5**	**138722.6**	**267950.7**	**348360.4**	**776470.2**
of which:					
i. Commercial Banks	26978.6	140268.7	265271.5	337009.8	769528.5
(b) Other Financial Institutions	**-26998.8**	**54830.4**	**60522.2**	**36099.7**	**124453.5**
i. Non-Banking Financial Companies	-34757.9	28876.8	29476.5	-2163.2	21432.2
ii. Housing Finance Companies	7132.0	24403.8	29494.8	37436.2	98466.8
iii. Insurance Corporations	627.1	1549.8	1550.9	826.7	4554.5
2. Non-Financial Corporations (Private Corporate Business)	**33.8**	**33.8**	**33.8**	**33.8**	**135.1**
3. General Government	**74.4**	**74.4**	**74.4**	**74.4**	**297.4**

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Concld.)

(Amount in ₹ Crore)

Item	2022-23				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	**297770.4**	**293705.1**	**279460.1**	**505937.8**	**1376873.5**
Per cent of GDP	*4.6*	*4.5*	*4.0*	*7.0*	*5.1*
I. Financial Assets	**586920.5**	**646714.8**	**750856.7**	**974558.5**	**2959050.5**
Per cent of GDP	*9.0*	*9.8*	*10.8*	*13.6*	*10.9*
of which:					
1.Total Deposits (a+b)	**183072.0**	**315216.2**	**276593.9**	**324746.6**	**1099628.6**
(a) Bank Deposits	**163162.9**	**299545.0**	**256363.7**	**307491.6**	**1026563.1**
i. Commercial Banks	158613.3	300565.0	248459.8	284968.0	992606.2
ii. Co-operative Banks	4549.6	-1020.1	7903.8	22523.6	33956.9
(b) Non-Bank Deposits	**19909.1**	**15671.3**	**20230.2**	**17255.0**	**73065.5**
of which:					
Other Financial Institutions (i+ii)	**6314.4**	**2076.7**	**6635.6**	**3660.4**	**18687.1**
i. Non-Banking Financial Companies	4040.2	3267.2	1800.9	5372.2	14480.5
ii. Housing Finance Companies	2274.2	-1190.5	4834.7	-1711.8	4206.6
2. Life Insurance Funds	**73669.9**	**152049.5**	**167894.1**	**141206.6**	**534820.1**
3. Provident and Pension Funds (including PPF)	**155604.2**	**132126.0**	**140204.4**	**235093.2**	**663027.7**
4. Currency	**66438.9**	**-54579.3**	**76760.1**	**148990.2**	**237609.8**
5. Investments	**51603.2**	**48630.6**	**49879.2**	**64168.5**	**214281.5**
of which:					
(a) Mutual Funds	35443.5	44484.0	40205.9	58954.5	179087.8
(b) Equity	13560.9	1378.2	6434.1	1664.9	23038.1
6. Small Savings (excluding PPF)	**54375.1**	**51114.5**	**37367.7**	**58196.2**	**201053.5**
II. Financial Liabilities	**289150.0**	**353009.7**	**471396.5**	**468620.7**	**1582177.0**
Per cent of GDP	*4.4*	*5.4*	*6.8*	*6.5*	*5.8*
Loans/Borrowings					
1. Financial Corporations (a+b)	**289141.6**	**353001.2**	**471388.1**	**468612.3**	**1582143.3**
(a) Banking Sector	**234845.3**	**263782.5**	**368167.4**	**349555.0**	**1216350.1**
of which:					
i. Commercial Banks	230283.8	261265.3	365304.6	331292.5	1188146.3
(b) Other Financial Institutions	**54296.3**	**89218.8**	**103220.8**	**119057.3**	**365793.1**
i. Non-Banking Financial Companies	29281.6	54439.6	75878.8	80295.9	239895.9
ii. Housing Finance Companies	22336.7	33031.2	24903.3	36745.8	117017.0
iii. Insurance Corporations	2678.0	1747.9	2438.7	2015.6	8880.3
2. Non-Financial Corporations (Private Corporate Business)	**33.7**	**33.7**	**33.7**	**33.7**	**135.0**
3. General Government	**-25.3**	**-25.3**	**-25.3**	**-25.3**	**-101.3**

Notes :1. Net Financial Savings of households refer to the net financial assets, which are measured as difference of financial asset and liabilities flows.
2. Preliminary estimates for 2022-23 and revised estimates for 2020-21 and 2021-22.
3. The preliminary estimates for 2022-23 will undergo revision with the release of first revised estimates of national income, consumption expenditure, savings, and capital formation, 2022-23 by the NSO.
4. Non-bank deposits apart from other financial institutions, comprises state power utilities, co-operative non credit societies etc.
5. Figures in the columns may not add up to the total due to rounding off.

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators

(Amount in ₹ Crore)

Item	Jun-2020	Sep-2020	Dec-2020	Mar-2021
Financial Assets (a+b+c+d+e+f+g+h)	**20405824.2**	**21066027.8**	**21906338.5**	**22874301.5**
Per cent of GDP	*107.2*	*111.5*	*114.0*	*115.4*
(a) Bank Deposits (i+ii)	**9977865.6**	**10242430.9**	**10389526.9**	**10897246.1**
i. Commercial Banks	9192702.5	9454736.2	9598294.8	10060984.6
ii. Co-operative Banks	785163.1	787694.7	791232.1	836261.6
(b) Non-Bank Deposits				
of which:				
Other Financial Institutions	**180857.4**	**189743.6**	**195639.6**	**188953.5**
i. Non-Banking Financial Companies	51463.0	55226.1	58740.8	62262.0
ii. Housing Finance Companies	129394.4	134517.6	136898.8	126691.5
(c) Life Insurance Funds	**4102000.7**	**4274424.9**	**4551882.0**	**4752932.3**
(d) Currency	**2434693.7**	**2455980.6**	**2547436.6**	**2614237.0**
(e) Mutual funds	**1343752.0**	**1443784.4**	**1648999.0**	**1730461.0**
(f) Public Provident Fund (PPF)	**663478.0**	**671884.3**	**678997.2**	**742189.5**
(g) Pension Funds	**464705.0**	**494930.0**	**548913.0**	**578025.0**
(h) Small Savings (excluding PPF)	**1238471.7**	**1292849.1**	**1344944.2**	**1370257.1**
Financial Liabilities (a+b)	**7190710.8**	**7229335.1**	**7399186.1**	**7767405.3**
Per cent of GDP	*37.8*	*38.3*	*38.5*	*39.2*
Loans/Borrowings				
(a) Banking Sector	**5728735.3**	**5741948.3**	**5881570.2**	**6158150.0**
of which:				
i. Commercial Banks	5226482.2	5239696.0	5380210.4	5620260.7
ii. Co-operative Banks	500870.2	500865.3	499968.8	536494.1
(b) Other Financial Institutions	**1461975.5**	**1487386.9**	**1517615.9**	**1609255.3**
of which:				
i. Non-Banking Financial Companies	687643.6	709270.7	725191.9	790073.0
ii. Housing Finance Companies	673118.3	675993.4	689041.8	714377.9
iii. Insurance Corporations	101213.7	102122.8	103382.2	104804.4

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Contd.)

(Amount in ₹ Crore)

Item	Jun-2021	Sep-2021	Dec-2021	Mar-2022
Financial Assets (a+b+c+d+e+f+g+h)	**23318920.4**	**23991428.3**	**24700622.2**	**25435684.2**
Per cent of GDP	*110.7*	*109.3*	*108.7*	*108.4*
(a) Bank Deposits (i+ii)	**10790817.3**	**10987922.4**	**11410315.3**	**11675198.2**
i. Commercial Banks	9953043.9	10148485.7	10566752.7	10829078.8
ii. Co-operative Banks	837773.4	839436.7	843562.6	846119.4
(b) Non-Bank Deposits				
of which:				
Other Financial Institutions	**205903.4**	**206074.1**	**203895.8**	**209855.7**
i. Non-Banking Financial Companies	67234.6	66469.1	66542.3	70754.2
ii. Housing Finance Companies	138668.8	139605.0	137353.4	139101.6
(c) Life Insurance Funds	**4929725.2**	**5142278.8**	**5213527.2**	**5357350.2**
(d) Currency	**2742897.3**	**2674266.1**	**2737059.4**	**2883904.4**
(e) Mutual funds	**1855000.1**	**2064363.5**	**2126112.0**	**2152140.5**
(f) Public Provident Fund (PPF)	**757397.8**	**762264.0**	**767287.3**	**834147.6**
(g) Pension Funds	**616517.0**	**667379.0**	**699173.0**	**736592.0**
(h) Small Savings (excluding PPF)	**1420662.3**	**1486880.4**	**1543252.3**	**1586495.5**
Financial Liabilities (a+b)	**7755119.8**	**7868215.0**	**8256715.7**	**8668329.0**
Per cent of GDP	*36.8*	*35.9*	*36.3*	*36.9*
Loans/Borrowings				
(a) Banking Sector	**6172863.3**	**6231128.1**	**6559106.7**	**6934620.2**
of which:				
i. Commercial Banks	5640516.1	5700327.0	6025626.4	6389789.3
ii. Co-operative Banks	530937.1	529376.2	532040.6	543376.3
(b) Other Financial Institutions	**1582256.5**	**1637086.9**	**1697609.1**	**1733708.8**
of which:				
i. Non-Banking Financial Companies	755315.1	784191.9	813668.4	811505.2
ii. Housing Finance Companies	721510.0	745913.7	775408.5	812844.7
iii. Insurance Corporations	105431.4	106981.2	108532.1	109358.8

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Concld.)

(Amount in ₹ Crore)

Item	Jun-2022	Sep-2022	Dec-2022	Mar-2023
Financial Assets (a+b+c+d+e+f+g+h)	**25689017.4**	**26240728.5**	**27208717.9**	**28083947.0**
Per cent of GDP	*103.2*	*101.5*	*102.4*	*103.1*
(a) Bank Deposits (i+ii)	**11911196.2**	**11956360.9**	**12421907.5**	**12701761.3**
i. Commercial Banks	11060527.2	11106712.0	11564354.7	11821685.0
ii. Co-operative Banks	850669.0	849648.9	857552.8	880076.4
(b) Non-Bank Deposits				
of which:				
Other Financial Institutions	**216170.2**	**218246.9**	**224882.5**	**228542.9**
i. Non-Banking Financial Companies	74794.4	78061.6	79862.5	85234.7
ii. Housing Finance Companies	141375.8	140185.3	145020.0	143308.2
(c) Life Insurance Funds	**5325967.3**	**5559681.9**	**5786592.6**	**6038630.4**
(d) Currency	**2950343.2**	**2895763.9**	**2972524.0**	**3121514.2**
(e) Mutual funds	**2048097.3**	**2260209.7**	**2355315.8**	**2367792.5**
(f) Public Provident Fund (PPF)	**851913.4**	**858591.1**	**864730.6**	**939814.6**
(g) Pension Funds	**744459.2**	**799889.0**	**853412.0**	**898342.0**
(h) Small Savings (excluding PPF)	**1640870.6**	**1691985.1**	**1729352.9**	**1787549.1**
Financial Liabilities (a+b)	**8957470.6**	**9310471.8**	**9781859.9**	**10253472.2**
Per cent of GDP	*36.0*	*36.0*	*36.8*	*37.6*
Loans/Borrowings				
(a) Banking Sector	**7169465.5**	**7433248.0**	**7801415.3**	**8153970.3**
of which:				
i. Commercial Banks	6620073.1	6881338.5	7246643.0	7580935.6
ii. Co-operative Banks	547894.8	550354.8	553201.4	571339.8
(b) Other Financial Institutions	**1788005.1**	**1877223.8**	**1980444.6**	**2099501.9**
of which:				
i. Non-Banking Financial Companies	840786.9	895226.5	971105.3	1051401.1
ii. Housing Finance Companies	835181.3	868212.5	893115.8	929861.7
iii. Insurance Corporations	112036.9	113784.8	116223.5	118239.1

Note : 1. Data as ratios to GDP have been calculated based on the Provisional Estimates of National Income 2022-23, released by NSO on May 31, 2023.
2. Pension funds comprises funds with the National Pension Scheme.
3. Outstanding deposits with Small Savings are sourced from the Controller General of Accounts, Government of India.
4. Non-bank deposits apart from other financial institutions, comprises state power utilities, co-operative non credit societies etc. Data for outstanding deposits are available only for other financial institutions.
5. Figures in the columns may not add up to the total due to rounding off.

Explanatory Notes to the Current Statistics

Table No. 1

1.2& 6: Annual data are average of months.
3.5 & 3.7: Relate to ratios of increments over financial year so far.
4.1 to 4.4, 4.8,4.9 &5: Relate to the last friday of the month/financial year.
4.5, 4.6 & 4.7: Relate to five major banks on the last Friday of the month/financial year.
4.10 to 4.12: Relate to the last auction day of the month/financial year.
4.13: Relate to last day of the month/ financial year
7.1&7.2: Relate to Foreign trade in US Dollar.

Table No. 2

2.1.2: Include paid-up capital, reserve fund and Long-Term Operations Funds.
2.2.2: Include cash, fixed deposits and short-term securities/bonds, e.g., issued by IIFC (UK).

Table No. 4

Maturity-wise position of outstanding forward contracts is available at http://nsdp.rbi.org.in under ''Reserves Template''.

Table No. 5

Special refinance facility to Others, *i.e.* to the EXIM Bank, is closed since March 31, 2013.

Table No. 6

For scheduled banks, March-end data pertain to the last reporting Friday.
2.2: Exclude balances held in IMF Account No.1, RBI employees' provident fund, pension fund, gratuity and superannuation fund.

Table Nos. 7 & 11

3.1 in Table 7 and 2.4 in Table 11: Include foreign currency denominated bonds issued by IIFC (UK).

Table No. 8

NM_2 and NM_3 do not include FCNR (B) deposits.
2.4: Consist of paid-up capital and reserves.
2.5: includes other demand and time liabilities of the banking system.

Table No. 9

Financial institutions comprise EXIM Bank, SIDBI, NABARD and NHB.
L_1 and L_2 are compiled monthly and L_3 quarterly.
Wherever data are not available, the last available data have been repeated.

Table No. 13

Data against column Nos. (1), (2) & (3) are Final and for column Nos. (4) & (5) data are Provisional.

Table No. 14

Data in column Nos. (4) & (8) are Provisional.

Table No. 17

2.1.1: Exclude reserve fund maintained by co-operative societies with State Co-operative Banks

2.1.2: Exclude borrowings from RBI, SBI, IDBI, NABARD, notified banks and State Governments.

4: Include borrowings from IDBI and NABARD.

Table No. 24

Primary Dealers (PDs) include banks undertaking PD business.

Table No. 30

Exclude private placement and offer for sale.

1: Exclude bonus shares.

2: Include cumulative convertible preference shares and equi-preference shares.

Table No. 32

Exclude investment in foreign currency denominated bonds issued by IIFC (UK), SDRs transferred by Government of India to RBI and foreign currency received under SAARC SWAP arrangement. Foreign currency assets in US dollar take into account appreciation/depreciation of non-US currencies (such as Euro, Sterling, Yen and Australian Dollar) held in reserves. Foreign exchange holdings are converted into rupees at rupee-US dollar RBI holding rates.

Table No. 34

1.1.1.1.2 & 1.1.1.1.1.4: Estimates.

1.1.1.2: Estimates for latest months.

'Other capital' pertains to debt transactions between parent and subsidiaries/branches of FDI enterprises.

Data may not tally with the BoP data due to lag in reporting.

Table No. 35

1.10: Include items such as subscription to journals, maintenance of investment abroad, student loan repayments and credit card payments.

Table No. 36

Increase in indices indicates appreciation of rupee and *vice versa*. For 6-Currency index, base year 2021-22 is a moving one, which gets updated every year. REER figures are based on Consumer Price Index (combined). The details on methodology used for compilation of NEER/REER indices are available in December 2005, April 2014 and January 2021 issues of the RBI Bulletin.

Table No. 37

Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

Table Nos. 38, 39, 40 & 41

Explanatory notes on these tables are available in December issue of RBI Bulletin, 2012.

Table No. 43

Part I-A. Settlement systems

1.1.3: Tri- party Repo under the securities segment has been operationalised from November 05, 2018.

Part I-B. Payments systems

4.1.2: 'Others' includes e-commerce transactions and digital bill payments through ATMs, *etc.*

4.2.2: 'Others' includes e-commerce transactions, card to card transfers and digital bill payments through ATMs, *etc.*

5: Available from December 2010.

5.1: includes purchase of goods and services and fund transfer through wallets.

5.2.2: includes usage of PPI Cards for online transactions and other transactions.

6.1: Pertain to three grids – Mumbai, New Delhi and Chennai.

6.2: 'Others' comprises of Non-MICR transactions which pertains to clearing houses managed by 21 banks.

Part II-A. Other payment channels

1: Mobile Payments –
- Include transactions done through mobile apps of banks and UPI apps.
- The data from July 2017 includes only individual payments and corporate payments initiated, processed, and authorised using mobile device. Other corporate payments which are not initiated, processed, and authorised using mobile device are excluded.

2: Internet Payments – includes only e-commerce transactions through 'netbanking' and any financial transaction using internet banking website of the bank.

Part II-B. ATMs

3.3 and 4.2: only relates to transactions using bank issued PPIs.

Part III. Payment systems infrastructure

3: Includes ATMs deployed by Scheduled Commercial Banks (SCBs) and White Label ATM Operators (WLAOs). WLAs are included from April 2014 onwards.

Table No. 45

(-) represents nil or negligible

The table format is revised since June 2023 issue of the bulletin.

State Government Securities include special bonds issued under Ujjwal DISCOM Assurance Yojana (UDAY).

Bank PDs are clubbed under Commercial Banks. However, they form very small fraction of total outstanding securities.

The category 'Others' comprises State Governments, DICGC, PSUs, Trusts, Foreign Central Banks, HUF/ Individuals *etc.*

Table No. 46

GDP data is based on 2011-12 base. GDP for 2022-23 is from Union Budget 2022-23.

Data pertains to all States and Union Territories.

1 & 2: Data are net of repayments of the Central Government (including repayments to the NSSF) and State Governments.

1.3: Represents compensation and assignments by States to local bodies and Panchayati Raj institutions.

2: Data are net of variation in cash balances of the Central and State Governments and includes borrowing receipts of the Central and State Governments.

3A.1.1: Data as per RBI records.

3B.1.1: Borrowings through dated securities.

3B.1.2: Represent net investment in Central and State Governments' special securities by the National Small Savings Fund (NSSF).

This data may vary from previous publications due to adjustments across components with availability of new data.

3B.1.6: Include Ways and Means Advances by the Centre to the State Governments.

3B.1.7: Include Treasury Bills, loans from financial institutions, insurance and pension funds, remittances, cash balance investment account.

Table No. 47

SDF is availed by State Governments against the collateral of Consolidated Sinking Fund (CSF), Guarantee Redemption Fund (GRF) & Auction Treasury Bills (ATBs) balances and other investments in government securities.

WMA is advance by Reserve Bank of India to State Governments for meeting temporary cash mismatches.

OD is advanced to State Governments beyond their WMA limits.

Average amount Availed is the total accommodation (SDF/WMA/OD) availed divided by number of days for which accommodation was extended during the month.

- : Nil.

Table No. 48

CSF and GRF are reserve funds maintained by some State Governments with the Reserve Bank of India.

ATBs include Treasury bills of 91 days, 182 days and 364 days invested by State Governments in the primary market.

--: Not Applicable (not a member of the scheme).

The concepts and methodologies for Current Statistics are available in Comprehensive Guide for Current Statistics of the RBI Monthly Bulletin **(https://rbi.org.in/Scripts/PublicationsView.aspx?id=17618)**

Time series data of 'Current Statistics' is available at https://dbie.rbi.org.in.

Detailed explanatory notes are available in the relevant press releases issued by RBI and other publications/releases of the Bank such as **Handbook of Statistics on the Indian Economy**.

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10. Reserve Bank of India Occasional Papers Vol. 43, No. 1, 2022	₹200 per copy (over the counter) ₹250 per copy (inclusive of postal charges)	US$ 18 per copy (inclusive of air mail courier charges)
11. Perspectives on Central Banking Governors Speak (1935-2010) Platinum Jubilee	₹1400 per copy (over the counter)	US$ 50 per copy (inclusive of air mail courier charges)
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Notes

1. Many of the above publications are available at the RBI website (www.rbi.org.in).
2. Time Series data are available at the Database on Indian Economy (http://dbie.rbi.org.in).
3. The Reserve Bank of India History 1935-1997 (4 Volumes), Challenges to Central Banking in the Context of Financial Crisis and the Regional Economy of India: Growth and Finance are available at leading book stores in India.

* Concession is available for students, teachers/lecturers, academic/education institutions, public libraries and Booksellers in India provided the proof of eligibility is submitted.

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