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Assessing inflation targeting in India

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Abstract

The literature expects it to take a long to establish inflation targeting (IT) in emerging markets, but the Indian experience suggests that suitable adaption of IT to domestic structure and shocks as well as circumstances can fast-track the process while reducing growth sacrifice. The paper provides evidence and possible further refinements. Key features that worked well were flexible implementation, unlike the pre-pandemic over-strictness; counter-cyclical smoothing of shocks with real rates near equilibrium; good fiscal-monetary coordination with independence in rate-setting; use of complementary prudential regulation and liquidity management; establishing adequate independence from global cycles. The IT framework needs to preserve these features. Use of better inflation data, more transparency and accountability in inflation forecasts and in liquidity management would improve outcomes.

Keywords: inflation targeting; Indian experience; structure, shocks, flexibility; real rates; independence

JEL Code: E52; E63; E65

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1. Introduction

The literature assessing the adoption of inflation targeting (IT) in emerging markets (EMs) took the view that it would take a long time for the appropriate institutions to develop and inflation expectations to be anchored. The preconditions discussed include independence of the central bank, its transparency, its ability to focus only on inflation and to make accurate forecasts. All this meant the output sacrifice required to establish IT was expected to be large and lengthy.

In the early years of IT, India followed this advice, keeping real interest rates high even though inflation fell with oil prices. Growth fell to a low of 3.9 in 2019. Since employment is poorly measured, it is growth that is the secondary objective of the monetary policy committee (MPC) in India's flexible IT regime[1].

In the post-pandemic period, during the term[2] of the second MPC (MPC2), IT was flexibly applied as required in Indian conditions. Despite adverse supply shocks, growth was 8.8% over 2021-24, headline inflation was within the tolerance band of 2%-6%, approaching the target of 4% and core inflation fell below 4%. During MPC1, the steep fall in oil prices helped meet the inflation target. Post-pandemic, inflation largely stayed in the tolerance band, approaching the target despite spikes in oil and food prices as well as supply chain snarls.

Since an EM economy is not in a stable steady-state, macroeconomic policy affects trend growth. Effects can be large and persistent since trend growth is cyclic and more volatile. But since policy often focuses on structural developmental issues, stabilization is neglected, increasing growth sacrifice.

[1]The initial MOU RBI signed with the government in 2015 explicitly mentioned flexible inflation targeting. A tolerance band 2-6% with 3 quarters to achieve the inflation target of 4% all gave the flexibility to look through transient supply shocks, essential to protect growth, which was also an objective. The preamble of the RBI Act, 1934, as amended by the Finance Act, 2016, states: "*AND WHEREAS the primary objective of the monetary policy is to maintain price stability while keeping in mind the objective of growth*".

[2] The term of the first MPC (MPC1) was from October 7, 2016, to October 6, 2020. MPC2 was 2020-2024, with MPC3 taking over on October 7, 2024. The MOU provided for 3 external experts appointed by the government, based on recommendations by an appointment committee, with a non-renewal term of 4 years. We define MPC1-3 to coincide with these terms. The MPC also has 3 RBI officials. The RBI governor has the deciding vote in case of a tie.

India's experience suggests IT can succeed with suitable adaption to domestic structure, shocks, and circumstances. Since cloning of all advanced economy (AE) institutions is not a prerequisite, it can deliver much faster than purists expect, with a lower growth sacrifice, even as supportive institutions continue to strengthen. Flexibility, that adapts procedures to the context, is essential.

The sections below will systematically explore aspects of India's successful flexible inflation targeting (FIT). In a complex system, it is rare to get good outcomes. The paper contributes to a required debate on why and how it happened.

It adds to a growing literature on the Indian experience of inflation targeting. In an early study, Mishra and Mishra (2012) showed why IT was feasible in India. Dua (2020) describes the new monetary policy framework, Blagrave and Lian (2020) is an early assessment of the framework, and Eichengreen and Gupta (2024) show that it achieved its objectives. While Goyal (2022) explains how basic concepts of IT differ for EMs, the contribution of this paper is to examine the extent to which evidence validates the design and implementation of Indian FIT or suggests further modifications.

The remainder of the sections are structured as follows: Section 2 presents evidence that macroeconomic policy has persistent real effects in a transition economy; Section 3 develops the contribution of structure to this; Section 4 that of necessary adaptions to external shocks; Section 5 brings out key differences in operational aspects; Section 6 concludes with a summary of the main lessons learnt.

2. **Perception versus performance**

How much did macroeconomic policy contribute to relative outperformance? India was doing badly before the pandemic. In 2019-20, growth fell to 3.9% from 6.5% in 2018-19. Global shocks

were expected to make matters worse. In the dominant view, further structural changes were a prerequisite for growth to recover. But recoveries surprised on the upside. Forecasts continually needed to be revised upwards.

If there were fundamental constraints, the growth outperformance is a puzzle since major new reforms take time. Moreover, if only reforms were responsible for growth, why didn't they deliver in the 2010s?

Time-series evidence suggests it was the neglect of macroeconomic smoothing that led to growth volatility. Macroeconomic policy was pro-cyclical and overreacted to shocks in the 2010s. High frequency data shows a turnaround in end 2019-early 2020, before Covid-19 hit in March, as over-tight monetary-financial conditions softened since early 2019 (Goyal, 2022a). Softening continued after the COVID-19 shock. Policy became countercyclical.

Both the 2010s and the 2020s had major external shocks. Over-stimulus as part of G-20 coordinated macro action in response to the global financial crisis (GFC) widened double deficits and vulnerabilities to global risk-on and –offs. This overreaction led to monetary, fiscal, and regulatory tightening in the 2010s. The focus on macro structural reform, not on stabilization, resulted in underperformance, while smoothing of shocks in the 2020s contributed to outperformance

In 2024, again, a structural reform view came to dominate the thinking in the MPC: The repo rate was to be cut only if there was a durable alignment to the 4% target. The dominant view had moved again to strict IT from FIT. Real rates rose, as expected inflation fell. A slowdown followed in H1FY25.

Again, there was a debate over whether the slowdown was cyclical or structural. Those who held the latter view thought that due to rising inequality and a K-shaped recovery, low consumption would remain a fundamental constraint. Views on reforms as a precondition for

growth resurfaced. But a number of surveys showed employment rising[3] following smooth high post-pandemic growth. Firms respond to stability. Consumption growth also rose to 6.7% in H1FY25 compared to 4% in H1FY24.

Moreover, it was the interest-sensitive components of output: Investment, manufacturing, and construction that decelerated in 2024 as real interest rates rose. In addition, public investment had slowed since it was an election year and high credit growth had led to prudential tightening in some sectors. Therefore, there was monetary, fiscal, and financial tightening together again in 2024. The growth recovery in Q3FY25, as the government began spending again, was further evidence that the slowdown was cyclical, not structural.

There is also the belief that India's growth depends on the global; its ability to counter global shocks is limited. But this view underestimates the rise in domestic diversity and adequacy of buffers to counter external shocks. It is necessary, however, to avoid the past tendency to tighten as a precautionary response to such shocks. Smoothing shocks reduces growth volatility and keeps growth at potential, while complementary reforms in line with comparative advantage and technology trends raise potential growth. Firms tend to increase investment and employment if uncertainty falls.

The challenge for policy maybe tough but it is feasible. Apart from smoothing shocks and adapting to structure, policy must adjust to changing circumstances. In the sections to follow, we examine if Indian implementation of IT was able to meet these challenges. Specifically how did the FIT regime adapt to shocks, structure and circumstances.

3. **Shocks and policy response**

[3] After the many shocks of the 2020s, in the survey of unincorporated enterprises (ASUSE) FY23 employment at 5.4 m was lower than in FY16, but it had overshot by FY24. The MSME Udyam portal has jobs rising from 121m in 2023 to 201.9m in 2024. The annual survey of industry (ASI) FY23 found manufacturing employees increased 7.5% to 18.4m from 17.2m in FY21. Periodic labour force survey (PLFS) shows the average rate of growth of manufacturing employment rising from 1.15 pa over 2017/18-19/20 to 5.8pa over 19/20 to 22/23. Annual usual status unemployment rate was at a low of 3.2 and current weekly status 4.9 in 2024. In the RBI KLEMS database, 46.7m jobs created in FY24 were double the 19.1m in FY23.

India faces frequent supply shocks. These can be chronic cost-push due to bottlenecks and inefficiencies as well as volatile commodity shocks because of dependence on imported oil, as well as a still large weight of food in the consumption basket.

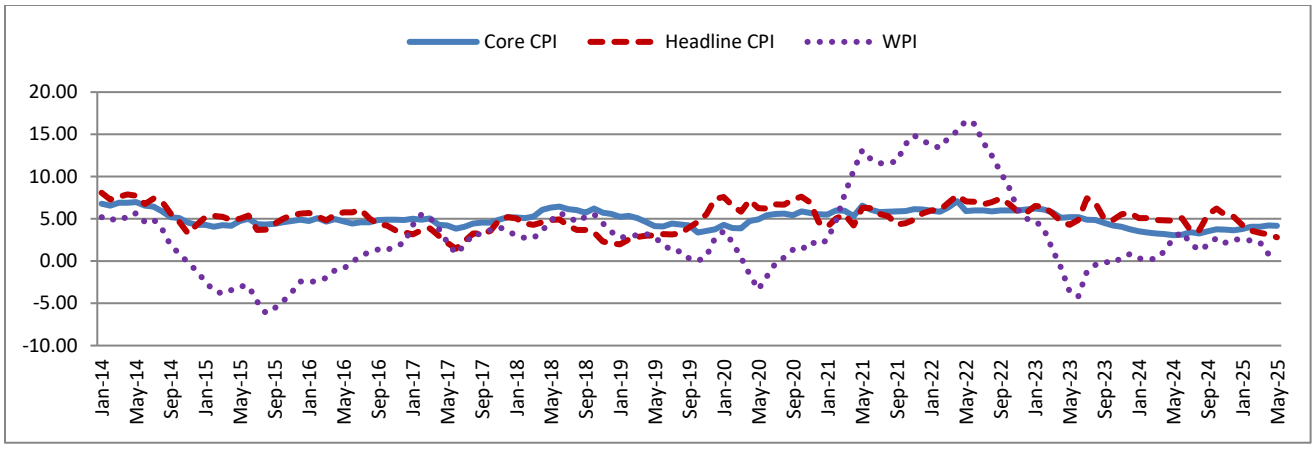
Fiscal supply-side action is more effective in reducing cost escalation due to these types of shocks. Both long- and short-run actions are required. The first set includes reforms to reduce economic distortions and expenditure to remove bottlenecks. Examples of short-run responses are strategic food stock management and countercyclical excise duties on oil commodity prices.

Since relatively large debt and interest costs restrain fiscal spending, monetary policy can more easily affect aggregate demand (AD). Moreover, its impact is high since the interest elasticity of AD is high in India[4] , due to its youthful demography that creates loan-based consumer durables and housing demand. Low-income borrowers are transferring to the formal sector through micro-finance loans. Interest rates affect private investment through the direct cost effect as well as the indirect induced demand. Credit to MSMEs (smaller firms) was the fastest-growing component of bank credit in 2024-25. Large, highly rated firms are borrowing more in the market, where transmission of policy rates is faster. Banks also now have external benchmark-linked loan rates.

Monetary policy also anchors inflation expectations through its communication and the credibility of the FIT regime. This prevents second-round inflation through wages and other nominal contracts impacting firms' forward-looking price-setting, thus reducing cost-push inflation.

Figure 1: WPI, CPI core and headline inflation (base year 2011-12

[4] Goyal and Arora (2016) in a gap estimation of the AD-AS coefficients find the interest elasticity of AD to be -0.21, which compares with estimated AE values.



Source: MOSPI https://www.mospi.gov.in/

Figure 1 gives WPI, CPI headline, and core inflation since the start of the IT period. It shows the volatility of WPI inflation, which has a large weight of oil prices. WPI inflation fell steeply during MPC1 but rose even more steeply during MPC2 when it was also affected by pandemic-time supply chain snarls. Food inflation affects headline CPI more because of the large weight of food in the consumption basket. Even so, fluctuations in CPI headline inflation were lower than in its volatile components. The growing credibility of FIT, as well as fiscal supply-side action, steadily brought inflation towards the target.

That core inflation fell to lifetime lows during MCP2, despite large supply shocks, suggests better anchoring of inflation expectations[5].

Macroeconomic structure

It follows the macroeconomic structure of the economy can, therefore, be characterized as an aggregate supply (AS) that is elastic due to underemployment, but subject to frequent shifts due to cost shocks. Both fiscal and monetary policies affect the shifts. AD is interest-elastic.

[5] Goyal and Pandey (2025) find evidence from data on disaggregated industrial pricing that firms' pass through of commodity price shocks has fallen in the IT period.

Another set of shocks is due to capital flow surges and sudden stops driven by global risk-on and –off. EMs are, by definition, more open. External shocks can aggravate internal financial stresses, raise risk premia, and financing costs. The policy implications following from this are taken up in the next section.

Monetary-fiscal policy clearly needs to counter major shocks in order to reduce both inflation and the volatility of growth. Instead, in the absence of buffers and fiscal space and because of high risk aversion, macroeconomic policy it the past was pro-cyclical, tightening when global conditions were adverse. The structure of AD-AS implies that such tightening reduces inflation only marginally, while imposing a considerable growth sacrifice[6].

If continuing improvement in supply conditions, as well as strategic fiscal responses to commodity price shocks, act to keep inflation near the target, the real repo rate should be kept near the neutral interest rate (NIR), except under exceptional shocks. NIR rises with excess demand. It falls in a slowdown and rises in a boom. But during catch-up growth that is absorbing excluded workers and raising potential growth, NIR need not rise with growth[7]. If inflation remains at acceptable levels despite higher growth, it means the potential itself is higher.

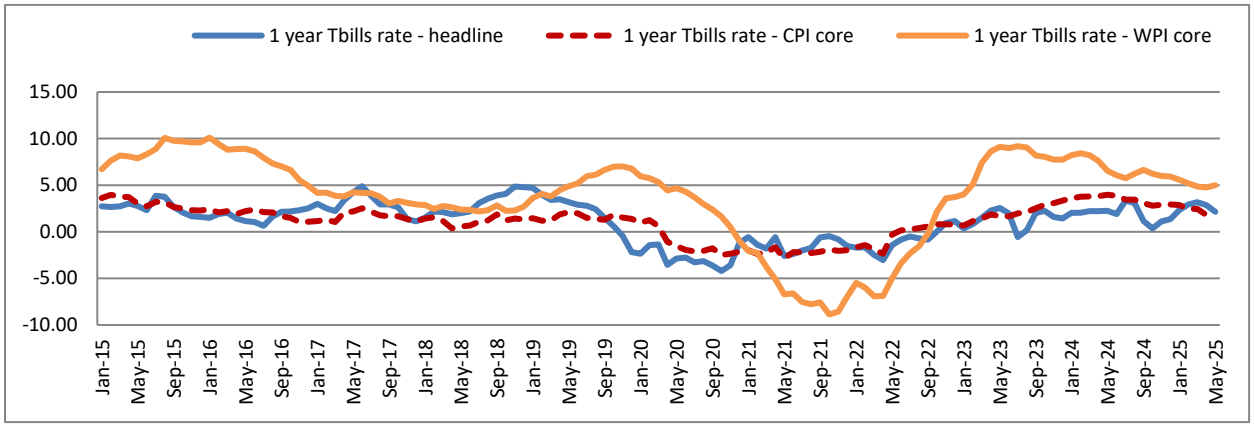
There are controversies in measuring NIR, but a value about unity implies that the policy repo will rise with persistent inflation, making the FIT regime credible. It balances the interests of savers and investors, giving the first a positive real return on savings but keeping the cost of borrowing low for the second. It reduces the growth impact of inflationary shocks, since real rates do not rise; yet monetary policy is countercyclical, responding to inflation with a rise in

[6] Goyal and Ray (2025) demonstrate that in such a structure, the growth sacrifice increases with demand tightening in response to a supply shock.

[7] In RBI staff estimations, Behera (2024) raises the NIR range estimated in Pattanaik et. al (2022) largely because of higher growth. Goyal (2009) finds in a general equilibrium model for an EM with dualistic labor markets and two types of consumers that the NIR is most sensitive to the consumption share of the poorer consumers and falls with it.

nominal rates, but with minimal growth sacrifice. It is consistent with a countercyclical smoothing of growth at potential.

Figure 2: Real interest rates derived from the one-year T-bill rate



Source: Calculated from MOSPI and RBI databases

Figure 2 shows real rates calculated by subtracting current WPI, CPI headline, and core, respectively, from the 1-year Treasury bill rates. The latter are used since they may be factoring in I year ahead inflation expectations. Real rates in terms of the target CPI headline were high during MPC1, peaking at 5%, and low during MPC2. They were negative just after the pandemic, around unity during the high growth recovery, before rising towards 2% in 2024.

Apart from the structural reasons discussed above, there is another reason why the MPC needs to pay attention to the real interest rate. The financial sector dominates the discussion of inflation targeting and future changes in the repo rate. Analysts are vocal but focused on financial sector interests. What matters for them is the expected nominal rate, since this is what affects market positions and returns.

The real sector makes much less noise, but that is what drives growth, which is also a major MPC's objective. It is the real repo rate that affects consumption and investment. This is the interest rate channel affecting AD. The MPC, therefore, needs to keep the real rate at the

forefront of its deliberations despite all the market focus on the nominal repo rate. In the long term, the financial sector will do well if the real sector is doing so.

Monetary-Fiscal coordination

Since supply-side actions have a larger impact on inflation and real interest rates on demand, coordination across monetary and fiscal policies can decrease the cost of disinflation[8]. But is this counter to the independence thought to be essential for the credibility of monetary policy?

A policy repo conditional on inflation makes such coordination consistent with central bank (CB) independence. If inflation rises since supply-side action is not adequate, an inflation-targeting CB should be able to raise the repo rate. For credible anchoring of inflation expectations, it is adequate if nominal rates rise with persistent inflation.

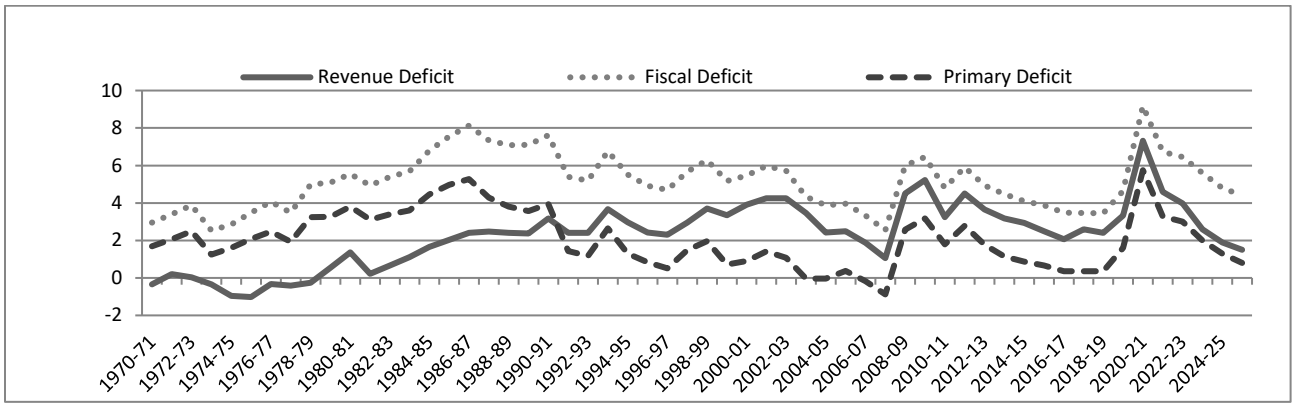
EM governments, however, tend to overspend. They are often subject to political pressures, short-termism and poor discipline. If this results in inflation, the CB must tighten. Coordination, then, is difficult.

The Indian case illustrates how circumstances affect policy feasibilities. In the 2000s high-growth period, growing revenues were used to spend more. The focus was not on creating buffers for a lean period. Figure 3 shows revenue deficits that first appeared in the 1970s and stayed positive even in the high-growth 2000s[9]. So, monetary-fiscal coordination was not feasible. The CB often was at loggerheads with the government. The outcomes were poor. But during MPC2, the government was committed to fiscal conservatism. The reduction in deficits after the pandemic peak was much sharper than in the past.

[8] Goyal (2018) shows achieving optimal Nash equilibria in the Indian AD-AS structure where the fiscal and monetary authorities are each more effective in the other's primary objective, requires flexible rules combined with delegation to a conservative fiscal authority and a pro-growth central bank. Post-pandemic India had this combination.

[9] While higher growth can reduce debt ratios in EMs, in an optimising dual economy general equilibrium model shocks to subsistence consumption results in a large increase in debt. The rise is more if debt levels are already high, and if there is higher growth (Goyal, 2011). This was the Indian fiscal response during the high growth 2000s and during the GFC. Therefore, either commitment to conservatism or some fiscal rules are required.

Figure 3: Deficits of the Central Government (as a % of GDP)



Source: RBI database and India's Union Budget https://www.indiabudget.gov.in/.
Notes: Early years are from the RBI database, but budget actuals are taken from 2017-18 to 2023-24; revised estimates for 2024-25 and budget estimates for 2025-26.

A mixture of carrots and sticks is available as mechanisms to enforce fiscal conservatism. The first set includes benefits to the government of higher, less volatile growth. Transition economies tend to have higher average growth, but shocks make it volatile, reducing benefits. This has been true of India. High smooth growth that exceeds real interest rates lowers deficit and debt ratios, as well as reducing the burden of interest payments. Although EM government debt is generally less than that of AEs, the interest rates at which they borrow are higher, absorbing a large share of revenues. In India, 25% of total central expenditure went on interest payments in FY24.

The expenditure multiplier is higher for a conservative government, with better quality of expenditure, since monetary accommodation becomes feasible (Goyal and Sharma, 2018). Risk premiums and spreads also fall. Quality expenditure sustains adequate fiscal stimulus, despite fiscal consolidation as debt and deficits fall[10]. During the IT period, the central government was committed to conservative reduction in deficit ratios, while increasing the share of public investment.

[10] But markets tend to underappreciate this as they are focused on the fiscal impulse, that is, the share of total expenditure that is deficit financed and so directly creates excess demand,

The 2nd set of enforcement mechanisms includes fiscal rules that many governments have adopted. But sovereigns can always use escape clauses and off-budget items unless they are committed to conservatism. The latter can be induced from awareness, as well as from well-designed incentives in fiscal rules. In EMs, pressures also come from foreign investors who tend to flee or expect exorbitant returns, in EMs with fragile government finances.

4. Capital flow volatility and the exchange rate regime

EMs are open to varying degrees of international capital movements. Since the Indian liberalization in the 1990s, surges and sudden stops in capital flows have been largely driven by global events. In times of global risk off, or whenever US treasury yields rise, capital tends to rush back to US safe assets. During risk-on, they return to chase higher returns in EM markets.

Canonical IT wants the exchange rate to act as a buffer. Floating in response to capital flows allows some autonomy for domestic monetary policy. Interest rate defence of the exchange rate is not required in AEs since the overshooting of the nominal exchange rate tends to reverse. An expected future appreciation towards equilibrium levels allows interest rates to remain low. Arbitraging entry of free capital flows will lower domestic interest rates compared to foreign if the domestic currency is expected to appreciate and vice versa. This is uncovered interest parity (UIP) or the relationship between expected change in exchange rates and the interest rate differential (IRD) for a country.

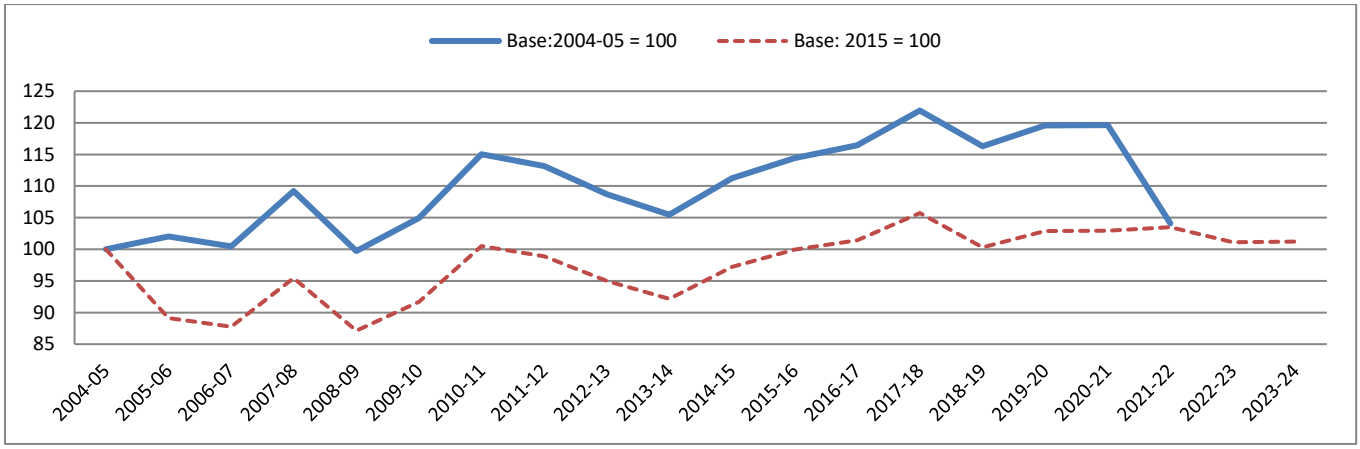
In EMs, however, overshooting tends to intensify and become persistent. It may provoke capital flight. But raising interest rates sharply can aggravate this as growth falls and country risk rises. Thin markets can get trapped in cumulative one-way movements and panics. This higher volatility raises risk premia. Under IT, policy responds to exchange rate fluctuations only after they affect inflation or output. But under free capital flows and perfect markets, cross-currency arbitrage implies interest rates must rise to cover expected depreciation. If self-fulfilling depreciation raises inflation, policy rates have to rise sharply.

Research on UIP brings out the heterogeneity between AEs and EMs. Just the expectation of depreciation is enough to raise the IRD in EMs, although that depreciation may be only rarely observed in the data. Research shows that the magnitude of expected depreciation is normally high for EMs. One estimate[11] of the excess returns or UIP risk premium in EMs is 3%. This raises their borrowing costs.

Therefore, contrary to conventional macroeconomic theory, merely relying on the flexibility of exchange rates is not enough to shield the domestic economy from global spillovers. But intervening to reduce excess volatility is a strategy that can decrease both persistent real misalignment and borrowing costs.

While preventing excess volatility of the exchange rate has long been the policy of the RBI, there were periods when real appreciation occurred and hurt trade. Figure 4 graphs export-weighted real effective exchange rate indices for 2 base years (REER). It shows one such period—the late 2000s.

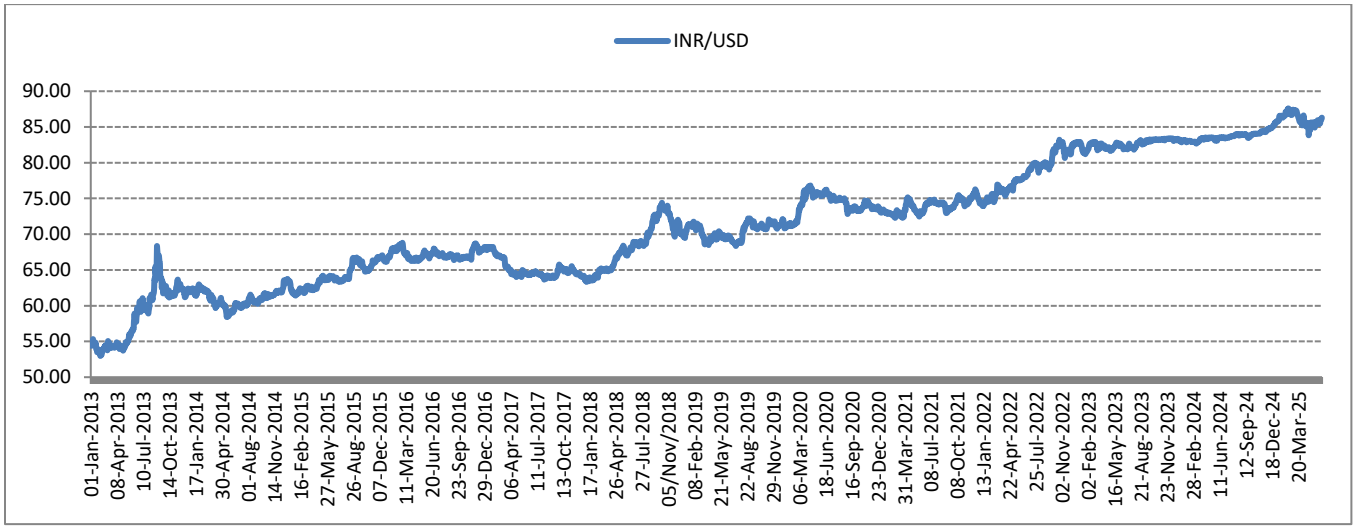
Figure 4: Real effective exchange rate indices (Export-based weights)



Source: RBI databases
Note: A rise in the index denotes REER appreciation.

[11] Goyal and Ray (2024) report on research on EMs that finds currency risk premia exceed actual depreciation in EMs and higher volatility aggravates the premia (see Kalemli-Özcan and Varela, 2021, and Das et. al., 2021).

Figure 5: Daily nominal RBI reference spot exchange rate against US$



Source: RBI weekly statistical supplements

RBI was also criticised for too much intervention and volatility smoothing over 2023-24 (Figure 5). But this was a period of large inflows. Intervention by any CB facing large capital movements has to be strategic. Figure 5 shows there is more depreciation during periods of global risk-off outflows when some reserves are also sold, and less movement during risk-on inflows when reserves are rebuilt. During MPC2, large nominal depreciation after the pandemic, the Ukraine war and Mr Trump's election was punctuated by periods of little change. A regime should not be judged by a short period.

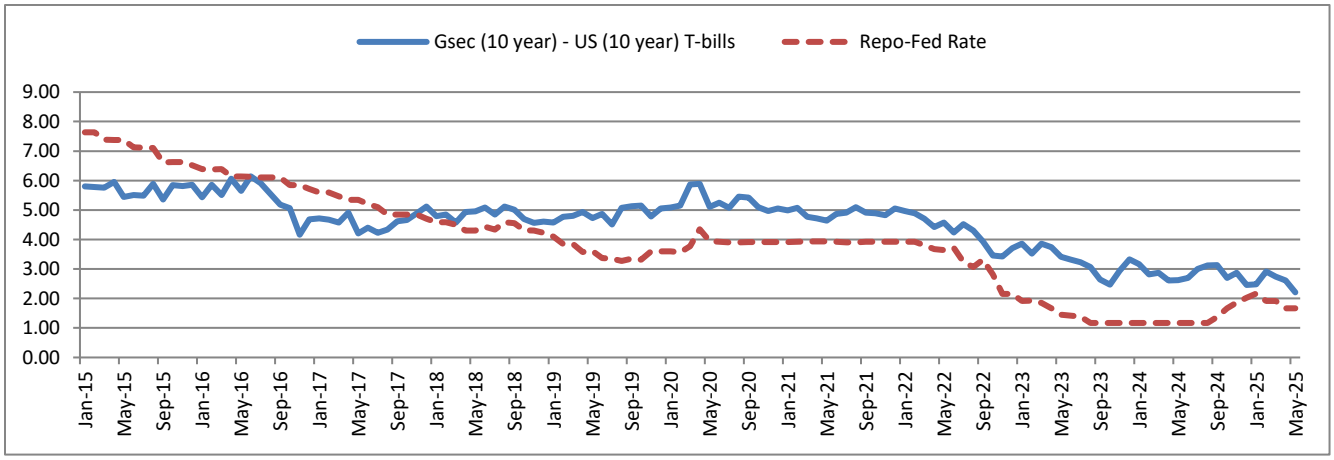
Criticism of intervention, and advice to let the rupee go, normally reach a crescendo when reserves are falling[12]. Critics think FX markets are too large for intervention to make a difference. But episodes of outflows have always reversed. Strategic use of reserves enabled the reduction of rupee volatility and currency risk premiums. That volatility can be brought down so much despite rising FX turnover and major external shocks suggests intervention strategies are highly effective. Research on EMs finds FX reserve buffers to be an essential risk

[12] For example, a ProQuest count of relevant articles on the rupee peaks sharply in periods of outflows. Sentiment turns adverse.

reduction strategy (Gourinchas and Obstfeldt, 2012). Moreover, holding reserves is not compatible with a free float and movement of reserves cannot be in only one direction.

Some nominal volatility is, however, required to induce hedging and for market price discovery. Despite low volatility in 2023-24, a major positive was that crawling nominal depreciation ensured there was no persistent real appreciation[13] (Figures 4 and 5). Thus, during MPC2, both the major real rates—interest and exchange rates were near equilibrium, implying smoothing of external shocks[14].

Figure 6: India-US interest rate differentials



Source: Calculated from the RBI database and https://ycharts.com/indicators/effective_federal_funds_rate_monthly

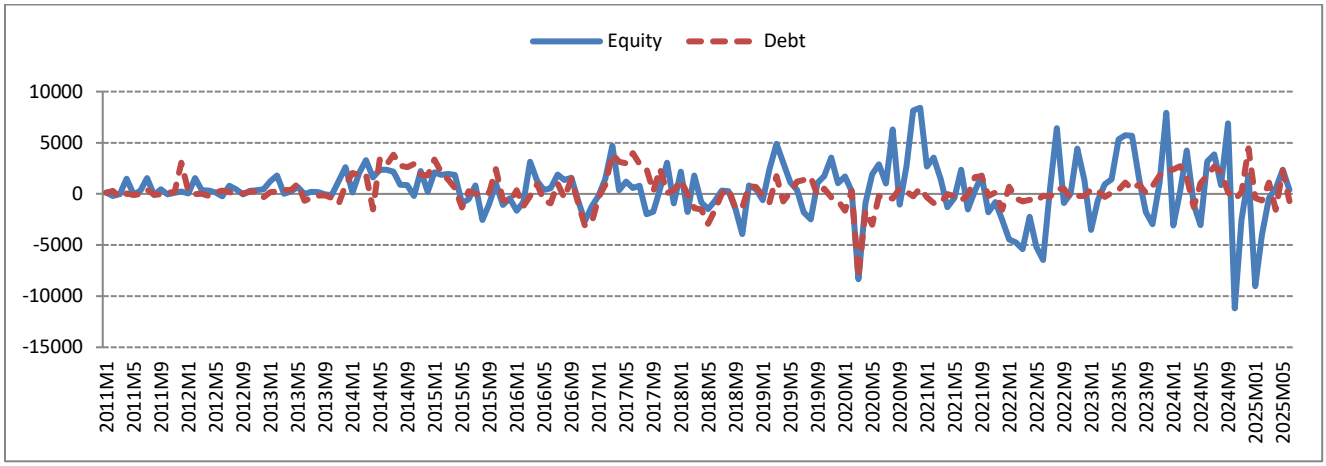
This episode gives another illustration of the necessity of paying attention to circumstances. India's gradual approach to capital account convertibility, caps on debt inflows and risk premium that depended more on growth, meant India's policy rate did not have to closely follow the US Fed rate, unlike for AEs with open capital accounts. But analysts focused on the

[13] Goyal (2023) building on the Goyal and Banerjee (2021) estimation of India's equilibrium real rate including structural EM features, finds the value of 100 in the new 2015 base REER index remains a good indicator of the real exchange rate being near equilibrium.

[14] Goyal (2011) proves in a general equilibrium dual economy model of optimal monetary policy that flexible CPI inflation targeting performs better when combined with some kind of managed floating. It reduces the slope of the AS below that of the benchmark AE.

Fed and trained in UIP tended to raise an alarm when India's interest differentials with the US were low. But Figures 6 and 7 show debt inflows peaking when these interest differentials were the lowest in H2 2024.

Figure 7: Equity and debt flows (USD millions)



Source: Monthly FPI Net Investments:
https://www.fpi.nsdl.co.in/web/Reports/Yearwise.aspx?RptType=6

Indian MPCs have and MPC2 used degrees of freedom from the Fed to set interest rates to suit the domestic cycle. Multiple instruments, such as FX buffers, capital flow management, macroprudential regulation, as well as exchange rate flexibility, freed the interest rate from being tied to the exchange rate, despite the absence of a full float[15].

5. Operational aspects

Various operational aspects of Indian FIT also bring out the importance of paying attention to circumstances. Three areas we take up are the role of liquidity, financial regulation, and communication.

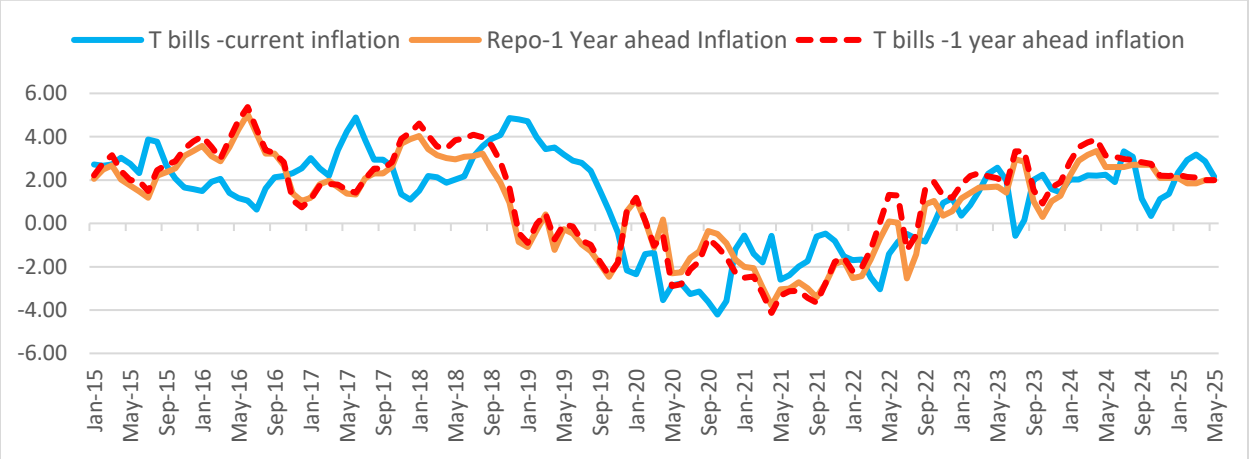
Liquidity and real rates

[15] Buffie et. al. (2018) find FX intervention greatly enhances the efficacy of inflation targeting in EMs.

Short-term (ST) liquidity becomes endogenous under IT since injections or absorptions are demand-driven in the liquidity adjustment facility (LAF). But the Indian system has large exogenous durable liquidity shocks due to cash leakages, build-up of government cash balances, and international capital flows.

Only banks have access to the LAF window, although the financial system is increasingly diverse. Informal and non-bank sectors are underserved. Banks are reluctant to lend based on ST liquidity, or to lend to each other in an era of 24/7 online withdrawals. There are many complaints from the financial sector during periods of tight durable liquidity. The latter did trigger slowdowns in 2018 and H2 2024. Since deficit liquidity encourages hoarding, payments are adversely affected.

Figure 8: Comparing real rates derived from current and one-year-ahead CPI headline inflation



Source: Calculated from MOSPI and RBI databases

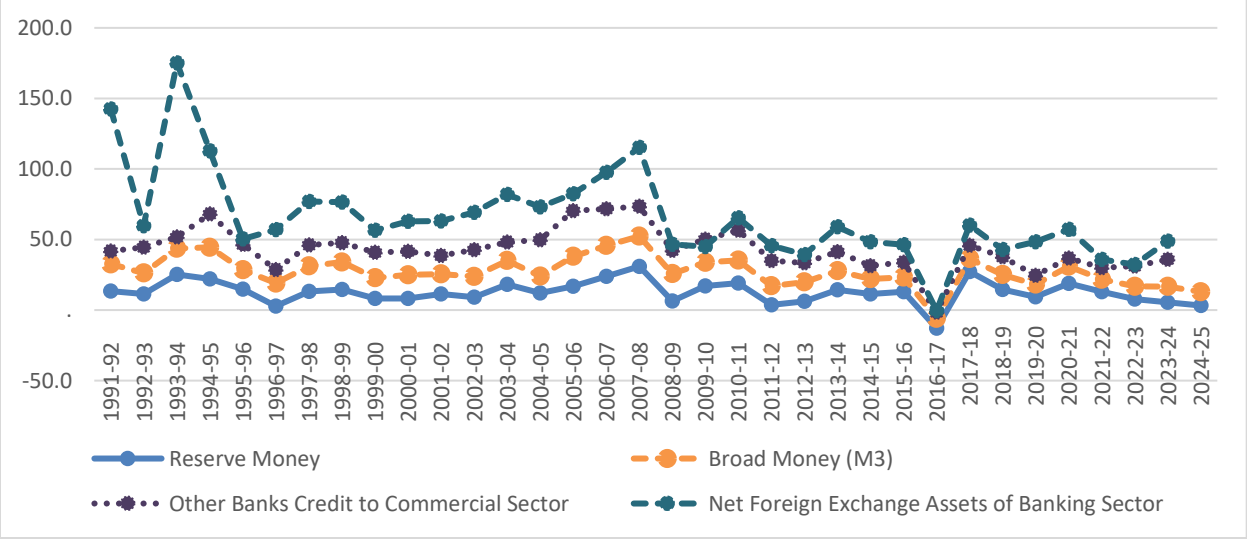
Market rates rise above the repo in periods of tight liquidity. Figure 8 repeats the real rate given by subtracting current headline inflation from the 1-year T-bills rate. It also graphs Repo rate minus 1 year ahead headline inflation and 1-year T-bills rate minus 1 year ahead headline inflation. It shows that real rates derived from short treasury bills exceeded those from the

repo during periods of tight liquidity. Transmission of monetary policy through market rates is becoming faster and is also as important as that through banks.

So, it is better to keep durable liquidity in surplus until the RBI's forecasting and response time improve or market microstructure changes enhance interbank lending. The surplus could be large during accommodation but marginal during tightening.

Since RBI dollar sales during risk-off capital outflows drain durable liquidity, the market view tends to be RBI is helpless to restore durable liquidity in such times. But large, durable liquidity infusions in early 2025, once the RBI had cut rates and moved away from the 'withdrawal' stance, suggest the RBI has adequate tools to neutralize the effects of outflows on liquidity. The real issue is its willingness to do so. Apart from OMOs, it has also developed tools like buy-sell swaps to break the link between FX intervention and liquidity.

Figure 9: Growth rates of some key monetary series



Source: Calculated from RBI databases

Figure 9 shows the importance of reserve money (durable liquidity). Growth in other money and credit aggregates follows its growth. The two major components affecting reserve money

(RM) are domestic and foreign G-sec holdings (FX reserves). While reserve money growth has been too volatile, its volatility was much below that of FX reserve assets suggests effective sterilization. While the two growth rates moved together earlier, in 2023, RM growth actually fell while FX assets increased, suggesting an increasing ability to sterilize. If the RBI decides to, it can keep durable liquidity adequately in surplus and reduce its volatility. This needs to be done in Indian conditions.

Financial regulation

Due to the long struggle with bank non-performing assets (NPAs) and perceptions of structural weaknesses in the Indian financial sector, the pandemic was expected to worsen financial fragility. But in a surprise for most analysts, as well as regulators[16], ratios improved instead of deteriorating, balance sheets strengthened, collection efficiencies and capital adequacy rose. The rating agency Moody, in its upgrade in October 2021, said the financial sector had surprised on the upside.

This implies there were no major structural weaknesses. The reasons for the prolonged stresses of the 2020s were forced mismatches in assets and liabilities, as well as in regulatory tightening compared to government refinance, which was tied to reform. There were also episodes of tight liquidity. When this was reversed[17] pre- and more so post-pandemic, the inherent strengths of the Indian financial sector became clear.

These strengths include increasing diversity in sources of finance, as the number of institutions and instruments rose. Diversity is stabilizing and meets heterogeneous needs in an economy like India.

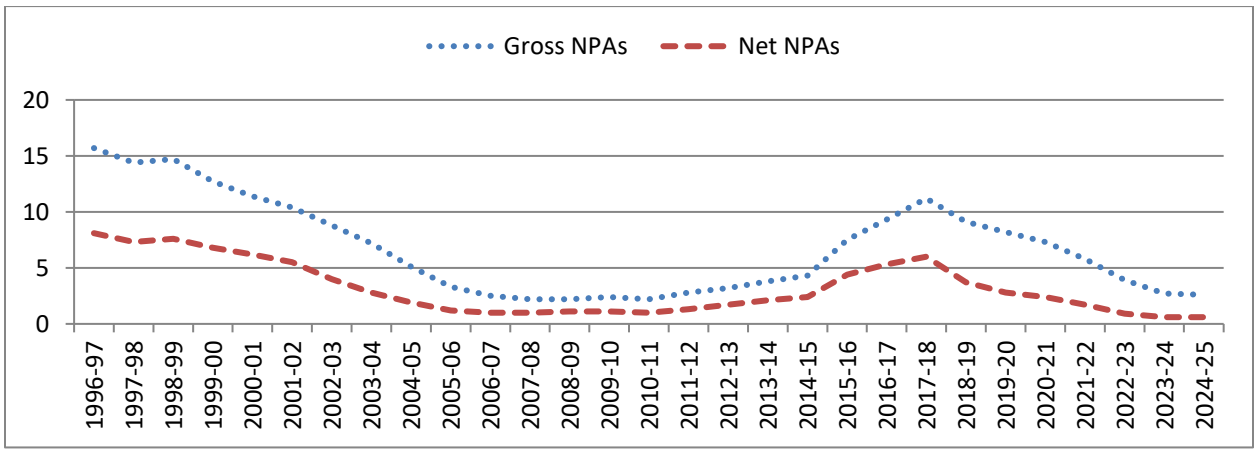
[16] For example, actual pre-pandemic gross non-performing assets (GNPAs) of the banking sector as a percentage of advances in March 2020 were 11.3. RBI forecasts in their Financial Stability Report for March 2021 were 15.6. The actual turned out to be 9.54 (Goyal 2023).

[17] See Goyal (2023) for details of the turnaround. Public sector banks were forced into infrastructure financing because development finance institutions had been shut. But their liabilities are relatively short-term.

A couple of market-based development finance institutions (DFIs) were restarted. Stocks of bonds rose to 34% of non-food credit in April-December 2023. Alternate investment funds were making credit available for lower-rated entities, from informed investors willing to take higher risks for higher returns. With more non-bank credit sources developing, there was less pressure on banks for financing infrastructure where mismatches were likely. Infrastructure asset quality strengthened, enabling lower spreads and regulatory buffers[18].

Diverse participation in stock markets reduced volatility as domestic retail and institutional investment countered foreign outflows. There was more market discipline, but without market dominance. Diverse ownership reduced the discretion and delay associated with the government and the excess volatility associated with markets. PSBs had stronger independent boards and moved to commercial risk-based decisions on lending. Improvements such as direct government credit warranties for small firms, also allowed private banks to participate in such schemes. Corporate governance and regulation were the critical differentiator, not ownership. Bank NPAs fell to low levels (Figure 10).

Figure 10: Non-performing assets of commercial banks as a percentage of gross advances



Source: Calculated from RBI databases

[18] The MD of NaBFID, India's new development finance institution, mentioned at a Financial Banking & Allied Conference panel 2024 that default rates had fallen from 5% in 2015, to 1% in 2024. See https://www.livemint.com/industry/banking/infrastructure-financing-nabfid-md-rajkiran-rai-g-private-equity-fund-iba-11725635910317.html

Improvement in and emphasis on corporate governance was the second strength. Broad regulation covered non-bank financial intermediaries (NBFIs) and markets, also lowering systemic risk and arbitrage. NBFIs were regulated by scale. Since data-enabled credit, smaller NBFIs had incentives for better accounting.

Macroprudential regulation for markets covered position limits, margins, and provisioning, unlike in AEs, where it tended to be restricted to banks' credit demand, so that risky under-regulated NBFI's boomed.

The third strength was India's asynchronous credit cycle; credit growth fell due to monetary-fiscal-regulatory tightening in the 2020s, when quantitative easing was expanding elsewhere. Low leverage was helpful as rates rose.

Fourth, post-pandemic support was designed with good incentive properties. Much of the timely liquidity infusions had sunset clauses and automatically lapsed. Government credit warranties for small firms helped turnarounds. All this, and the good recovery, meant the take-up of funding provided for restructuring was limited. Large corporates became cash rich.

As the recovery strengthened and credit growth revived, there were signs of overheating in some sectors. Credit card loan growth exceeded 30%, while overall credit growth was in the mid-teens. In 2023, there was proactive prudential tightening only for the sectors where growth was excessive. This was required, since credit growth, far in excess of nominal income growth, is an indicator of future asset quality problems. It effectively slowed credit card debt.

But when sectoral risk weights had been raised and were working, it was not necessary to tighten aggregate monetary policy. Unfortunately, adverse exogenous liquidity shocks and falling inflation without a repo rate cut led to exactly this. GDP growth fell.

Perhaps regulators themselves underestimated the growing strength of the financial sector and were overcautious, hostage to past crises and perceptions. There are several powerful policy instruments available, but they need to be targeted and coordinated well. Sector-based tightening is the correct instrument to mitigate excess in any sector. It enables avoiding aggregate tightening, as is required when investment expenditure is just recovering after years of slowdown. Unfortunately, in 2024, all the instruments were used together.

Communication

FIT is inherently forward-looking. It announces a target and commits monetary policy to a structured response to excess inflation that enables agents to plan their actions.

An adequate response to persistent inflation makes the inflation target credible, anchoring long-term inflation expectations around it.

But the major other aspect in which FIT is forward-looking is the forward guidance given in the MPC resolution. This includes forecasts of inflation and growth, communication on the stance, which may restrict future action. Sometimes there is commitment to time or state-based paths of repo rate action.

Since monetary policy acts with lags, inflation targeting central banks set their repo rates based on forecasts of inflation to reduce persistence of deviation from targets.

But frequent supply shocks can lower the precision of forecasts. Such shocks also make time-based forward guidance difficult. This is normally the case in EMs. But in the post-pandemic period, under global supply shocks, AE CBs also had to face this problem.

In the US, for example, after a last hike in August 2023, in response to the post-pandemic rise in inflation, the Fed paused at 5.25-5.5 in September but used tough language. Its communication

triggered a ‘higher for longer’ debate. Since the repo rate was now expected to stay higher for longer, market rates rose.

The world’s ‘safe’ benchmark, the US 10-year Treasury, shot up to 4.98 by Oct 19. In its November 1st meeting, therefore, the Fed toned down its rhetoric. It noted that markets had driven yields up too much. In the relief rally that followed, the Treasury yield fell to 4.5 by Nov 4. In the December 13 meeting, again, there was a pause. But now the 2024 rate projections, or dot plots that in September had shown fewer cuts expected, and therefore expectations that rates would be ‘higher for longer,’ were back to 3 cuts as in June 2023. The 10-year yield fell below 4% to 3.9 on Dec 19.

There was inconsistency in signalling both ‘higher for longer’ as well as data dependence. Large fluctuations in guidance created volatility in market rates and, therefore, in capital flows to EMs.

The Indian MPC2 avoided this trap by underlining in its communications that because of the uncertainty it faced, future action would be data dependent. But its reaction function was clearly communicated so that markets could make their own inferences on incoming data. The policy was still forward-looking because forecasts were communicated and decisions were based on expected future variables.

New data acts in a structure that affects outcomes. Forecast accuracy, therefore, also hinges on a correct understanding of the structure of the economy. Here, the RBI’s record was improving, but conservatism led it to overestimate the probability of adverse supply shocks and persistence in high core inflation.

There was discipline from competitive forecasts, with many analysts making their own estimates. Table 1 shows forecast deviations, that is, 3-month and 1-year ahead CPI headline forecasts made by the RBI research departments and by market analysts, minus the CPI

headline inflation actually realized after 3 months and one year respectively. Average analyst inflation is taken from the RBI's survey of professional forecasters (SPF). This is prepared for every MPC meeting. RBI forecasts are given in the MPC resolution.

Table 1: Deviations of projections from headline CPI

Averages	SPF 3 months	RBI 3 months	SPF 1 year	RBI 1 year
2014 March - 2019 January	0.67	0.85	1.20	1.39
2019 March - 2020 March	-0.62	0.93	-2.18	-2.32
2020 November - 2022 March	-0.32	-0.27	-1.21	-1.38
2020 November - 2024 March	-0.36	-0.45	-1.08	-1.21
2023 November -2025 January	0	0.09		
IT Period	-0.17	-0.07	0.10	0.07
Values for				
2024 November	0.45	0.17		
2025 January	1.19	1.06		

Source: Calculated with MOSPI and RBI data

Table 1 shows forecast deviations, especially for the 3-month forecasts, fell over the FIT period. Forecasting was becoming more accurate as inflation volatility fell. The large supply shocks of this period did, however, affect the accuracy of one-year forecasts. RBI forecasts were less accurate than the average SPF forecast in every period shown in the table, but had become more accurate by the end of 2024. Average forecasts changed from over-estimating inflation in the early IT years to underestimating it in the post-pandemic period. Positive deviations imply policy was likely to be tighter than required; negative indicate a greater likelihood of too accommodative a policy. By 2023, however, deviations had become positive again. Underestimation of falling inflation contributed to tighter policy and a slowdown.

In the US, fear of a repeat of the 1970s experience of recurrence in inflation after an early cut led to the reluctance to cut. But inflation had not been high for as long as in the 1970s, long-term inflation expectations were anchored, lagged effects of tightening were bringing down inflation, with real rates high (2-3%) in terms of expected inflation.

IMF advice was that it would be more costly if cut too early. Its advice to EMs was similar. But India's independence from the US allowed it to narrow IRDs without adverse effects, while reducing inflation and stimulating a good growth recovery

By mid-2024, however, the Indian MPC got caught it its own 'higher for longer trap', with the dominant view that the repo should not be cut until inflation reached the target of 4%, ignoring the negative effect of rising real interest rates on growth. Two dissenting views from external MPC members advised cuts from the middle of 2024. Keeping an eye on real interest rates is important.

Forecasts need to pay more attention to core inflation and its theoretical determinants, since many research papers suggests core is the more stable trend value to which headline converges over time[19]. This would contribute to a better understanding of the determinants of inflation, as well as lead to more informed and accurate predictions better based on structure. At present, there is too much focus on individual commodity prices and base effects.

6. Conclusion

FIT is better established since it succeeded even with adverse supply shocks during MPC2, while during MPC1 oil prices fell. Many lessons on what worked post-pandemic can be internalized for the future. Most important was the flexible implementation of inflation targeting, unlike the pre-pandemic over-strictness; counter-cyclical smoothing of shocks with real rates near equilibrium; good monetary-fiscal coordination with independence from the government; use of complementary prudential regulation and liquidity management; and establishing adequate independence from global cycles. The more supply shocks become transient, since inflation expectations are anchored, the more flexibility there is to look through them.

[19] See, for example, Goyal and Parab (2021).

The lessons are summarized as principles (marked P) responsible for outperformance. More research and debate can refine them.

Real variables were kept near equilibrium. Misalignments from real equilibrium interest and exchange rates were minimized. This is an indicator of countercyclical smoothing of shocks (P1). Large deviations of real rates can make growth volatile, as happened in the 2010s.

Good monetary-fiscal coordination (P2) worked well for India in this period. Conservative fiscal policy brought deficits down while improving the composition of spending. Other supply-side improvements (P3) were maintained. These are essential for non-inflationary growth. It is always possible to do more and further raise potential output. In particular, it is important to shift from interventions that distort resource allocation to those that improve productivity.

With fiscal policy doing its part, monetary policy can keep the repo rate as low as is consistent with reaching the inflation target. It is not that reforms must come before monetary action. In a dynamic economy, both can act together. This type of coordination is compatible with CB independence and credible anchoring of inflation expectations (P4) since CB action is conditional on inflation outcomes.

Svensson (2000) had earlier warned that flexibility (P5) in inflation targeting (IT) is very important for its social acceptance. Interest rates affect many groups in opposing ways. A low positive repo is also called for since it balances (P6) these differing interests. It worked well in the period, also reducing core inflation to historic lows. Deviations can lead to protests in a democracy and eventually dilute IT and undermine coordination. This is unfortunate since the inflation target serves as a fair benchmark for contesting groups. Trend inflation in any sector should not rise above the target, although spikes can be looked through if expectations remain anchored. Those proposing a higher trend price rise should, in time, become aware that if aggregate inflation rises, real gains tend to be lost.

There is a view that the neutral real policy rate (NIR) rises with growth. But this holds only for departures from steady-state growth and need not apply if higher transitional potential growth is absorbing hitherto excluded workers, raising productivity and consumption.

A clear counter-factual to conservative estimations based on methods developed for AEs is China, whose sustained high catch-up growth was supported by low real interest rates.

With a few exceptions, market analysts who are most articulate about policy rates are mainly interested in the nominal level and its changes to guide their clients' market positions. They will accept any estimate that NIR policymakers give them, since commitment to an NIR value helps them make predictions.

Since the real rate affects the real sector and its targets, the MPC must ensure real rates are 'correct'. This would balance the interests of savers, investors, and firms while supporting the first national priority, which is to create more productive jobs in order to utilize the demographic dividend as well as to prevent possible political instability.

Even if growth is high, it has to rise to its full potential. A falling trend and low core inflation indicate growth is below potential,[20] implying real rates are above the NIR and there is scope to reduce the repo rate and raise growth. This simple guide cuts through the complexities in the estimation of NIR. The MPC must make sure, if the approach to target is long and slow, the real policy rate does not deviate too far from the NIR during that period.

Levels and spreads in interest rates can also fall if risk premia (P7) fall due to fiscal, monetary, and regulatory actions. For example, lower volatility in the FX market reduces interest differentials required with the rest of the world. In the past, following US policy contributed to over stimulus, then over-tightening. Markets, however, remain overly focused on US rates and spreads, but have gained confidence. Increasing economic diversity also helped create independence from the US Fed.

Adequate liquidity is required along with prudential policies that create good incentives for the financial sector (P8), especially since the sources of liquidity are limited for many parts of India's financial sector, leading to liquidity hoarding. Balance requires that over-strictness be avoided.

[20] There is a literature that uses realized inflation to estimate potential growth, for example, Svensson and Woodford (2003), Goyal and Arora (2013).

There are risks from climate change and India's continuing vulnerability to commodity price shocks. But green opportunities, falling energy intensity, rising agricultural productivity, shift to climate-resilient crops and practices are antidotes. Buffers against external shocks are necessary.

FIT has worked well but some fine-tuning, based on experience, could improve it. The formal framework should protect the principles derived above. Headline CPI should remain the target, but as food share shrinks and core inflation becomes more dominant, forecasts of core inflation should be made public. This is the stable trend, so it will further help anchor inflation expectations and improve forecasts. Regular rebasing and updating of indices are required to ensure measures targeted are accurate.

Giving the MPC responsibility for durable liquidity will also enhance transparency and increase market confidence in volatility mitigation.

To ensure coordination survives changes in parties and personalities there could be explicit allocation of some responsibility to the government on commodity prices. This would also encourage more long-term productivity-based interventions that would sustainably improve farmer incomes over time. The government could also pre-announce an explicit strategy for counter-cyclical use of oil excise taxes in response to international oil price shocks, even while continuing efforts to reduce India's dependence on oil.

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