NIBM WORKING PAPER SERIES

RBI's Recent Monetary Policy Tightening and its Impact on Money, Bond and Credit Markets

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Working Paper
(WP37/2024)

NATIONAL INSTITUTE OF BANK MANAGEMENT
Pune, Maharashtra, 411048
INDIA
March 2024

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Citation Guideline:

Mathew, Jiji T (2024), "RBI's Recent Monetary Policy Tightening and its Impact on Money, Bond and Credit Markets". NIBM Working Paper WP37/March.

https://www.nibmindia.org/static/working_paper/NIBM_WP37_JM.pdf

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ABSTRACT

The main objective of this article is to critically assess the monetary tightening measures adopted by Reserve Bank of India (RBI) since April, 2022, and analyse its effects on money, bond, deposit and credit markets, including the real economy. It briefly looks at India's quarterly inflation performance and also analyse the performance of MPC's inflation forecasts in recent times. We saw full transmission of monetary policy tightening to the interest rates in money market, though it was much lesser in the case of the long term sovereign bond market, where the yield curve relatively flattened beyond the 5 year tenor. Both deposit rates and lending rates have moved up nearly in tune with the rise in policy rates. The policy impact was also felt in the credit market as the credit growth started decelerating after a lag during initial tightening phase and reversing after the rate pause. Deposit growth, which stayed lower and below the credit growth for some time, are not showing any signs of catching up with credit. Both Inflation and GDP growth rates in India has been moderating in response to rate hikes, albeit with a lag. India's successful disinflation is attributed to a confluence of factors such as RBI's repo rate increases, aggressive global rate hikes, progressive mending of global supply chains, Indian Government's active supply side measures to address food and fuel inflation and deep economic slowdown in China. Major global central banks have signalled rate cuts in the near future after experiencing moderation in inflation and growth towards their target, which are keeping the financial markets stable and in risk on mode.

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I. Introduction

Inflation started rising surprisingly above its target across the world from April, 2021 onwards, after remaining low and dormant for more than a decade since the global financial crisis. For instance, CPI inflation in advanced countries such as UK, US and Euro Area, began to exceed their traditional target of 2% from the second quarter of 2021 and stayed stubbornly at elevated levels till recently. This shift initially arose due to supply side disruptions related to the lingering Covid pandemic, rise in international shipping costs, pent-up demand from easing lock down restrictions, increase in profit margins of corporates, recovery in energy and commodity prices etc. Initially, the central banks dismissed this sudden bout of inflation as transitory and stayed put on low interest rates and ultra-accommodative stance. But from September, 2021, global central banks got increasing convinced that the inflation has become persistent and signalled sharp and front leaded monetary tightening in the immediate future.

Bank of England (BoE) was the first advanced country central bank to adopt monetary tightening from as early as in December, 2021, followed by US Federal Reserve bank (FED) in March, 2022 and European Central Bank (ECB) in July, 2022. Geopolitical tensions emerged with the unexpected outbreak of Ukraine-Russia War, which triggered a sharp rise in the world prices of food, oil and other essential commodities and further worsening of the supply chain bottlenecks. Global inflation rose further and stayed elevated. Global central banks felt they are behind the curve and responded with more aggressive and synchronized monetary policy and quantitative tightening.

India was no exception to this phenomenon of high global inflation. CPI inflation trend in India changed course from October, 2021 and exhibited greater persistence as it crossed 6% from January, 2022 and stayed there consecutively for 5 quarters. Russian-Ukraine war further worsened food and fuel inflation in India and CPI inflation started climbing high as these items carry a significant weight of 52.6% in it. Hence, RBI's Monetary policy Committee (MPC) had no other choice except to follow the FED with its first rate hike in May, 2022, in an off-cycle, meeting.

Financial Markets in both advanced and emerging market economies were therefore subject to global spill over effects from this episode of one of the highest and fastest rate hikes in four decades after the period of *Great Inflation* and *Volcker's*[1] *disinflation* in early 1980's. Global Investors, who were for a long time enjoying the era of low interest rates and deluge of global liquidity overhang, started panicking and taken over by risk off sentiments and flight to safety, bringing down the equity, bond and currency market.

[1] Paul Volcker was the chairman of the US Fed Reserve from 1979-1987, who broke the back of runaway inflation in the US that peaked close to 15% in 1980, by massive increase in the interest rates to as high as 20%. This unprecedented act of aggressive and quick rate hikes to tame inflation came to be called as Volcker disinflation that precipitated one of the deepest economic downturn since the Great depression, with unemployment reaching 11% during 1981-82. The episode of high inflation experienced mainly by the US economy during 1970s and early eighties was termed the period of Great Inflation.

Global and domestic Inflation has moderated now from its peak in 2022, but remains slightly elevated and above the target of many central banks, which indicated that rates are here to stay high and for longer. Nonetheless, in the midst of banking failures in the US in March, 2023 and the consequent fear of financial contagion, central banks changed course and adopted a less aggressive policy path, while pausing rates and opened the possibility of rate cuts in the near term in case inflation softens further. Consequently, financial Markets, which strongly recovered after the initial rate hikes, have gathered further momentum on the expectations of rate cuts and the prospects of soft-landing of the global economy. However, market participants face considerable uncertainty about the trajectory of future inflation and growth and the timing and magnitude of future rate cuts by the data dependant central banks.

The rest of the paper is organized as follows. Section II gives an overview of the RBI's monetary regime and structure of its monetary policy statements. Section III discusses the evolution of RBI's recent monetary tightening phase in terms of objectives, policy stance, appropriate nominal and real policy rates etc. This section also looks at the issues of monetary policy failure and accountability in terms of performance of quarterly CPI inflation and errors in inflation projections. Section IV, which forms the core, does a comprehensive analysis of the effects of monetary tightening and its transmission to money, bond, deposit and the credit market, including the real economy. Final section summarizes and concludes the discussion.

II. RBI's Monetary Regime and Structure of Policy Statements

RBI's monetary policy regime is called the Flexible Inflation Targeting Frame work, which was adopted *de facto* from February, 2015, based on an agreement between RBI and the Government of India (GoI, 2015). Later RBI act 1934 was amended in June, 2016, to provide a statutory and institutionalized framework for monetary policy, following which a 6-member MPC was set up for the first time in September, 2016. The first MPC meeting took place in October, 2016. MPC is composed of the three internal members and three external members. Internal members from RBI include the Governor, who is the chairman of the MPC, the deputy governor in charge of monetary policy and one senior officer (Executive director handing monetary policy portfolio) nominated by its central board. The external members are appointed by the central government for a term of 4 years among the people with expertise and knowledge in the area of economics, banking, finance or monetary policy.

MPC's main job is to set the benchmark policy rate, which is the repo rate, to achieve and maintain inflation target. Hence, RBI has instrument independence as it has complete freedom to set the instruments of monetary policy. However, it does not have goal independence as the inflation target in terms of CPI and its band is set by the government of India for once in every five years. The first inflation target range was set by the government for 2016-21 and the second one was fixed for the period FY 2021-26, after a review in March 2021. On both occasions, Inflation target was defined and fixed in terms of Consumer Price Index (CPI) inflation at 4% with an upper tolerance limit of 6% and a lower tolerance limit of 2%.

In practice, MPC meets six times in a financial year, one each in April, June, August, October, December and February. This committee meets for three days in each of these occasions and takes interest rate and stance decisions through a voting process as each member has one vote and chairman has a casting or second vote in case of a tie. These decisions are communicated on the third day at 10.00 am through an address by the RBI Governor. This is immediately followed by release of (i) Governor's statement (ii) resolution

of the MPC and (iii) Statement of developmental and regulatory policies in the RBI website. On the same day, around 12.00 noon, RBI governor and his team also conducts a press conference to explain the policy decisions and answering the questions from the media.

Monetary Policy Statement, which is called the resolution of the MPC, includes (i) the policy interest rate and monetary policy Stance decisions, (ii) an assessment of global and domestic economy (iii) inflation and growth outlook with one year ahead quarterly and annual projections for Inflation and GDP growth rates; and an assessment balance of risk to these forecasts (iv) rationale for the policy decisions and (v) the voting patterns. The minutes of the proceedings of MPC meeting are published exactly after two weeks.

III. RBI's Current Monetary Policy Tightening phase

In response to the high and rising CPI inflation and inflation forecasts above 6%, RBI's MPC in its April, 2022 meeting began normalization of monetary policy by shifting its stance from ultra-accommodative to *accommodative with focus on withdrawal of accommodation*, while narrowing its Liquidity Adjustment Facility[2] (LAF) corridor from 90bps to 50bps. Fixed rate Reverse repo was deactivated and was replaced by the rate on Standing deposit facility [3](SDF) as the floor of the interest rate corridor. RBI started the process of withdrawal of liquidity in a gradual, calibrated and non-disruptive manner over a multi-year time frame beginning FY 2022-23 (RBI, 2022b and 2022c)

This was followed by a series of aggressive rate hikes starting from May, 2022. During this unscheduled meeting, RBI signalled shift from more than three years of monetary easing phase to monetary tightening, by raising the repo rate by 40bps, while hiking the CRR by 50bps to 4.5% (RBI, 2022d and 2022e). Details of interest rate decisions are depicted in Table1. RBI's MPC hiked Policy repo rates cumulatively by 250 bps in the 6 consecutive policy meetings[4], from May, 2022 to February, 2023, before pausing the rates in last six policy meetings from April to February[5] of FY 2023-24 (RBI, 2022f, 2022g, 2022h, 2022i, 2023a, 2023b, 2023d, 2023e, 2023f, 2024a). Hence, the effective rate hike by the RBI adds to 290bps, after considering the initial 40bps hike in the floor rate of the LAF corridor, as reflected in the similar amount of rise of the weighted average call money rate (WACR), which is the operating target of monetary policy.

[Table 1]

[2] LAF is a monetary policy and liquidity management instrument, which provides an interest rate corridor for the weighted average call money rate (WACR). LAF operates with policy repo rate as the middle rate, interest rate on the marginal standing Facility (MSF) as the ceiling rate and the interest rate on the SDF as the floor rate.
[3] SDF, which replaced the traditional overnight fixed rate reverse repo instrument, provides an uncollateralized mechanism for banks to park their surplus funds with RBI at a fixed interest rate. Banks SDF balances are eligible for SLR calculation but not for CRR. The interest rate on SDF was initially set at 3.75% and became the new floor rate of the LAF corridor, which was 40bps above the then reverse repo rate of 3.35%. Whenever policy repo rates are changed by MPC, both the SDF and MSF rates automatically changes by the same amount. As on March, 2024, SDF rate stands at 6.25%.
[4] This excludes the extra meeting held by MPC in November, 2022, to send the explanation letter to the government for the monetary policy failure of breaching inflation target range.
[5] RBI's MPC decided to pause the policy repo rate at 6.5%, while retaining the monetary policy stance of withdrawal of accommodation by a majority vote. Hence, the MSF rate and the SDF rate gets automatically retained at 6.75% and 6.25% respectively, as the LAF corridor gets maintained at 50bps. This marks the 6th consecutive move of pausing the rates, while maintaining the policy stance of withdrawal of accommodation for the 13th time in a row.

i. Rationale for the current Monetary Policy Stance and rate hikes/pause.

In the previous monetary easing phase, from February, 2019 to February, 2022, RBI's MPC cut policy repo rates by 250bps and predominantly followed an ultra- accommodative stance. Even in the February, 2022, policy, RBI continued with the forward guidance that it would persist with the accommodative stance till such time when economic growth rates revive and sustain in a durable manner (2022a). Then what prompted the RBI's MPC to suddenly change its stance to 'withdrawal of accommodation' as early as in April policy? The unexpected outbreak of Ukraine-Russia war in late February, 2022, and the resultant supply chain disruptions drove global commodity prices higher and brought about heightened volatility in the global financial markets. In its April 2022 policy, MPC viewed that these events could impose significant upside risk to inflation and downside risk to growth. Hence, Inflation forecasts were revised upwards appreciably by 120 bps from 4.5% to 5.7% for the FY 2022-23, which completely justified this change in stance. In the hierarchy of objectives, price stability became the top most priority of the MPC as compared to the economic growth.

Why did the MPC chose to deviate from the conventional sequencing of stance from accommodative to neutral and then to the tight stance? Covid times necessitated unconventional responses from the central bank in the form of ultra-accommodative stance to unfreeze the financial markets and shifting down the yield curve to ease financial conditions. In April, 2022, when MPC decided to re-focus on price stability, it wanted to move towards an intermediate stance of withdrawal of liquidity rather than neutral stance to ensure absorption of liquidity overdose in a non-disruptive manner over a multi-year time frame. Reducing excess liquidity of above ₹ 8 trillion level too quickly to near zero by adopting a neutral stance would have increased the output costs of disinflation. Hence, RBI adopted a nimble stance of 'remaining accommodative with focus on withdrawal of accommodation' in April and May, 2022 policy, before migrating to more hawkish stance of 'withdrawal of accommodation' from June, 2022 and continuing with this till now.

The CPI inflation data released in April, 2022, showed that the fourth quarter inflation of FY 2021-22 rose to 6.34 %, which was above the MPC's CPI Inflation projection of 5.7% made for the same quarter in February, 2022, policy. Meanwhile, the relentless rise in the fuel and food prices world-wide has made the rising CPI Inflation in many countries, a global phenomenon. This forced the MPC to conduct an off-cycle meeting in May, 2022, and decided to hike the repo rate by 40bps, signalling the end of the covid era of low interest rate regime.

The MPC continued to be concerned that CPI inflation/forecasts for all 4 quarters of FY 2022-23 was above or closer to the upper tolerance level of 6 per cent, while core inflation persisted around 6%. MPC, in its June, 2022 policy review, forecasted CPI inflation at 6.7% for FY 2022-23, with its Q3 and Q4 predicted at 6.2% and 5.8% respectively. In the December, 2022 policy statement, inflation was projected to soften to 5% and 5.4% respectively for Q1 and Q2 of FY 2023-24. Still these inflation forecasts, which remained well above 4%, was an indication that the battle against inflation was not over. On the other hand, RBI took comfort from the fact that the domestic economic activity and financial sector remained resilient. Hence, MPC's monetary policy tightening from April 2022 to February, 2023 was intended to keep inflation expectations well anchored and to break the core inflation persistence, while containing the second round effects of current inflation.

ii. Real Policy rate and Monetary Policy

In current Monetary tightening cycle, a 250bps nominal policy rate hike was accompanied by a 300 bps rise in the real policy rate as RBI was successful in raising nominal

rate more than the increase in the expected future inflation (see Chart 1). In this case, real policy rate [6]is calculated by deducting the fourth quarter ahead inflation rate forecast of MPC from the current nominal policy rate. Real rate was negative at -1.2% towards the end of policy easing cycle in March, 2022 and rose to 1.3% by April, 2023 and stays at 1.8% now, which reflects a sufficiently tight monetary policy to address the above target inflation.

Why MPC adopted a surprise policy rate pause at 6.5% from April 2023? There were few reasons for this decision. First, MPC wanted to wait and reassess the impact and transmission of the previous rate hikes of 250bps to the credit markets and the economy because of the fact that the monetary policy operates with long and variable lags. Second, there was a downward adjustment of the fourth quarter ahead inflation forecast by 40bps to 5.2%, which took the real policy rate to 1.3%. This rate was considered to be closer to the neutral rate, which is consistent with price and output stability. Third, this revised inflation forecast was premised on the downward revision of crude oil price forecast to $85 from $95 for the Indian basket for FY 2023-24. Lastly, there was the possibility of a global slowdown in the midst of banking failures[7] in the US in March, 2023 and its impact on the inflation outlook.

MPC would have reached a level of real interest rates at which risk of overtightening is more than the risk of under tightening- that means net economic damage is greater for rate tightening than for the rate pause. Some of the MPC members clearly indicated that the current pause in the policy rate was a "wait and watch pause and it was "neither a premature pause nor a permanent one". This was not a premature pause because RBI has already made a front loaded rate hike of 250bps; and at the same time this was not a permanent pause as current inflation was still higher than the 4% target (RBI, 2023c). Even with a pause in the nominal policy rate, any rise in real policy rate indicates further effective tightening of the monetary policy as per the Taylor's principle. Few MPC members felt that the equilibrium real policy rates or the natural rate of interest is in the range of 1-1.8%[8].

[Chart 1]

Nonetheless, MPC was open to take swift and pre-emptive policy rate actions in response to any incoming threats to medium term price stability in future. Based on the assessment of current and evolving macroeconomic environment, the signal from the policy pause was that rates are going to stay *higher for longer* as the disinflation process towards the 4% was slow and protracted. Though near term inflation outlook was benign, MPC felt that the food price situation could worsen due to the impact of El Nino conditions. Now the future nominal policy rate actions are conditional on fourth quarter ahead inflation forecasts- a rate hike if the inflation forecast rises, a rate pause if the inflation forecast is unchanged and a rate cut for the fall in inflation forecast. The intention is to keep the real policy rate unchanged at the current desirable range till the headline CPI inflation consistently aligns to the 4% median term target in a durable manner.

MPC decisions in the current monetary policy tightening phase, were writ with lot of market surprises and uncertainties in terms of timing and magnitude of rate hikes, at least until the rate pause in the April, 2023 policy. Thereafter, both the rate and stance decisions

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[6] Alternatively, real rate can be calculated for FY 2024-25 by deducting 1-year ahead forecasted CPI inflation rate (4.5%) from the policy repo rate (6.5%), which amounts to 2%.
[7] Three US banks-Silicon Valley Bank, Signature Bank and First Republic failed in the US in March, 2023. This was followed by failure of Credit Suisse Bank, which was later merged with UBS banking Group.
[8] This indicated range for natural rate is based on the statements of MPC members, especially, Prof. Ashima Goyal, Dr Michael Patra and Prof. Jayant Varma in various MPC meetings.

were largely in line with market expectations. Notably, MPC members did not give any clue about the future path of interest rates or forward rate guidance, despite markets expecting such signals and more certainty about the future rates. Nevertheless, RBI gave an important forward guidance on stance in its post policy press conference in October, 2023 that a shift in stance to neutral and then to accommodative is conditional on forecasted inflation staying at 4% and then moving below 4% respectively in a durable manner (RBI, 2023g).

Considering the heightened uncertainty about the global geo political situation and its impact on the trajectory of inflation and growth, MPC members preferred to be data dependent, rather than pre-committing to a particular policy action. Many global central banks are also adopting the same strategy of data dependency in choosing rate actions.

iii. Monetary Policy Failure and its Accountability

In India, under the flexible inflation targeting framework, if headline CPI Inflation goes above the upper tolerance limit of 6% or below lower tolerance limit of 2% consecutively for three quarters, it is considered to be a monetary policy failure. In case of such monetary policy failure, the RBI governor has to write a secret letter to the Central government explaining (i) the reasons for missing the target range for inflation, (ii) what corrective measures to be taken to regain the target, and (iii) how long it will take for the MPC to pull back the inflation to within the target range.

The chart 2 provides the details of quarterly inflation performance of India during the inflation targeting regime. From Q3.2019-20 to Q3.2020-21, CPI inflation had consecutively exceeded 6% for 5 quarters, which was not considered as a monetary policy failure because during the country-wide covid related lockdown, the inflation data was missing for March and April, 2020. However, CPI inflation stayed above 6% consecutively for three quarters from March -September, 2022. Consequently, RBI for the first time had written a letter to the government in November, 2022 to explain the monetary policy failure. The quarterly CPI inflation continued to exceed 6% in December and March Quarter of FY 2022-23 as well. However, the June quarter CPI Inflation for FY 2023-24 dipped to a low of 4.6%, which avoided the possibility of a second consecutive monetary policy failure.

[Chart 2]

iv. Performance of Inflation Forecasts of MPC in Recent Meetings

The charts 3a and 3b show the performance of MPC's inflation forecasts in its recent monetary policy reviews compared to previous projections and to the actual CPI inflation. MPC's Inflation projections showed significant upward revisions in April and June, 2022 monetary policy, compared to its policy in February in the same year. However, inflation forecasts for FY 2023-24 were either revised downward or retained during policies of 2023, which largely explained the long rate pause of RBI since April, 2023. While, MPC's quarterly inflation projections for FY 2022-23 made in February and April policy, 2022, was by and large below the actual inflation for this period, the June policy inflation forecasts of the same year were slightly above the actual inflation. On the other hand, MPC’s projections for FY 2023-24 were relatively error free, except for Q2 of this year, due to adverse food price shocks. MPC’s forecasting errors observed for inflation might be due to uncertainty surrounding the economic effects of unexpected Ukraine-Russia war, which started in late February, 2022. Economic outlook soon became extremely uncertain with the imposition of economic and trade sanctions, which brought about significant supply side disruptions, shortages and paved the way for steep rise in the food, fuel and commodity prices.

[Chart 3a & Chart 3b]

IV. Impact of Monetary Policy Tightening

i. RBI's Liquidity Management and Policy Repo Rate

RBI's daily Net Liquidity absorptions are arrived at by subtracting total amounts of absorption of liquidity through various instruments such as Reverse repo, standing deposit facility and OMO (Open market Operations) sale of Government securities from total amounts of liquidity injections through various instruments such as Repos[9], LTRO[10], MSF[11], Standing lending Facility[12], TLTRO[13], SLTRO[14] etc. A positive net absorption of liquidity represents surplus liquidity and vice versa (see Mathew Jiji, 2022).

Is RBI's current Liquidity management consistent with MPCs monetary Policy stance and its policy rate? The pandemic period from February 2020 to March 2022, which marks the era of ultra-loose or ultra-accommodative monetary policy, witnessed significant daily absorption of liquidity in the range of ₹ 6.5 to ₹ 8.5 trillion. This also helped in bringing down the weighted average call money rate (WACR) to below the reverse repo rate of 3.35% (but close to the reverse repo rate), which became the effective policy rate of RBI. Hence, the transmission of interest rates from money market rates to lending rates were higher and faster during the covid phase, which encouraged better credit delivery.

During the current monetary tightening phase, MPC changed its stance from ultra-accommodative to withdrawal of accommodation. RBI indicated that it would drain system liquidity over a multi-year time period in calibrated and non-disruptive manner. The chart 4 shows that there was a progressive fall in liquidity surplus generated during the monetary easing phase of Covid times. Liquidity surplus started falling from a high of ₹ 6.6 trillion in April, 2022 to ₹ 0.6 trillion in by April, 2023, though rising to ₹1.76 trillion in May, 2023. However, from September 2023 onwards the banking system liquidity switched to a deficit mode, which necessitated net injection of short-term liquidity by the RBI. This also helped to keep the WACR either closer to the upper limit (6.75%) or even nearer to the middle of LAF corridor, depending on the liquidity situation. This confirms that RBI's liquidity management[15] was well aligned with the policy rates and stance and enabled faster monetary transmission and disinflation.

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[9] Repos or repurchase operations are instruments through which RBI lends to banks against the collateral of government Securities at a fixed or variable rate for overnight or longer term.

[10] LTROs (Long term Repo Operations) are repo operations conducted by RBI with Banks for a tenure of 1-3 years

[11] MSF or Marginal Standing Facility is a liquidity management instrument under which RBI lends overnight to the banks against the collateral of government securities, with a flexibility for latter to dip below their minimum SLR of 18% up to 2% of NDTL(Net Demand and Time Liabilities)

[12] Standing Liquidity facility (SLF) is an instrument through which RBI provides liquidity support to standalone Primary Dealers (PDs) for term of 90 days against eligible G-Secs.

[13] TLTROs or Targeted Long term Repo operations are repo operations conducted by RBI with banks for tenure of up to 3 years, with the end use restrictions or condition that borrowed funds need to be lend to or invested in specific instruments/ sectors/intuitions.

[14] SLTRO or Special long-term repo operations is a three year repo operations conducted by the RBI of ₹10,000 crore at repo rate for the Small Finance Banks , with the condition that borrowed funds need to be deployed for fresh lending of up to ₹10 lakh per borrower.

[15] Variable Rate repo (VRR) and Variable Rate Reverse Repo (VRRR) auctions of various tenors are respectively the main (14 days) or fine tuning (1-13 days) tools of liquidity injection and liquidity absorption for RBI in addition to overnight instruments such as MSF and SDF.

[Chart 4]

In its August, 2023 policy, RBI imposed an incremental cash reserve ratio (I-CRR) of 10% on SCBs from the fortnightly period starting from August 12 on the increase in their net demand and time liabilities (NDTL) between May 19, 2023 and July 28, 2023. This was a temporary sterilization measure to absorb excess system liquidity created by RBI's withdrawal 2000 Rupee notes (RBI, 2023e). I-CRR, which absorbed close to ₹1.1 trillion of banking system liquidity, was reviewed on September 8 and discontinued in a phased manner by October 7, 2023.

Meanwhile, RBI announced in its October, 2023 policy that it might conduct OMO sales via auctions, as and when required, to manage durable liquidity so as to make it consistent with the policy stance, while clarifying that such actions are not intended for yield curve management (RBI, 2023f and 2023g). This led to some widening of interest rate spread as long term yields hardened, which reversed in few months. However, till date this option of OMO sales has not been exercised by RBI in the current phase.

ii. Overnight Money Market: WACR and RBI's LAF Corridor

Did the current monetary tightening had any effect on the WACR)? The WACR is the operating target of monetary policy and it is the first overnight rate that is impacted by monetary policy. RBI intends to align or nudge the WACR to the policy repo rate so as to improve the effectiveness of monetary transmission (see Prabu E and Bhattacharyya I, 2023). When economic growth objective takes precedence over price stability, the WACR is likely to be more nearer to the floor of the LAF corridor, while it remains closer to the ceiling of the LAF corridor when focus is more on price stability. Due to the monetary tightening and the beginning of the withdrawal liquidity, WACR, which fell below the reverse repo rate during easing phase has climbed up by 326 bps from April, 2022 to February end 2024, reflecting full transmission (Chart 5).

Then why did WACR rose by more than the repo rate hike of 250bps? This is because the effective policy rate increase till now was 290bp when we incorporate the effect of narrowing of LAF corridor from 90bps to 50bps, as the floor of the LAF corridor was raised by 40bps higher. This can be gauged from the rise of WACR towards the level of SDF rate in April, 2022 after the monetary policy. Hence, the maintenance of subdued surplus liquidity, higher repo rate and greater focus on price stability relative to economic growth by RBI led to rise in the money market rates in tune with policy stance. With the recent easing of liquidity deficit following greater government spending, the WACR has eased a bit and remains closer to the policy repo rate, which is a positive development as it will reduce the effective cost of short-term borrowing for the banks.

[Chart 5]

iii. Monetary Transmission to Money Market : T-Bill Curve and CD Curve

Charts 6a and 6b depict the T-bill and CD curve[16] corresponding to various tenures and trace the impact of monetary policy tightening on these short-term money market instruments. There is an upward shift in the both T-bill and CD curves by close to 300bps across tenors in response to the monetary policy tightening from April, 2022 till date. Yields

[16] FBIL has developed both the T-Bill curve and the CD curve, as a new benchmark for the money market based on Treasury bills (T-bill) and Certificates of deposits (CDs) traded in the market.

on 3-months, 6 months, and 1 year T-bills moved up by 307, 288 and 263bps respectively, since April 2022 till now. Similarly, interest rates on 3- months, 6-months, and 364 days CDs have hardened by nearly 376 bps, 360bps and 293bps respectively. There is a slight flattening of the T-bill and CD curves as interest rate spreads are narrowing as the tenor rises. Also in response to the monetary policy pause decision in April, 2023, the T-bill curve drifted downward by 12-15 bps and CD-curve by 10-26bps as market participants expected 25bps hike in this policy. The monetary policy in February, 2024, did not impact the T-bill and CD curves, despite of a hawkish pause by the MPC. In the last few months or so, these yields have been softening from the highs of October, 2023, due to easing liquidity crunch, fiscal consolidation and future rate cut expectations.

[Chart 6a & Chart 6b]

iv. Monetary Transmission: Sovereign Bond Market

India's sovereign yield curve can be considered to be a public good as it always provides a risk free interest rate benchmark for pricing of securities in the private corporate debt market. In this regard, RBI's regular market operations ensures an orderly evolution of the sovereign yield curve. Did G-sec yields hardened across maturities in tune with monetary policy tightening? The Chart 7 shows that India's Sovereign Yield curve was subject to noticeably upward shift in response to monetary policy tightening since April, 2022, supported by a withdrawal of ample liquidity. Sovereign yields rose by 257 bps, 195bps, 148bps, 76bps, and 22bps respectively for 1 year, 2 year, 3 year, 5 year and 10 year maturity bonds. After the policy rate pause in April, 2023, which caught the market by surprise, there was a 15 to 5 bps fall in yields from 3 months to 10 year maturity. Various factors, including, the dovish rate pause adopted by MPC in its monetary policy in February 2024, dip in liquidity deficit, lower net borrowing and fiscal deficit projected in the Union Budget and the upcoming inclusion of Indian G-secs in the JP Morgan's and Blomberg's emerging market sovereign bond indices have contributed to the recent softening of bond yields.

Significant flattening of the sovereign yield curve occurred over medium to long term maturities as the interest rates spreads narrowing as term to maturity rises. For instance, yields hardened by 10 bps to even minus 12 bps, from 10-year to 40 –year maturity bonds. These phenomenon can be explained by factors such as the lower long term inflationary expectations and better fiscal consolidation discounted by the market players over the longer horizon. The extent of flattening of the sovereign yield curve significantly insulates the Indian banking system from the market risk concerns and the related financial instability associated with its large investment portfolio.

[Chart 7]

[Chart 8]

Overnight Index Swap (OIS) curve[17], which is an interest rate derivative instrument, reflect the market expectations about the future interest rates. As such it can predict the markets expectations about the future monetary policy actions. The OIS swap curve in the chart 8 indicates a downward revision in the expected future interest rates after the announcement of a policy rate pause on April 6, 2023. However, the hawkish tone of higher for longer narrative in succeeding policies has slightly lifted up the OIS curve. The inverted OIS curve after the 1 year tenor predicts a possible rate cut by RBI, starting as late as in

[17] MIBOR-OIS rates are announced by FBIL on a daily basis.

October or December 2024. The OIS curve dated March 31, 2022, also correctly predicted the series of rate hikes by RBI from May, 2022. Better fiscal-monetary policy coordination enshrined in the Union budget in terms of a lower than expected fiscal deficit and net market borrowing added to positive sentiments in the debt market, which contributed to a slight downward shift in both the yield curve and OIS curve, recently.

v. Monetary Transmission: Deposit and Credit Market

To improve the transmission of monetary policy to banking markets, RBI introduced a new floating rate benchmark termed the External Benchmark Based Lending Rates (EBLR) for scheduled commercial banks (SCBs) effective from October, 2019 for pricing their new retail and MSME loans. In case of outstanding retail loans based on marginal cost based lending rate (MCLR), banks were encouraged to provide the customers with the option to migrate to new EBLR. Banks were given freedom to choose the type of EBLR, which can be based on either the policy repo rate on any other short-term market rates such as the Treasury bill yields. In practice, currently 80% of the EBLR loans are linked to the policy repo rate. Hence, whenever the repo rates are changed by the MPC, automatically the bank lending rates gets adjusted by the same amount. The erstwhile internal benchmarks regimes included mainly MCLR, Base rate, benchmark PLR etc.

[Table 2]

[Chart 9]

SCBs share of EBLR based loans has increased from 9.1% in March, 2020 to 56.2% in December, 2023, while the MCLR based loans declined from a high of 78.3% to 39.4% during the same interval (Table 2). The share of earlier benchmarks such as base rate also saw a declining trend. This marks a good response from the banks, which could have significantly improved the transmission, while considerably enhancing the transparency in rate setting by the banks. Nonetheless, among the banking groups, large differences exists in their share of EBLR linked loans in the total floating rate loans. Public sector banks have the lowest share of 38.5% for EBLR based loans, while the private sector banks and foreign banks have higher shares of 82% and 88.9% respectively (Chart 9). Probably, this might be due to the higher interest rate discounts offered by both private sector and foreign banks to incentivise its customers to migrate to EBLR from MCLR regime during monetary easing covid period.

In current tightening cycle, monetary policy was very effective in transmission of policy interest rates to deposit and credit market, setting the background for right response from consumer and business spending. For instance, the weighted Average Domestic Term Deposit Rates (WADTDR) of SCBs on fresh deposits increased by 241bps, while that for outstanding deposits increased by 183 bps. Similarly, the Weighted Average lending rates (WALR) of SCBs on fresh rupee loans rose by 185bps, while that of outstanding rupee loans increased by 109 bps. Banks' traditional internal interest benchmark such as 1-year median MCLR moved up by 155 bps. EBLR increased by 250bps (See Table 3).

[Table 3]

Both the monetary easing cycle and the tightening cycle exhibits visible asymmetry in monetary transmission to the deposit market and the credit market, albeit in different ways. In both the phases, interest rate transmission is higher in the deposit market compared to the loans market. However, transmission was more powerful during the easing cycle compared to that of tightening cycle. This is an indication of the monopoly power of

banks, which helps them to maintain higher net interest margin (NIM) during easing and recessionary cycle. Another explanation of this bank behaviour is that both the interest rate sensitivity of supply of deposits and loan demand is low during a recessionary phase, so that even if you cut the interest rates on deposits and loans, neither the deposits will fall nor the demand for loans increase proportionately. Thus it makes economic sense for such bank behaviour.

However, reverse is true for the nature of transmission for the monetary tightening cycle. Banks hiked deposit rates more in comparison with lending rates, putting their NIM under pressure. How we explain such behaviour? In the current recovery phase, both the interest sensitivity of deposits and loans are elastic, so that a fall in NIM can increase the volume of loans and deposits proportionately more so that net interest income of the banks will get a boost. It is interesting to see that SCBs have cut the weighted average interest rates on fresh deposit rates and fresh loans by 12bps and 24 bps respectively in last April, in response the rate pause by MPC. However, with the long pause in the repo rates by MPC, both deposit and lending rates are adjusted back to the pre-rate pause level in March, 2023.

The chart 10 shows interest rate transmission across different banking groups. The magnitude of interest rate pass-through from repo rates hikes to deposit rates and lending rates are greater for foreign banks relative to private sector and public sector banks. This reflects the higher monopoly power of foreign banks and relatively higher share of EBLR linked retail business portfolio in the total business compared to the domestic banks. Among the domestic banks, the public sector banks have passed on the repo rate hikes to both loans and deposits more relative to that of private banks. This is explained by the higher relative monopoly power in the deposit market and elastic demand for loans for the private sector banks relative to the public sector banks, which helped the former to maintain a higher NIM.

[Chart 10]

vi. Impact on Credit and Monetary Aggregates and Asset Portfolio of Banking System

Does the current monetary policy tightening have any effect on Credit and Deposit growth? The effectiveness of a tight monetary policy in reducing inflation depends on its success in bringing down the rate of growth in deposits and credit and thereby slowing down the growth in aggregate demand. Credit growth peaked at 19.5% in September, 2022, and fell to 15.4% in March, 2023, seems to have strongly responded to the tight monetary policy, albeit with a lag. Other related aggregates such as Money supply, Reserve Money and deposits growing at subdued levels indicate that they are consistent with the tight monetary policy and the stance of withdrawal of accommodation adopted by the MPC (See chart 11a). However, credit growth gained momentum thereafter as MPC paused the policy repo rates from April 2023 till date, which provided the dovish signal that interest rates have peaked and could fall from here. The ongoing wedge between the credit growth and deposit growth rate is explained by the economic revival fuelling credit demand in the environment of tight liquidity situation in the market. The merger of HDFC with the HDFC bank also added to the extra credit growth arithmetic.

Now turning attention to the behaviour of banks asset portfolio looks interesting. The composition of the asset portfolio of the banks changes in various phases of the business cycles or interest rate cycles. During a recession, when central banks' growth concerns takes precedence over the objective of price stability, policy interest rates tend to fall. Bond prices are expected to rise in a falling interest rate scenario, while growth in demand and supply of

credit slows because of credit quality concerns and low economic prospects during an economic slowdown. Hence, in an interest rate loosening cycle, banks tends to simultaneously expand their Investment/Deposit ratio and shrink their Credit/deposit ratio to improve their overall profitability. During an economic recovery and in the following interest rate tightening cycle, banks expand their credit portfolio due to improved credit conditions from better economic prospects. On the other hand, they contract their Investment portfolio due to fear of market to market losses on its bond portfolio.

[Chart 11a & Chart 11b]

Banks' actual behaviour confirms to this argument. During the previous interest rate easing cycle of pandemic times, Credit/Deposit ratio fell from a pre-pandemic peak of 76.4 in March, 2020 to a low of 70 in October, 2021, while the Investment -Deposit ratio increased from a low of 27.6 to a high of nearly 30, during the same period. Since then, with the banks expecting both a strong economic recovery from the second half of FY 2022-23 and sensing the end of interest rate tightening cycle in near future, started expanding their credit portfolio. The Credit /Deposit ratio reached a high of 77.7, while Investment/Deposit ratio also moved up to a level of 29.5 to 30 by February, 2024 (Chart 11b). The rise in investment portfolio might be due to the bank's expectation that interest rates would have peaked out now and also due to the effect of temporary dispensation given by RBI to the banks in terms of a higher HTM limit of 23 % of NDTL till March 31, 2024. Further, the inclusion of Indian government bonds in the global bond indices and its consequent softening of the bond yields are also increasing the demand for bonds by the banks. The HDFC merger in July, 2023 also added to the increase in both Credit-Deposit and Investment Deposit ratio.

vii. Impact on Inflation

Under the flexible inflation targeting regime, headline CPI inflation has been the nominal anchor of monetary policy in India, since February, 2015. RBI's MPC also keep a watch on core CPI inflation to gauge the demand side inflationary pressures and as a measure of the permanent component of overall inflation. Core CPI inflation is measured by excluding the volatile food and fuel inflation from the headline inflation.

Does higher non-core CPI Inflation is associated with higher Core Inflation in India? Our analysis showed that there is a positive correlation between 6-month lagged Non-Core CPI (Food, Beverages, and Fuel & Light) and current Core CPI Inflation. ($r=0.54$; p-value < 0.003%). This can be explained as follows. Food and fuel inflation are generally considered to be transitory and in such cases any rise in headline inflation may not be accompanied by a concomitant rise in core inflation. On the contrary, if this inflation component stays elevated for a long time (say 6 months or more) then people will demand more wages, transportation services fares will rise and prices of other final services will go up, which means core CPI inflation will ultimately starts rising. Meanwhile, rise in wages and other input prices would get passed on to the final output prices by the companies in both manufacturing and service sectors, leading to second round rise in prices in final goods and services. Hence, both headline and core inflation could move in the same direction under such circumstances.

[Chart 12a & Chart 12b]

How did prices in India behaved in the last two and half years? Whether headline and core components of both CPI and WPI moved in the same direction or not? Charts 12a and 12b show the recent movements in headline and core inflation for both CPI and WPI

inflation. While CPI inflation measures the annual percentage increase in the prices of a basket of final consumer goods and services, WPI captures the change in the whole sale prices of a wider basket of goods, which includes consumer goods, capital goods, intermediate goods etc. In India, the recent inflation experience shows that both the CPI inflation[18] and WPI inflation have moved up and down together. Further, the both headline inflation and core inflation for two indices were rising and falling at the same time till a year back as food inflation sustained higher levels gets passed on the core. This linkage cease to exist now.

Both headline and core CPI inflation rose above the RBI's comfort zone and exhibited a rising trend since October, 2021, and peaked at 7.8% and 6.95% respectively in April, 2022, before coming down to tolerable levels of 4.25% and 5.13% in May, 2023. However, higher food inflation[19] dominated by rise in vegetables prices took headline CPI inflation to a new peak of 7.4% in July, 2023, before dipping to 5.1% in February, 2024. RBI's rate hike actions and following long pause of policy rates at 6.5% since April, 2023, with focus on sufficient draining of liquidity has enhanced the anti-inflation credibility of monetary policy. This helped in avoiding a wage- price spiral as the second round effects or generalized inflation pressures emanating from higher food inflation to core inflation is broken. This is reflected in consecutive fall in core inflation since January, 2023, to a low of 3.37% in February, 2024, which is below the inflation target.

WPI inflation, both headline and core components, exhibited a similar trend, but a steeper disinflation, and even remaining at negative levels since April, 2023 till recently. The steep fall inflation in India, especially in WPI Inflation since May, 2022, from double digit levels, can be also explained by impact of aggressive tightening by global central banks such as Federal Reserve, ECB and Bank of England. The pass through effects to domestic input and output prices were strong from the continuous fall in international prices of fuel, agricultural commodities, mineral oils and industrial metals, triggered by the policy tightening.

Whether MPC was behind the curve in policy rate tightening to address inflation problem? The answer is yes. MPC made significant errors in its inflation forecasting and continued to focus on economic growth, misreading the inflation problem as transitory. Forward looking MPC could have changed the accommodative stance and hiked the rates by 25bps as early as in December, 2021 monetary policy meeting itself. Only in its April, 2022 policy meeting that MPC realized inflation was persistent and made significant upward revision in the inflation forecasts, while changing its emphasis to price stability objective.

Why the recent inflation scare required the medicine of higher than usual aggressive or front loaded policy rate hikes? Policy stance was changed to withdrawal of accommodation and policy rates were cumulatively raised by 250 bps in such a short span of 10 months starting in May, 2022. This aggressive and sudden rate hike was very much required to compensate for the past policy inaction and to strongly communicate to the markets that the RBI is series in its fight against inflation. This also reinforces anti-inflation credibility of the central bank and improves monetary policy effectiveness to a great extent.

[18] CPI Inflation follows WPI inflation with a lag as it takes some time for changes in input prices or capital goods prices in the WPI basket to pass through to the output prices of consumer goods and services.

[19] In India for some time , some of food items such as cereals and products, Egg, Spices, Vegetables, Pulses and products, Sugar and confectionary are showing high inflation, which are keeping the headline CPI at above 5%.

viii. Impact on Economic Growth

Domestic and global monetary tightening had a visible impact on India's real economy, as the objective of price stability became the top most priority of the central banks compared to output stability. Charts 13a and 13b capture the possible effects of monetary tightening on output, both on the demand and supply side, especially in the midst of full economic reopening after Covid disruptions. On the aggregate demand side, India's GDP growth decelerated from 9.7% in FY 2021-22 to 7% in FY. 2022-23, largely driven by slowdown in Private Final consumption expenditure (PFCE), Government Final Consumption Expenditure (GFCE), and Exports in goods and services. However, GDP is expected to recover to 7.6% in FY 2023-24, supported by buoyancy in Gross Fixed Capital Formation (GFC).

The performance of Aggregate supply measured in terms of growth in Gross Value Added (GVA) declined from 9.7% in FY 2021-22, to 7 % in FY 2022-23, primarily caused by low growth in Industry led by slowdown in manufacturing, mining & quarrying etc. India's service sector has been witnessing buoyancy with it growth accelerating from 9.2% in FY 22 to 10% in FY 23 and expected to stay at 7.5% in FY 2024, predominantly supported by post covid rise in pent up demand and revenge spending in contact intensive sectors. Both manufacturing and construction sector seems to have distinctly revived in last four quarters and supporting to maintain a 6.9% GVA growth in FY 2023-24, despite of a weak agricultural and Export sector.

[Chart 13a & Chart 13b]

The lagged effect of tight monetary policy followed by an Interest rate pause exactly after a year is more sharply reflected in quarterly national income data. The annualized quarterly GDP and GVA growth dipped from a high of 12.8% and 11.3% respectively in June quarter of FY 2022-23 to reach 4.3%% and 4.8 % in the December quarter of the same year. This was followed by an economic revival from June quarter of FY 2023-24 as both GDP and GVA growth bounced back to 8.4% and 6.5% respectively in December quarter of the same period.

Both PFCE and Gross Fixed Capital formation (GFC) lost momentum in the high interest regime after peaking in June quarter of 2022 at 18.5%, and 15% respectively. However, both these indicators, especially GCF, showed some signs of revival from June Quarter of 2023 after the benign interest rate outlook following the policy rate pause in the April, 2023. Though the growth rate in agricultural sector started decelerating from Q1 of FY 2023-24 to reach negative levels in Q3 of this year, both the industry and services growth is showing buoyancy to lend resilience to the GVA growth in FY 2024.

V. Summary and conclusion

Most central banks are persisting with their tight monetary policy stance to bring inflation back to their respective targets. Governments' across the world have also been complementing central banks' efforts thorough supply side measures to address inflation arising from elevated prices of food, energy and other industrial commodities. Some of the major central banks such as Federal Reserve, European Central bank and Bank of England have continued to pause their policy rates at 5.25-5.5% range, 4.5%, and 5.25% respectively in the latest March, 2024 meeting, while signalling rate cuts in the near future based on favourable inflation data. Bank of Japan has abandoned its negative interest rate policy and yield curve control and increased the policy rates from -0.1 to 0.1% and curtailed the amount

of monthly asset purchases. This is a clear signal that even the Japanese central bank is ready to unravel interest rate and quantitative tightening away from decade long ultra –loose monetary policy.

RBI has engineered a series of sudden and front-leaded policy rate hikes for a cumulative amount of 250bps from May 2022 to February, 2023 and paused the rates thereafter. The main objective behind this action was to anchor inflationary expectations to contain the second round effects of current inflation, and thereby preventing a wage-price spiral to arrest the core inflation persistence. Inflation management this time was a tough challenge for central banks as persistence of high food and fuel inflation triggered a rise in core inflation as wages and prices of services rose. The aggressive approach adopted by many central banks in quickly raising the rates and that too in heavy doses was to communicate to the public and market that they are ready to do *whatever it takes* to bring back the inflation to the target as fast as possible. This helped central banks to enhance its credibility as an inflation fighter, which enhance their policy effectiveness.

MPC succeeded in raising the real policy rate from negative levels to 1.3-1.8% range, which is expected to be closer to equilibrium real rates and consistent with price stability and output stability. MPC members have indicated that their future actions are data dependent, which means future nominal policy rates will adjust in tune with any possible revision in their inflation forecasts, so that real rates remain around the current levels. RBI has given guidance that a shift in stance to neutral is conditional on forecasted inflation staying at 4% in a durable manner.

RBI's MPC made serious errors in inflation forecasting due to factors such as supply disruptions from unexpected Russia-Ukraine war, sudden post-covid recovery in aggregate demand and its delay in anticipating the inflation persistence. Therefore central banks were too late in policy responses. The first instance of monetary policy failure occurred as CPI inflation exceeded 6% consecutively for three quarters in 2022, which prompted the RBI governor to send a letter to the government for explaining the reasons for missing the target.

In response to the RBI's effective interest rate tightening of 290bps (including the hike in floor of the LAF corridor by 40bps in April, 2022), overnight call money rates have moved up by 326 bps, which is the initial point of interest rate transmission. MPC's migration from ultra-accommodative stance to withdrawal of accommodation led to progressive and non-disruptive reduction in surplus liquidity from as high as 6.5 trillion to a deficit level consistent with the objective of price stability. This also facilitated faster and fuller interest rate transmission to the money market.

The interest rate transmission was fast and full both in the Treasury bill and certificates of deposit market as indicated by the upward shift in the T-bill and CD curves by close to 300bps across tenors in response to the policy tightening. Slight flattening of the T-bill and CD curves occurred as interest rate spreads have been narrowing with the increase in the tenor. In the sovereign bond market, yields rose by 257 bps, 197bps, 76bps, and 12bps respectively for 1 year, 2 year, and 5 year and 10 year maturity bonds. Sovereign yield curve flattened, especially after 5 year term, which is reflective of lower long term inflationary expectations and better economic fundamentals for the future.

The interest rate transmission to deposit market was higher relative to the credit market. For instance, interest rates on fresh rupee deposits rose by 241bps, while rates on fresh rupee loans hardened only by 185bps. The monetary transmission in Indian banking market improved significantly after the introduction of EBLR system for pricing the loans. In

the recent monetary tightening phase, credit growth is exceeding the deposit growth, which is putting pressure on the banks margins. Credit growth rate started decelerating in the initial stages of tightening, but reversed course and gathered pace with the rate pause.

RBI's tight monetary policy did impact the real economy in terms of both inflation and Growth, albeit with a lag. Both core and headline CPI inflation moderated to below 6% from March, 2023 and they are now at 3.4% and 5.1 % respectively. WPI inflation is falling continuously in last one year and eased to negative levels from April, 2023. Global monetary tightening also played a significant role in moderation of inflation in India, especially WPI inflation. India's GDP growth also witnessed some dip from 9.7% in FY 22 to 7% in FY23, though it is expected to revive to 7.6% in FY 24.

Economic growth is showing signs of moderation in advanced economies such as Euro area, UK, due to steep rise in the policy rates, even though unemployment rates remain at record low. Nevertheless, inflation still remains above the 2% target, while the last leg of disinflation process is likely to be slow and protracted. US is an outlier among the advanced countries exhibiting record economic growth, low unemployment and inflation closer to the target. Based on current economic data, advanced countries are heading for a soft landing with risk to outlook tilted towards a very mild and job-full recession in 2024.

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Table 1
Chronology of Monetary Policy Decisions in the recent Tightening Phase

	Policy Dates	*Width of the LAF corridor*	*Policy Rate Decision*	*Stance Decision*	*Relative focus of Objectives*
1	February, 2022, Policy	90bps	Paused repo rate at 4%	Accommodative	Growth preferred over Price stability
2	April, 2022 Policy	50bps	Paused repo rate at 4%,	Accommodative, with focus Withdrawal of accommodation	Price Stability preferred over growth
3	May, 2022, Policy	50bps	Repo rate raised by 40bps to 4.4%		
4	June, 2022, Policy	50bps	Repo rate raised by 50bps to 4.9%	Withdrawal of accommodation	
5	August, 2022 Policy	50bps	Repo rate raised by 50bps to 5.4%		
6	September, 2022 Policy	50bps	Repo rate raised by 50bps to 5.9%		
7	December, 2022 Policy	50bps	Repo rate raised by 35 bps to 6.25%		
8	February, 2023 Policy	50 bps	Repo rate raised by 25 bps to 6.5%		
9	April, June, August, October, December, February Policy for FY 2023-24.	50bps	Repo rate paused at 6.5%		

Source: Various Monetary Policy statements of RBI

Table 2
Floating Rate Rupee Loans of SCBs across Interest Rate Benchmarks

% of Outstanding Floating Rate Rupee Loans across Various Interest Rate Benchmarks					
Regime	*Mar-20*	*Mar-21*	*Mar-22*	*Mar-23*	*Dec-23*
Base Rate Regime	10.3	6.4	4.9	3.1	2.4
MCLR* Regime	78.3	62.3	48.6	45.4	39.4
External Benchmark (EBLR#)	9.1	29.5	44	49.6	56.2
Others	2.3	1.8	2.5	1.9	2
*MCLR- Marginal Cost of funds-based Lending Rate. # EBLR- External Benchmark based Lending Rate					

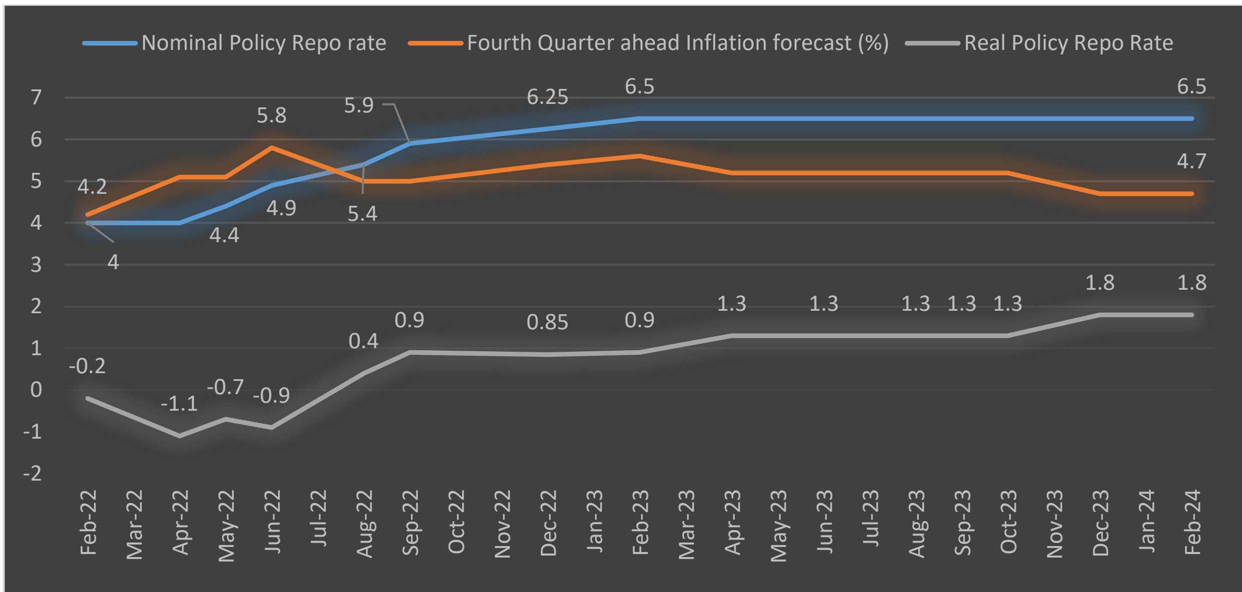
Source: Author's Compilation from RBI Data.

Table 3
Monetary Transmission from Repo Rate to Deposit and Lending Rates

Period	*Policy Repo Rates*	*Term Deposit Rates#*		*Lending Rates$*			
		Fresh Rupee Deposits	*Outstanding Rupee Deposits*	*Fresh Rupee Loans*	*Outstanding Rupee Loans*	*EBLR@*	*MCLR**
Feb, 2019-April 2022 (Previous Easing Cycle)	-250	-259	-188	-244	-152	-250	-155
May, 2022-January, 2024 (Ongoing Tightening Phase)	250	241	183	185	109	250	155
# Weighted Average Term Deposit Rate; $ Weighted Average Lending Rate @ EBLR-External Benchmark based Lending Rates; * MCLR- Marginal cost Based Lending Rate (up to February, 2024)							

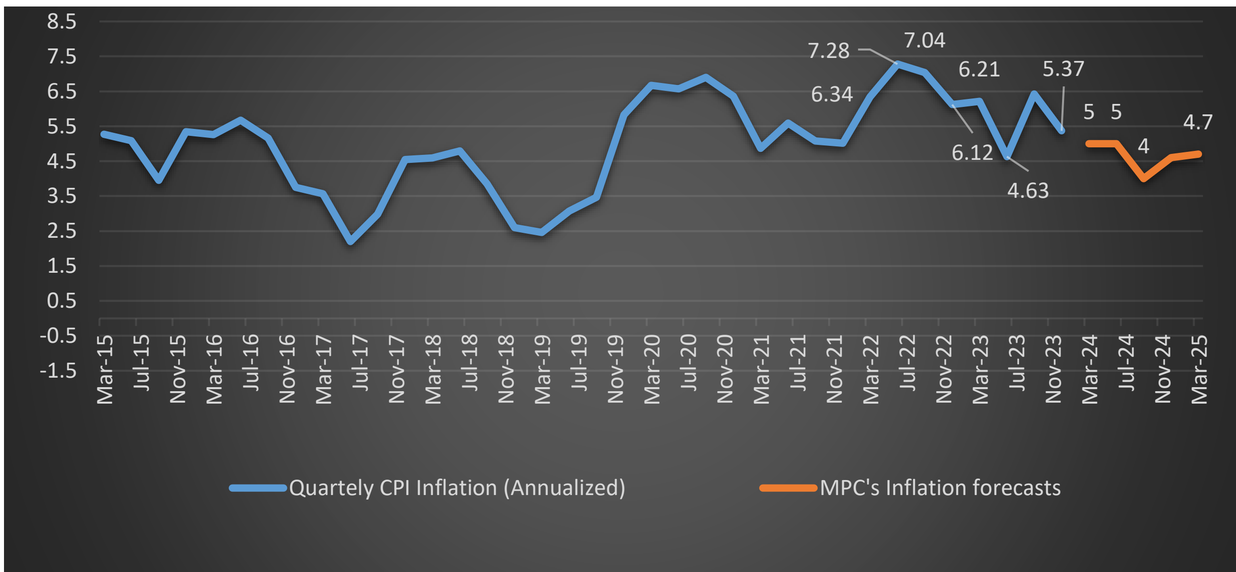
Source: Author's Calculation based on RBI Data

Chart 1
Nominal and Real Policy Rates in India in the Monetary tightening phase



Source: Various Monetary Policy Statements of RBI

Chart 2
Quarterly CPI Inflation Performance Under Inflation Targeting Regime



Source: CMIE Economic Outlook

Chart 3a
MPC's Inflation Forecasts: Feb-June 2022

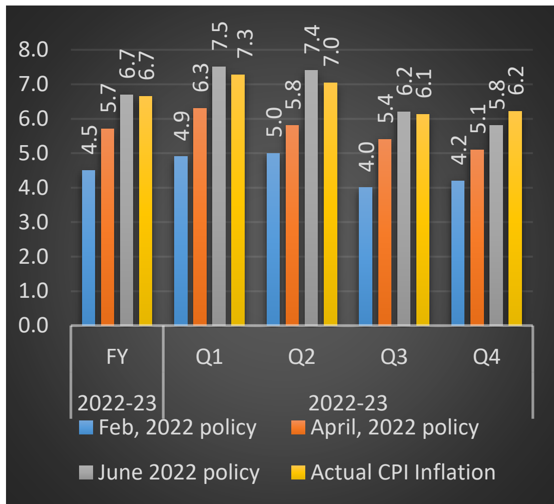
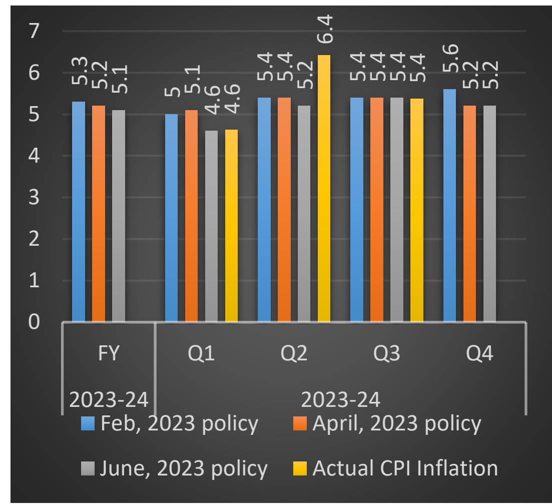
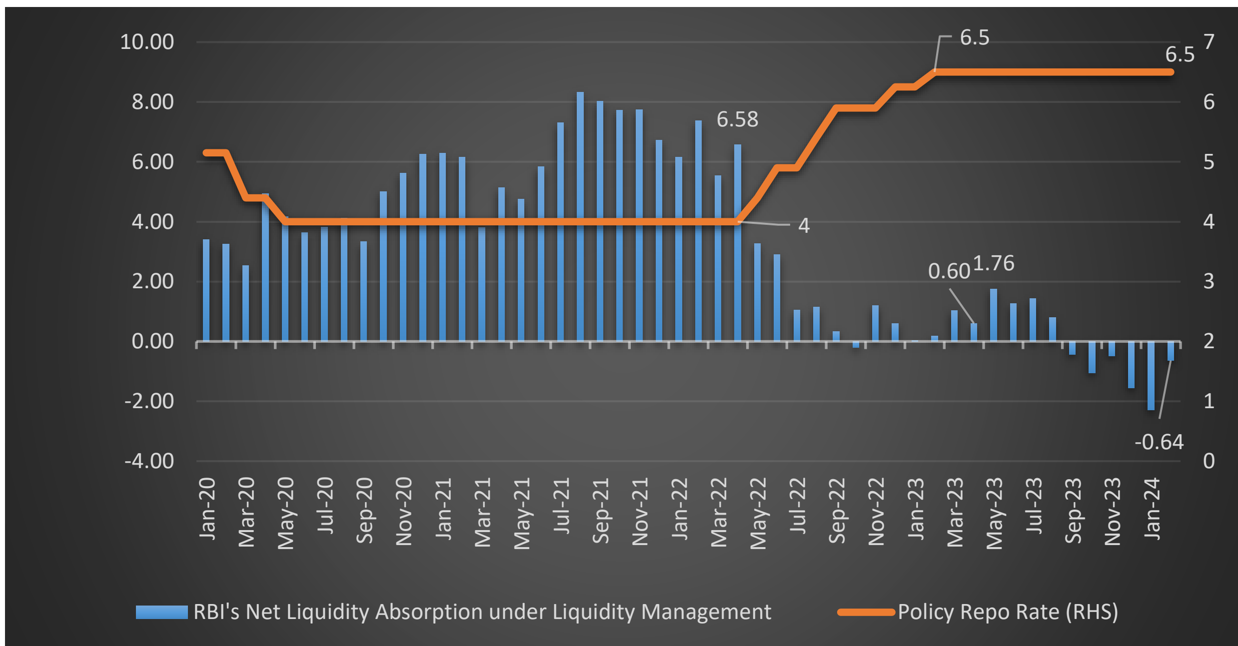


Chart 3b
MPC's Inflation Forecasts: Feb-June 2023



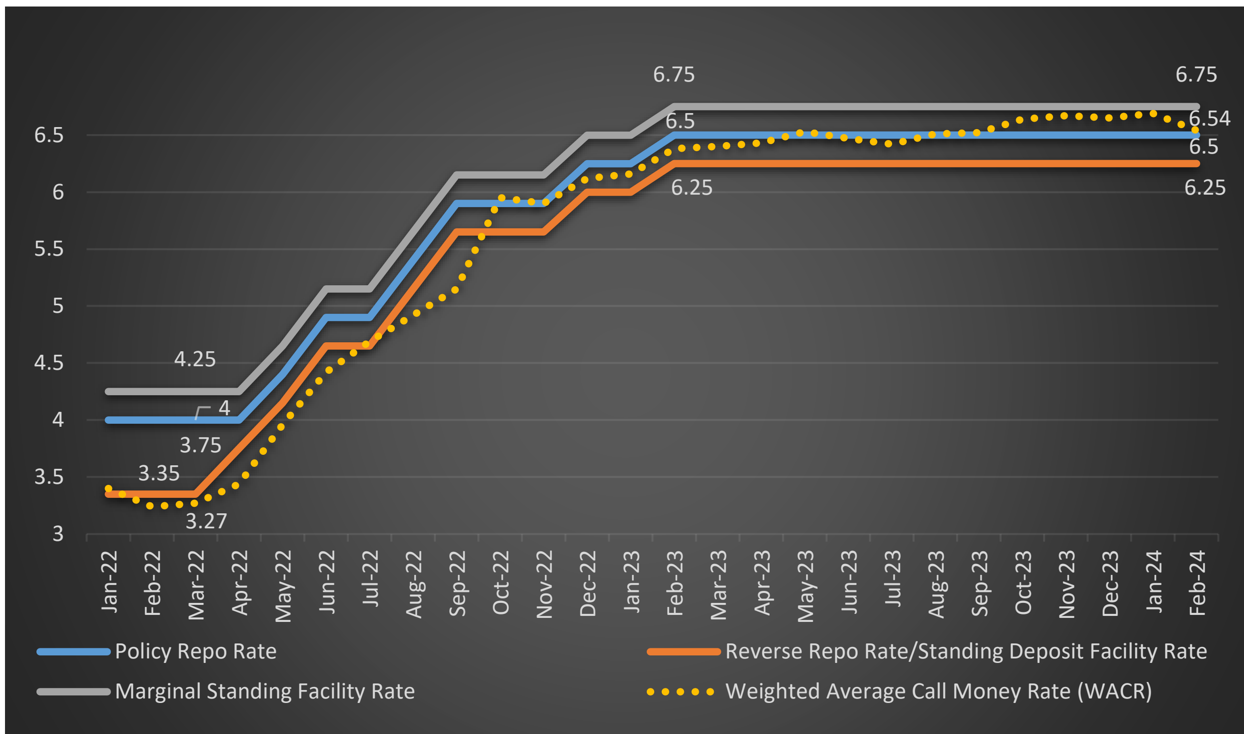
Source: RBI's Various Monetary Policy Statements

Chart 4
RBI's Monthly Net Liquidity Absorption under Liquidity Management (in ₹ Trillion)



Source: CMIE Economic Outlook

Chart 5
Movements of WACR around LAF Corridor



Source: CMIE Economic Outlook and RBI

Monetary Tightening: Transmission to Money Market

Chart 6a
T-Bill Curve (FBIL)

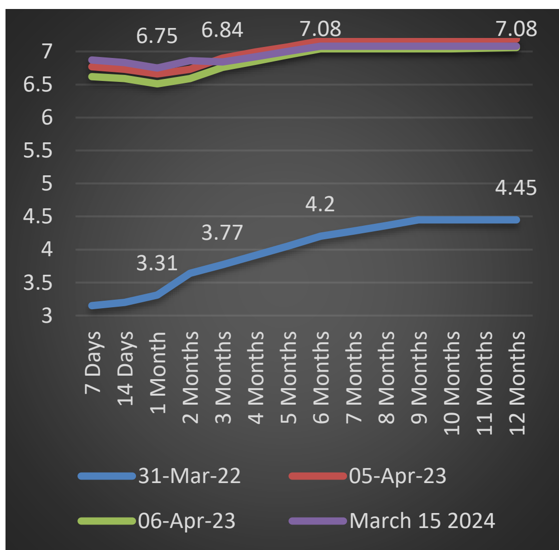
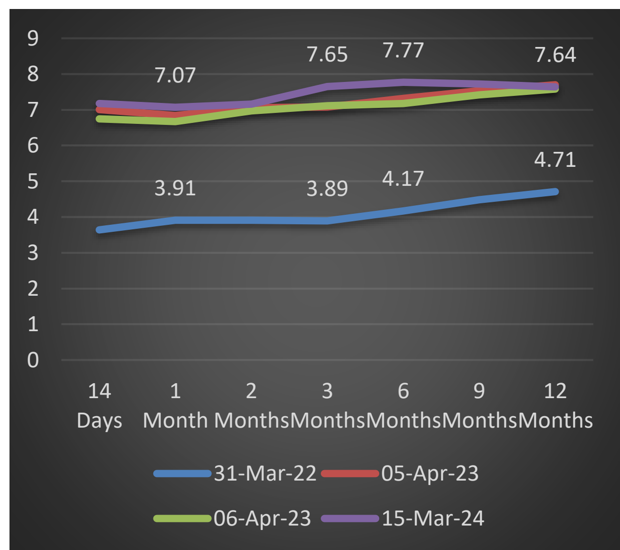
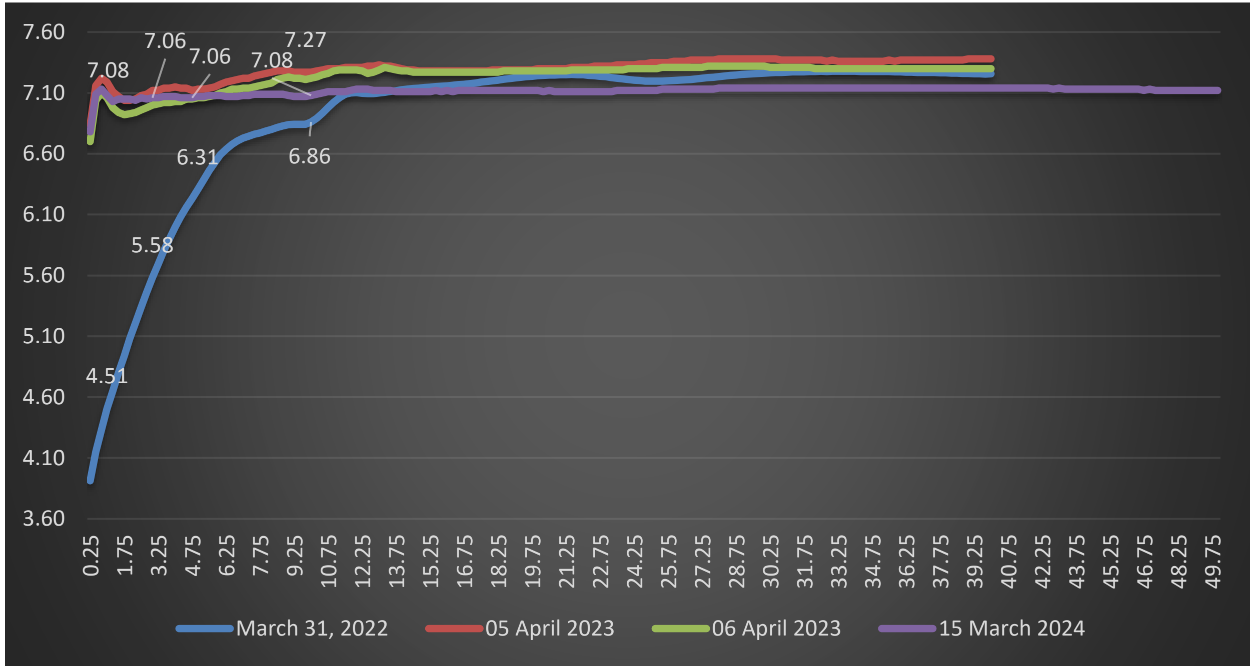


Chart 6b
CD Curve (FBIL)



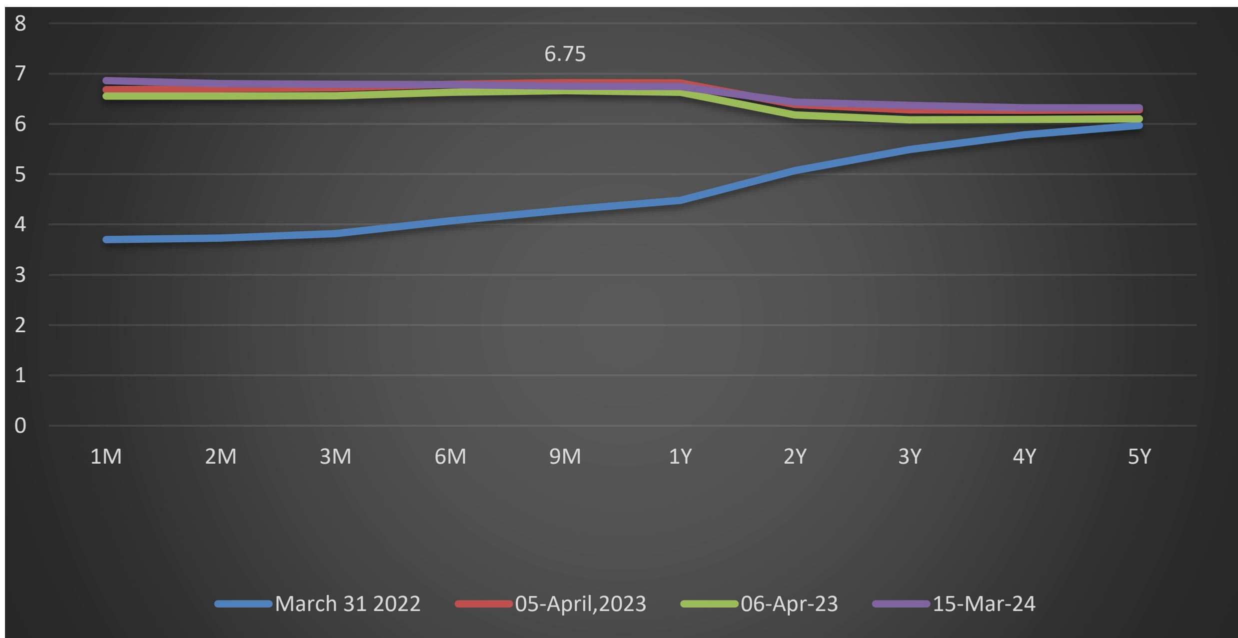
Source: Financial Benchmarks India Pvt. Ltd. (FBIL)

Chart 7
Sovereign Yield Curve (FBIL): Impact of Monetary Tightening



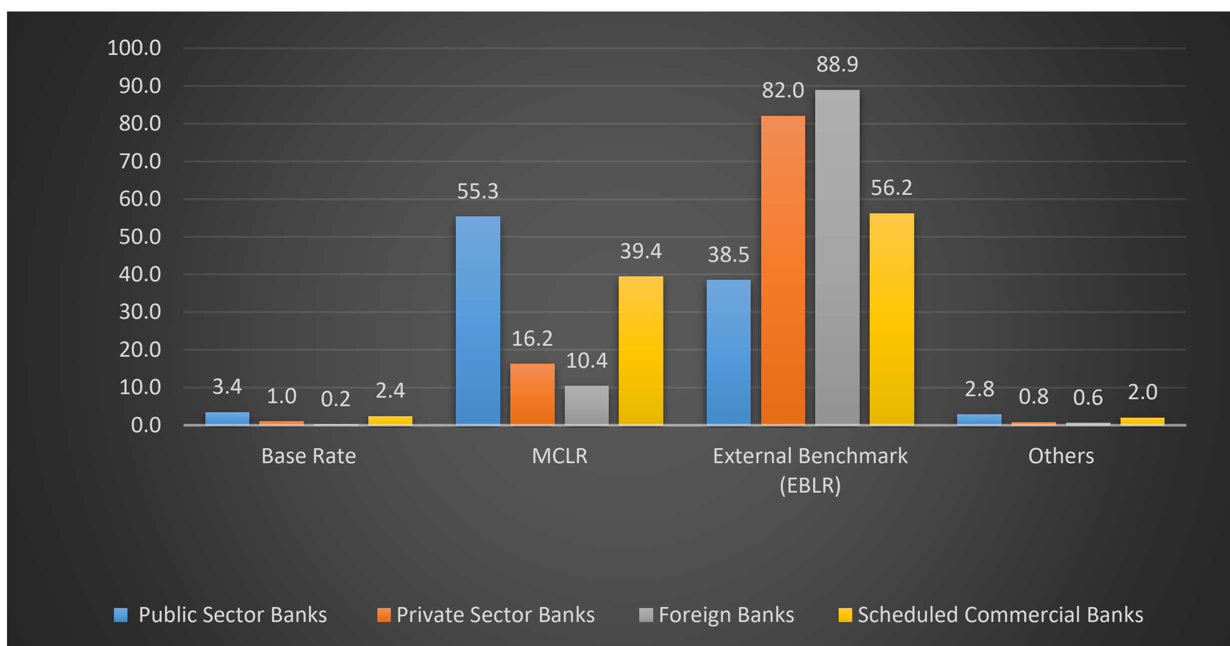
Source: Financial Benchmarks India Limited (FBIL)

Chart 8
MIBOR OIS Curve (FBIL)



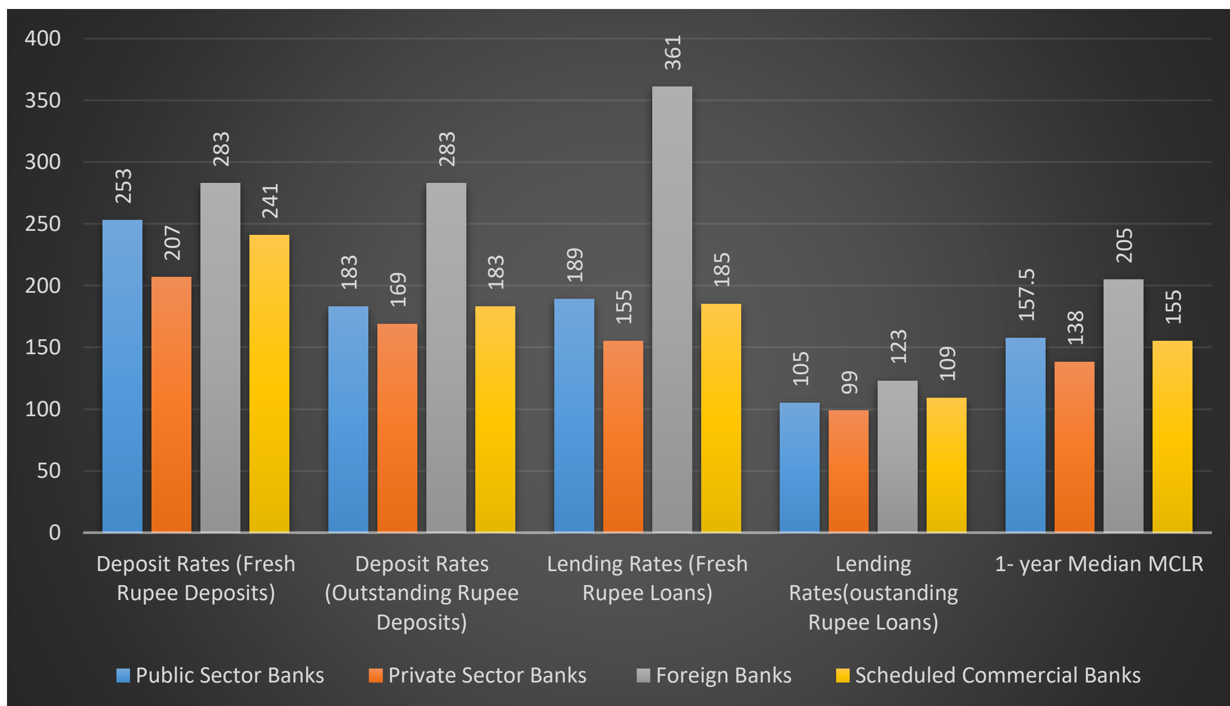
Source: Financial Benchmarks India Limited (FBIL)

Chart 9
Bank Group wise Share (%) in Various Floating Rate Interest Benchmarks



Source: RBI

Chart 10
Monetary Transmission to Deposit and Lending Rates across Banking Groups



Source: Authors Calculation based on RBI's Monthly Data, Feb, 2024.

Chart 11a
Trends in Growth of Monetary and Credit Aggregates

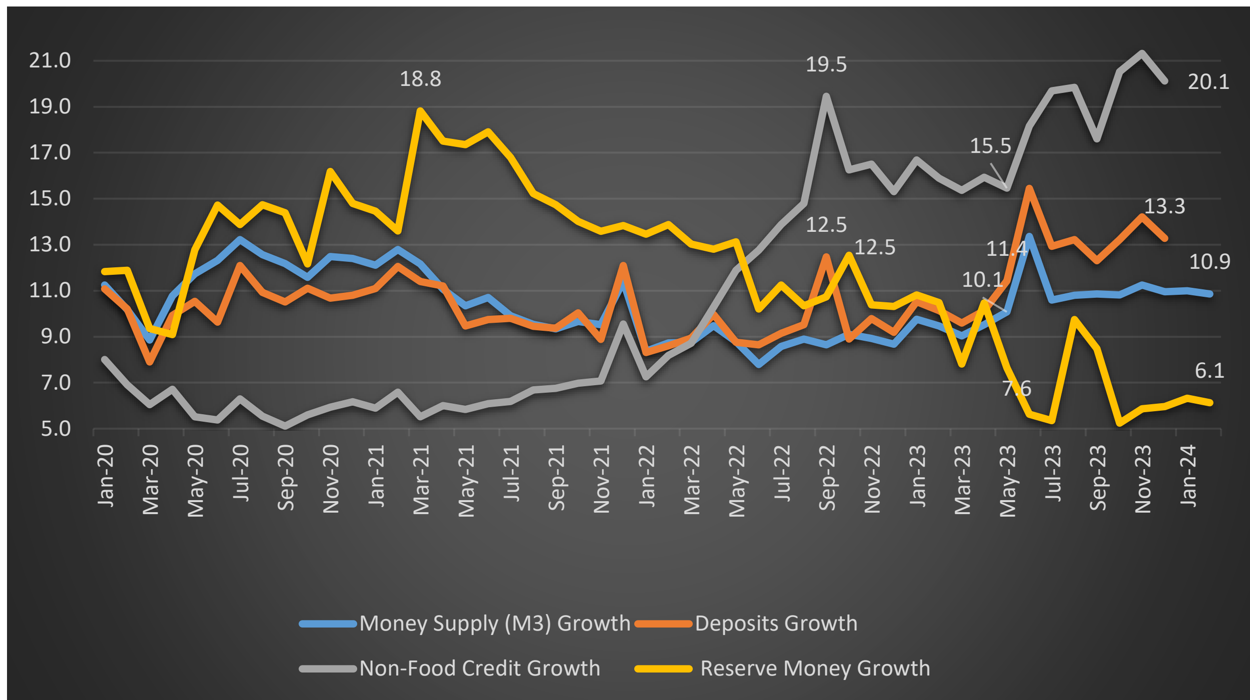
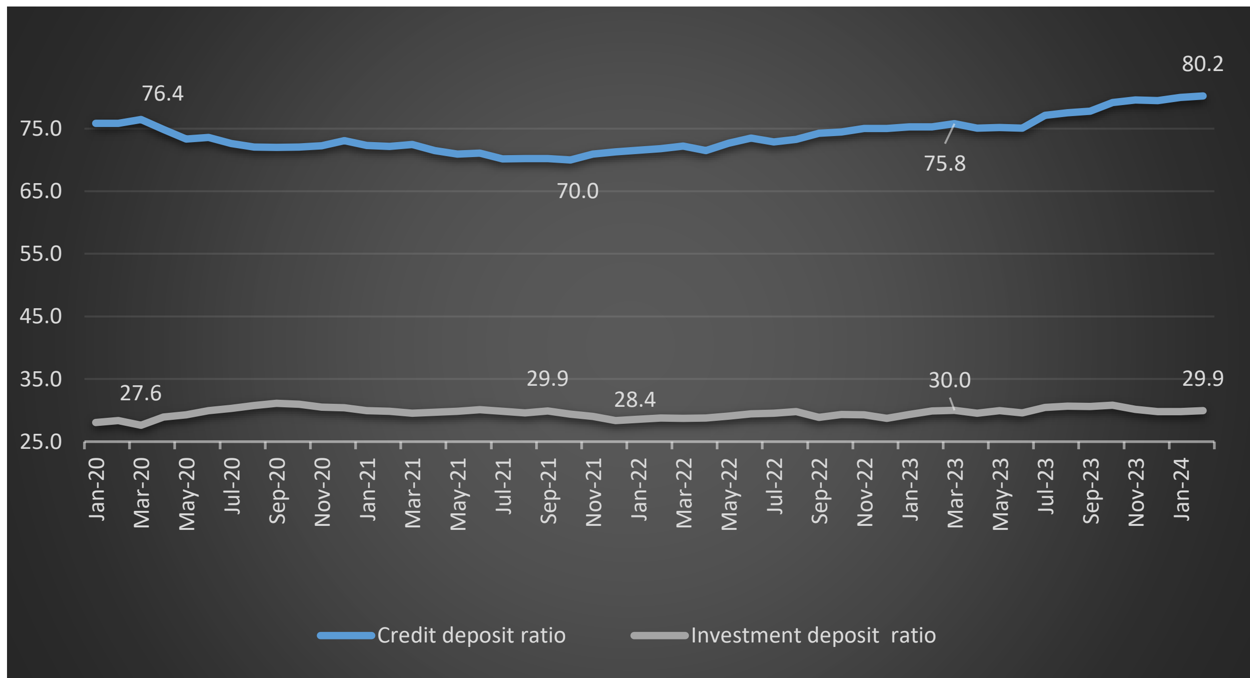
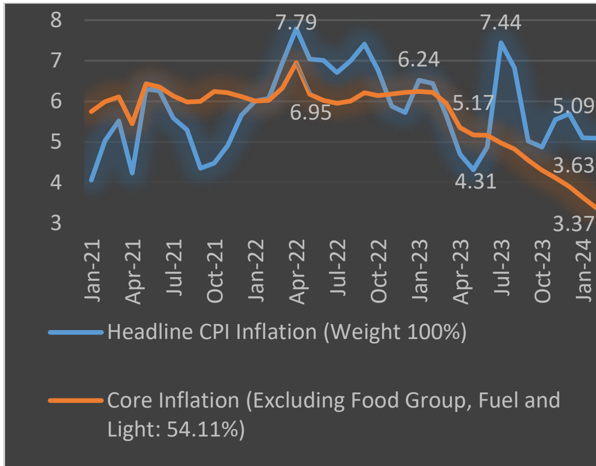


Chart 11b
Trends in Credit and Investment Deposit ratio of Banks



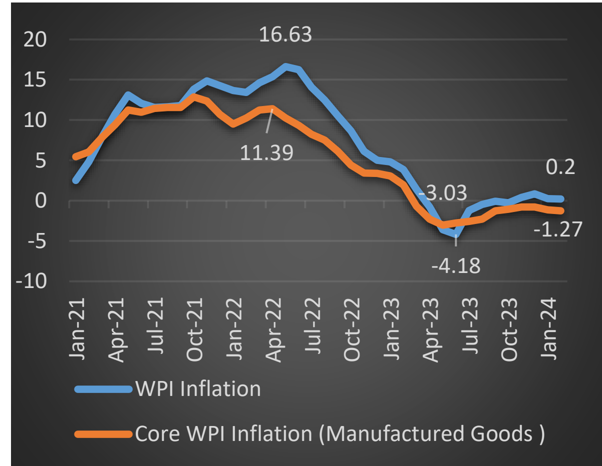
Source: CMIE Economic Outlook and RBI

Char 12a
Trends in Headline and Core CPI Inflation



Source: National Statistical Office (NSO)

Chart 12b
Trends in Headline and Core WPI Inflation



Source: Office of Economic Adviser

Chart 13a
Annual Growth in GDP and GVA

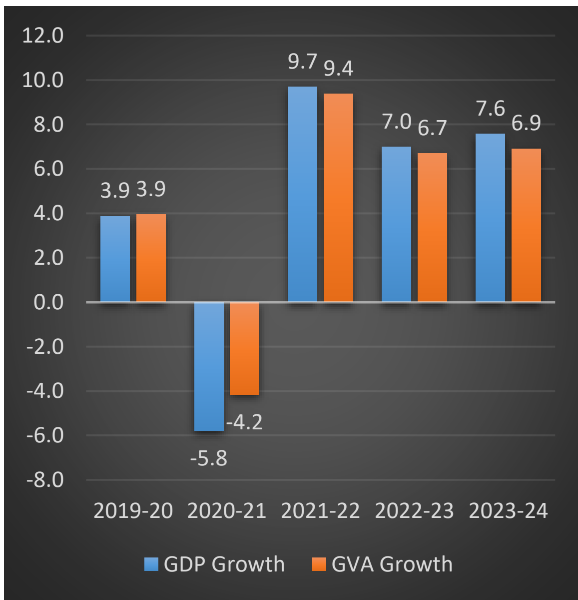
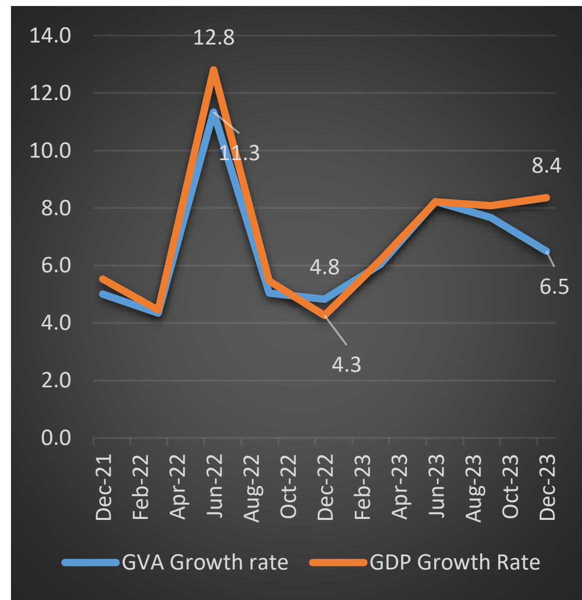


Chart 13b
Quarterly Growth in GDP and GVA



Source: CMIE Economic Outlook and NSO