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INDIA

FINANCIAL SECTOR ASSESSMENT PROGRAM

FINANCIAL SYSTEM STABILITY ASSESSMENT

February 2025

This paper on India was prepared by a staff team of the International Monetary Fund. It is based on the information available at the time it was completed in January 2025.

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FINANCIAL SYSTEM STABILITY ASSESSMENT

February 6, 2025

KEY ISSUES

Context: India's financial system has withstood the pandemic well and has become more resilient since the 2017 FSAP. Nonbank financial institutions (NBFIs)—especially nonbank financial companies (NBFCs) providing credit with wholesale financing—and market financing have grown, making the financial system more diverse and interconnected. The role of the state has diminished, yet it remains significant, including in using the financial system to pursue social and public finance goals.

Findings: Banks and NBFCs are generally resilient to severe macrofinancial solvency and liquidity shocks, but some banks, particularly public sector banks (PSBs), may need to strengthen their capital base to support lending in such situations. More importantly, NBFCs' concentrated exposures, especially to the power and infrastructure sectors—the cause behind the 2016 bank distress—could trigger systemic issues through their linkages with banks, corporate bond markets, and mutual funds. Financial stability risks from climate change appear manageable, but they warrant careful monitoring, especially regarding climate change impact on the agriculture and power sectors.

Policies: The authorities should manage potential systemic risks from concentrated exposures. The regulations of state-owned NBFCs should be aligned with those of the private sector, especially given that state-owned NBFCs are currently exempt from large exposure limits. Data and tools for systemwide and contagion risk analysis should be enhanced, and broader macroprudential policy could be implemented. The central bank should be ready to expand crisis-time liquidity policy options to include tools more suited for systemic liquidity events among NBFIs and markets. The authorities should also continue efforts implementing long-standing policy recommendations to align India's financial sector policy framework in line with international standards, including enhancing the independence and power of regulators, particularly over state-owned institutions; implementing pillar 2 capital charges and the International Financial Reporting Standard (IFSR) 9 for banks and risk-based supervision of insurers; improving conglomerate supervision; and establishing a comprehensive resolution regime. Financial stability objective should be prioritized over social and developmental goals. Directed lending and public finance requirements should be further relaxed and, instead, the government should establish broad infrastructure to support digital lending, introduce state-of-the-art credit enhancement tools, and promote safe securitization.

Approved By
May Khamis and Sanjaya Panth
Prepared By
Monetary and Capital Markets Department

This report is based on the work of the Financial Sector Assessment Program (FSAP) mission that visited India in March and June 2024 and virtually concluded in October 2024. The FSAP findings were discussed with the authorities during the Article IV consultation mission in December 2024.

The FSAP was led by Hiroko Oura (IMF) and Eva Gutierrez (WB). The IMF team included Sipho Makamba (deputy mission chief), Ebru Sonbul Iskender, Tanai Khiaonarong, Vina Nguyen, Tracy Richardson, Béatrice Sagna, Thierry Tressel, Suzette Jeanne Vogelsang, Sha Yu, Yuchen Zhang (all MCM), Nujin Suphaphiphat (APD), and Diarmuid Murphy (IMF expert). Additional technical support was provided by Mátyás Farkas, Zoltan Jakab, Ruy Lama, and Javier Uruñuela (all MCM), Rosha Anjum (LEG), and Hugo Rojas-Romagosa (RES). Francisca Fernando and Kathleen Kao (LEG) undertook a desk review of the anti-money laundering and counter-financing of terrorism (AML/CFT) based on the 2024 mutual evaluation by the Financial Action Task Force (FATF). The World Bank team included, Laurent Gonnet (WB deputy mission chief), Sebastian Boitreaud, Tushar Aurora, Giovanni Bandi, Sergio Merino Gomez, Emma Dalhuijsen, Martin Luis Alton, Natalie Nicolau, Antonia Preciosa Menezes, Venkat Shreedhara, Charles Michael Grist, Srinivas Gynedi, Fredesvinda F. Montes Herraiz, Rekha Reddy, Davit Babasyan, Juan Ortiz, Guillermo Galicia Rabadan, and Pasquale Di Benedetta.

The mission met with senior officials of the Ministry of Finance (MoF), Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), and Pension Fund Regulatory and Development Authority (PFRDA), including Dr. Saksena (Senior Advisor, MoF), Mr. Tangirala (Additional Secretary, MoF), Mr. Swaminathan (Deputy Governor, RBI), Ms. Buch (Chairperson, SEBI), and various private sector representatives.

FSAPs assess the stability of the financial system as a whole and not that of individual institutions. They are intended to help countries identify key sources of systemic risk in the financial sector and implement policies to enhance its resilience to shocks and contagion. Certain categories of risk affecting financial institutions, such as operational or legal risk, or risk related to fraud, are not covered in FSAPs.

India is deemed by the IMF to have a systemically important financial sector, according to Mandatory Financial Stability Assessments under the Financial Sector Assessment Program—Update (11/18/2013), and the stability assessment under this FSAP is part of the bilateral surveillance under Article IV of the IMF's Articles of Agreement.

This report was prepared by Hiroko Oura, Sipho Makamba, Vina Nguyen, and Nujin Suphaphiphat.

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Glossary

AfS	Available for sale
AMFI	Association of Mutual Funds in India
AML/CFT	Anti-money laundering and counter financing of terrorism
AUM	Assets under management
BBM	Borrower-based measures
BR Act	The Banking Regulation Act, 1949
BRICS	Brazil, Russia, India, China, and South Africa
CAR	Capital adequacy ratio
CCB	Capital conservation buffer
(PN)CCyB	(Positive neutral) countercyclical capital buffer
CD	Certificate of deposit
CDMDF	Corporate Debt Market Development Fund
CET-1	Common equity tier 1
CP	Commercial paper
DICGC	Deposit Insurance and Credit Guarantee Corporation
DSTI	Debt service to income
ELA	Emergency liquidity assistance
EM(E)	Emerging market (economy)
FATF	Financial Action Task Force
FC	Financial conglomerate
FSDC	Financial Stability and Development Council
FSDR	Financial Sector Development and Regulation Bill
FY	Fiscal Year
GFSR	Global Financial Stability Report
GhG	Greenhouse gas
G-SEC	Government security
HFC	Housing finance company
HfT	Held for trading
HQLA	High-quality liquid asset
HtM	Held to maturity
IBC	Insolvency and Bankruptcy Code
ICC	Investment and credit company
ICP	Insurance Core Principle
ICR	Interest coverage ratio
IDF	Infrastructure debt fund
IFC	Infrastructure finance company
IRDAI	Insurance Regulatory and Development Authority
KA	Key Attributes
LCR	Liquidity coverage ratio
LTV	Loan-to-value
MFI	Microfinance institution

MoF	Ministry of Finance
MSME	Micro-small-and medium-sized enterprises
NBFC	Non-banking Financial Companies
NBFI	Nonbank financial institution
NDC	Nationally Determined Contributions
NFC	Nonfinancial corporate
NGFS	Network of Greening the Financial System
NHB	National Housing Bank
(N)NII	(Non-) Net interest income
NPL	Nonperforming loans
NSFR	Net stable funding ratio
PCA	Prompt corrective action
PFRDA	Pension Fund Regulatory and Development Authority
PSB	Public sector bank
PSL	Priority sector lending
PVB	Private sector bank
RBI	Reserve Bank of India
RRB	Regional and rural bank
RWA	Risk weighted asset
SCB	Scheduled commercial bank
SEBI	Securities and Exchange Board of India
SLR	Statutory liquidity ratio
UCB	Urban cooperative bank
WEO	World Economic Outlook

EXECUTIVE SUMMARY

Since the last FSAP, India's financial system has become more resilient and diverse, driven by rapid economic growth. The system recovered from the distress episodes of the 2010s and withstood the pandemic well. NBFIs and market financing have grown, making the financial system more diverse and interconnected. State-owned financial institutions' share remains significant.

Stress tests show that the main lending sectors are broadly resilient to macrofinancial shocks, despite some weak tails. Banks and NBFCs have sufficient aggregate capital to support moderate lending even in severe macrofinancial scenarios. But several banks, particularly PSBs, may need to strengthen their capital base to support lending is such situations. Weak tails comprise a few non-systemic NBFCs and urban cooperative banks (UCBs) that report below minimum or negative capital even in the baseline. Vulnerability to short-term liquidity stress is generally contained.

Concentrated exposures, especially to the power sector with structural challenges, could lead to potential systemic stress. The 2016 banking sector distress was triggered by loan defaults of large power and infrastructure companies that were unrelated to macrofinancial conditions. Despite reforms, the power sector continues to show structural vulnerabilities, compounded by transition risks from climate change. While banks reduced their direct exposures to the sector, NBFCs—particularly large state-owned infrastructure financing companies—have significantly increased theirs. If major NBFCs were to become distressed, the shock could spill over to banks, corporate bond markets, and mutual funds that finance NBFCs, and be amplified in the process.

Financial stability risks from climate change appear manageable but warrant careful monitoring, especially in relation to the agriculture and power sectors. Bank exposures to physical and transition risks are moderate, except for those to the monsoon-dependent agricultural sector and carbon-intensive industries including the power sector. Physical and transition risks are projected to have only a moderate impact on India's economic growth and financial stability up to the 2040s, though the impact rises significantly towards the end of the century.

The evolving systemic risks makes systemwide risk analysis and the use of broader macroprudential tools essential. Authorities should collect more granular data and improve their sharing among themselves to sharpen the analysis of systemwide interconnectedness, household credit risks, and climate-related financial risks. Financial stability should be the primary objective of the macroprudential authorities to ensure a willingness to act. Relying on targeted borrower-based measures would enhance policy effectiveness. Starting to build releasable countercyclical capital buffers before the next downturn would support faster recovery at a relatively low cost.

The oversight framework for banks and insurers is generally robust, but it faces both longstanding and emerging challenges. Compared to international best practices, supervisory agencies lack sufficient independence, and their powers over corporate governance in state-owned financial institutions remain constrained. Establishing the primacy of the supervisor's safety and soundness mandate in key legislation would help mitigate potential conflicts with developmental

mandates. The well-established cybersecurity risk supervision framework for banks should be extended to key nonbanks.

The RBI should continue its commendable efforts to strengthen banking supervision. Since the last FSAP, it expanded its regulatory perimeter to include cooperative banks, tightened key prudential rules, and reorganized regulatory and supervisory departments to enhance effectiveness. Critical areas for immediate attention include strengthening the credit risk management framework by adopting IFRS 9 and enforcing Pillar 2 capital add-ons.

Regulation and supervision of NBFCs have been improved significantly, but additional measures are essential. The new scale-based regulation setting different requirements across four regulatory "layers" of NBFCs has helped oversee the diverse industry with about 9,500 entities. Exemptions for state-owned NBFCs from prudential standards should be eliminated to level the playing field and safeguard financial stability, particularly as some of the largest NBFCs, which are heavily exposed to the vulnerable power sector, are state owned. The RBI should ensure compliance with liquidity rules and consider additional liquidity requirements tailored to business models.

The Insurance Core Principles (ICP) assessment found a sound level of observance, with a few but important remaining gaps. Ensuring the sector's soundness requires a shift to a risk-based supervisory approach, as pointed out in previous FSAPs, especially regarding solvency-related requirements with economic valuation of assets and liabilities, an area where progress has been notably slow. The IRDAI should be also given legal powers for starting group supervision.

Finalizing and enacting the resolution legislation aligned with international standards is essential for establishing a comprehensive resolution regime. Resolution powers and tools are limited mostly to compulsory mergers or liquidation and entail higher contingent fiscal costs. The deposit insurance framework should be strengthened by streamlining and shortening the payout process, and by ensuring credible and sufficient backup government funding. Insurers with business sustainability challenges should be allowed to exit voluntarily in an orderly manner.

The authorities should consider broadening policy options regarding the provision of systemic and emergency liquidity support. The growth of NBFIs and market financing implies that the next systemic liquidity event could arise from NBFIs and unexpected market segments, underscoring the potential need to expand policy options as already seen in other major emerging markets and advanced economies. Being operationally ready to expand eligible collateral, with adequate risk controls, beyond government securities for crisis-time RBI facilities is essential.

The authorities should focus on developing infrastructures to adopt financial innovations and solicit more private-sector finance, which would improve access to credits. Public digital infrastructures have significantly improved retail financial inclusion. The authorities can enhance financially underserved sectors' access to credit by strengthening legal, tax, and informational infrastructures for asset-based and digital lending with state-of-the-art credit enhancement tools and for securitization, especially covered bonds. Further enhancing insolvency and bankruptcy processes to reduce the time for recovery is also critical for managing credit risks better.

Table 1. India: FSAP Key Recommendations		
Recommendations	**Agency**	**Timing**
Systemic Risk Monitoring, Analysis, and Coordination, including Climate		
• Ease data sharing and collect more granular data of households, sectoral financial accounts, liquidity indicators of NBFC, and exposures to climate change risks. ¶28 ¶32 ¶35-36 ¶41	RBI, SEBI, MoF	MT
• Improve/establish stress test tools for banks and NBFCs and sectoral and systemwide liquidity stress tests for banks, NBFCs, and mutual funds. ¶27 ¶33 ¶41	RBI, SEBI	ST
Financial Sector Oversight		
System-wide oversight and macroprudential policy	FSDC	
• Designate financial stability as the primary mandate of the FSDC and/or the FSDC-Subcommittee. ¶42	RBI, SEBI, MoF, IRDAI	ST
• Develop a centralized risk dashboard and assess systemwide risks periodically to manage inter-sectoral contagion and the uneven impact of climate change through FSDC. ¶40		MT
• Expand the use of borrower-based measures to all lenders and all household loans. Expand the existing DSTI limit for microfinance loans to all loans and refine the calibration in the future. ¶43	RBI	ST
• Start building the (positive neutral) CCyBs. ¶44	RBI	ST
Common themes for regulation and supervision		
• Amend legislation to clearly prioritize financial stability and investor protection objectives over developmental objectives of the key regulators. ¶45	RBI, IRDAI, SEBI, MoF	MT
• Strengthen powers and programs for supervising financial conglomerates and insurance groups. ¶48 ¶51		
• Amend legislation to limit/redesignate the MoF's power to intervene in regulatory and supervisory decisions of the RBI and IRDAI and to align corporate governance requirements of state-owned banks and insurers with those for private ones. ¶46-47 ¶52 ¶54 ¶56		
Cybersecurity: Further enhance cyber mapping of the cyber and financial systems and undertake cross-sectoral and market-wide crisis simulation exercises and stress tests. ¶64	MoF, RBI, SEBI	ST
Banks		
• Enforce bank-specific Pillar-2 capital add-ons, which are currently set at zero for all banks. ¶53	RBI	ST
• Enhance the credit risk management framework by adopting IFRS 9 with prudential backstops. ¶52		
Insurers: Complete the transition to a risk-based solvency regime and supervisory approach. ¶56	IRDAI	ST
Non-bank Financial Companies		
• Align the regulations for state-owned and private-sector-owned NBFCs. ¶58	RBI	ST
• Enhance liquidity regulations and oversight of liquidity regulations for NBFCs. ¶59		MT
Securities: Incorporate risks-based analysis of emerging risk and develop an integrated approach to monitoring conduct risks and internal capacity to undertake systemic mutual fund stress tests. ¶62	SEBI	ST
Crisis Management and Resolution		
• Finalize the FSDR (resolution) bill in line with the Key Attributes and implement it. ¶69	MoF, regulators	MT
• Reform the resolution framework for insurers to include requirements for (orderly) voluntary exit. ¶72	IRDAI	ST
Systemic Liquidity and Emergency and Systemic Liquidity Assistance/Support		
• Continue reducing statutory liquidity ratio (SLR). ¶74	RBI	MT
• Set ex-ante guidance to broaden policy options to provide systemic liquidity support and ELA in a crisis, including being operationally ready to expand eligible collaterals with adequate risk controls. ¶75-76		
Financial System Development		
• Continue enhancing the flexibility of priority sector lending (PSL). ¶79	RBI	MT
• Improve the distressed credit restructuring framework by enhancing the out-of-court enforcement process and the Insolvency and Bankruptcy Code. ¶80	RBI, MoF	ST
• Introduce covered bond law and create securitization platforms with standardized features. ¶81	MoF, RBI	MT
Note: * "I-Immediate" =within one year; "ST-short-term" = 1–3 years; "MT-medium-term" = 3–5 years.		

BACKGROUND

A. Structural Developments

1. India's financial system is well developed and diverse, with total assets at nearly 190 percent of GDP (Table 2, Figures 1–3). Overall financial development is on par with peers. The banking sector holds about 60 percent of the system's assets and includes large scheduled commercial banks (SCBs) and numerous small cooperatives. NBFIs include NBFCs, insurers, investment funds, and pension funds.[1] The equity market dominates capital markets, followed by the government securities (G-SECs) market; and a small corporate bond market (around 130, 60, and 16 percent of GDP respectively).

2. The state's influence on the system, while diminished somewhat, remains significant. In 2023, state-owned financial institutions held about 55 percent of total financial sector assets, down from 63 percent in 2017, as PSBs focused on rebuilding capital after going through distress in the mid-2010s. The government also relies on the financial system to implement social policies, including through directed lending requirements such as priority sector loans (PSLs)[2] for banks and investment requirements for insurers in housing and infrastructure. The statutory liquidity ratio (SLR) requires banks to invest roughly 18 percent (reduced from 20 percent in 2020) of liabilities in G-SECs to support public finance.

3. NBFIs extended their footprint in the past decade, leading to increased financial interconnectedness. The market share of NBFIs grew, and nearly half of the credit to the private sector now comes from nonbanks. Banks, NBFIs, nonfinancial corporates (NFCs), and households have a roughly comparable size. India's restrictions on portfolio debt investment by nonresidents limits the role of foreign investors. Domestic financial institutions—banks, NBFCs, and mutual funds—are highly interlinked. Also, banks and NBFCs have a co-lending model where banks lend to the priority sectors via NBFCs, splitting their balance sheet exposures.

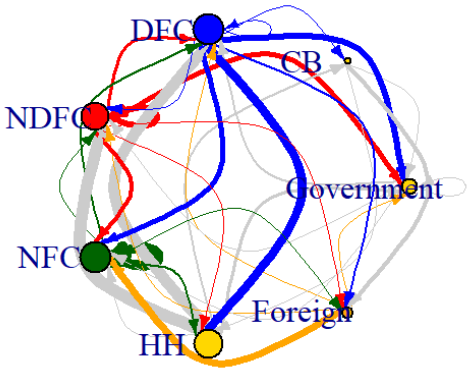
4. The NBFC sector is diverse, but assets are concentrated in the largest state-owned infrastructure financing companies (IFCs). The top three NBFCs are state-owned IFCs, holding one-third of the sector's assets. Excluding housing finance companies (HFCs), the main NBFC business models include investment and credit companies (ICCs), IFCs, microfinance institutions (MFIs), and infrastructure debt funds (IDFs). Legacy deposit-taking NBFCs—all licensed before 1997—are mostly ICCs and hold about 10 percent of NBFC assets.

[1] See Table 2 for the definition of "NBFI" and its difference from NBFCs.

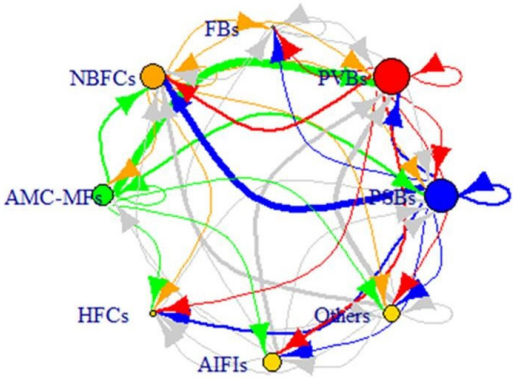
[2] PSL sectors currently include agriculture, micro- small- and medium-sized enterprises (MSMEs), education, housing, and renewables. The requirements have been de facto relaxed over the years (¶79).

India: Sectoral Interconnectedness[1]

Economywide interconnectedness (FY21/22).



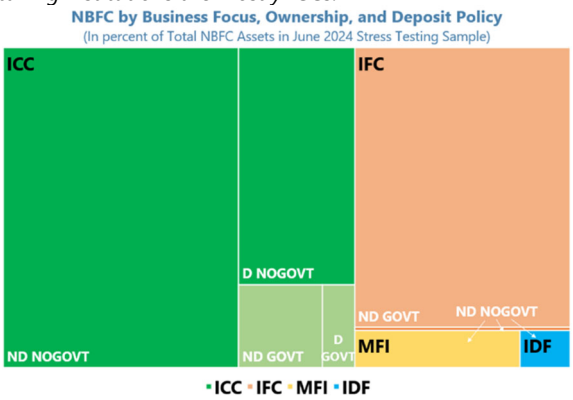
Financial sector interconnectedness (2023)



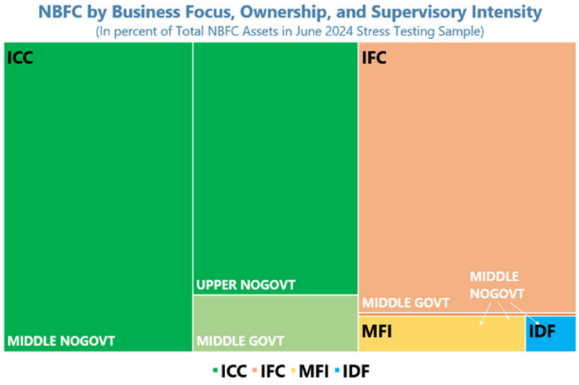
Sources: RBI and IMF staff.
1/ The size of the bubbles represents each sector's financial footprint in the financial system (gross financial assets + liabilities vis-à-vis other financial institutions). Arrow width corresponds to relative stock exposures.
Notes: DFC = Depository Financial Corporations; NDFC = Non-depository Financial Corporations; CB = Central Bank; NFC = Non-Financial Corporations; HH = Households; FBs = Foreign Banks; PVBs = Private Banks; PUBs = Public Banks; NBFCs = Non-Bank Financial Corporations; AMC-MF = Asset Management Companies and Mutual Funds; HFCs = Housing Finance Companies; AIFIs = All India Financial Institutions. DFC include SCBs, cooperatives, deposit-taking NBFCs, and HFCs. Others include insurance companies and pension funds.

India: Market Structure: Nonbank Financial Companies[1, 2]

ICCs and IFCs are among the largest segments of the market. ICCs, MFIs, and IDFs are mostly private sector-owned, while IFCs are almost all state-owned. Deposit-taking institutions are mostly ICCs.



Across all business models, sate-owned NBFCs can be classified, at most, in the middle layer of regulatory tiers irrespective of their size. NBFCs in the upper layer[2] are mostly private sector-owned ICCs.



Source: RBI and IMF Staff calculation.
[1] The data include almost 300 NBFCs in the liquidity stress testing sample that have about 90 percent of total NBFC assets. HFCs are excluded. Other NBFC business models include core investment company, factoring, non-operative financial holding company, mortgage guarantee company, account aggregator, and peer-to-peer lending platform.
[2] In 2021, the RBI introduced scale-based regulation to NBFCs that separates them into four layers (top, upper, middle, and base layers) depending on their systemic importance and applies more stringent rules and supervisory intensity to NBFCs in higher layers.
Notes: ICC = investment and credit companies; IDF = infrastructure debt fund; IFC = infrastructure financing companies; MFI = microfinance institutions; D_ = deposit taking; ND_ = non deposit taking; Govt = government owned; Nogovt = private sector owned; middle = middle layer (of the tiered supervisory framework); and upper = upper layer.

5. While NBFCs are like banks in many ways, there are notable differences. Deposit-taking NBFCs are allowed to take term deposits but not demand deposits, and their deposits are not covered by deposit insurance. NBFCs are not part of the RBI's payment and settlement system and do not have access to RBI's liquidity facilities. Most NBFCs are not subject to PSL, SLR, and cash reserve requirements. Selected NBFCs are subject to some forms of liquidity requirements. Industrial conglomerates are allowed to own NBFCs, but not banks.

6. Insurance market development is on par with that of peers. Insurance penetration (4 percent to GDP in premiums) is comparable to Brazil, China, Malaysia, and Thailand but lower than South Africa (11 percent). Life insurers account for three-quarters of the insurance premiums, with around 60 percent going to the largest state-owned life insurer. In contrast, the private sector dominates the general insurance market.

7. Capital market development is uneven, and the rise of NBFIs has changed the structure of some segments (Figure 3). Equities, overnight index swaps (OIS) and, to some extent, G-SECs segments are well-developed, while the still developing corporate bond market is less liquid. Foreign and retail investors primarily invest in equities, owing to tax considerations and limits on capital inflows. In the past several years, retail investors increased trading of equity options on indexes, placing India at the top of this market globally. Domestic banks and NBFIs invest mostly in high-rated fixed income assets, especially G-SECs, due to their risk preferences and, in some cases, regulatory requirements. Financial institutions are major issuers of corporate bonds, and NBFIs are particularly active in the commercial paper (CP) markets. The securitization market is nascent, comprising less than one percent of GDP.

8. The mutual fund industry, offering plain-vanilla open-end funds, has grown despite some setbacks. Assets under management (AUM) in percent of GDP have grown from about 6 to 16 percent of GDP over the past decade. All three major redemption episodes since 2018 were triggered by corporate bond market distress (Box 1). In some cases, dislocations coincided with seasonal cash needs for tax and other payments and exaggerated redemptions, as institutional investors (including corporate treasuries) are the main clients for bond funds. Recently, equity funds have grown rapidly due to retail investor participation, surpassing the AUM of bond funds.

9. Access to finance is broadly comparable to peers, supported by PSBs and the government's investment in digital public infrastructure. Nearly 80 percent of adults have financial accounts, and household credit is at nearly 40 percent of GDP. Banks', especially PSBs', extensive branch network has helped financial inclusion. The RBI and the government have also developed a world-class digital public infrastructure consisting of a biometric digital identity, a unified payments interface (UPI) that offers instant mobile payments, and a data exchange. The UPI now accounts for nearly 70 percent of all payments by number of transactions.

Box 1. India: Overview of Market Strains Since the 2017 FSAP

NBFC and mutual funds distress of 2018-19: NBFCs and mutual funds faced liquidity issues in 2018 after the default of two large NBFCs. Mutual funds reduced their exposure to NBFC-issued commercial papers (CPs) by over 60 percent.

COVID 19:

- ***Market dislocation***: By mid-March 2020, market stress intensified, particularly in G-SECs and credit instruments. FX market volatility and dollar funding pressures rose. Overnight money markets functioned, but interest rates for certificates of deposit (CDs) and CPs spiked.

- ***Mutual funds' reaction***: In March 2020 alone, mutual funds cut -one-quarter of exposures to NBFCs' CPs. Illiquidity in the corporate securities market made it challenging to meet redemption pressures. An internationally reputable asset management company suddenly closed its six debt funds in April 2020, intensifying redemptions.

- ***NBFCs' liquidity stress***: NBFCs' liquidity crunch became severe when mutual funds ceased refinancing NBFC borrowings. Banks stepped in to meet the funding gap of NBFCs and, to some extent, mutual funds partly aided by RBI bank liquidity support (expecting them to on-lend).

- ***Policy reactions***: The RBI also undertook a G-SEC purchase program. The SEBI introduced prudential liquidity and stress testing requirements to bond funds and swing pricing. It also established the corporate debt market development fund (CDMDF) that is prefunded by the industry with additional government backstops to help funds liquidate corporate papers during market dislocation.

B. Macrofinancial Developments

10. After the pandemic, India's economic growth has been robust and macroeconomic vulnerabilities broadly contained (Table 3, Figures 4 and 5). GDP growth in FY2023/24 reached over 8 percent before moderating to 6 percent in the first half of FY2024/25. After exceeding the RBI's tolerance band of 6 percent in FY2022/23, inflationary pressures eased (despite food-price related volatility) in response to monetary tightening. The external balance is relatively strong, with small current account deficits and low external debt. After remaining relatively stable since end-2022, the rupee has gradually depreciated. Public debt remains elevated—a key factor behind India's sovereign rating of BBB-.

11. Despite additional stress from COVID-19, bank health has improved significantly since the last FSAP, when large corporate loan defaults led to distress in PSBs (Table 4, Figures 6 and 7). Partly thanks to government action to recapitalize and consolidate PSBs, from FY18/19 to FY23/24, the capital adequacy ratio (CAR) for the banking system gained nearly 300 bps to reach over 17 percent and nonperforming loans (NPLs) declined from over 9 percent of total loans to below 4 percent. SCBs' liquidity buffers, albeit declining in recent years, are also comfortable, with the liquidity coverage ratio (LCR) above 100 percent. PSBs continue to exhibit weaker financial performance than PVBs, except for liquidity indicators.

12. The NBFC sector has also recovered from the 2018 distress episode (Figure 8). The sector's CAR rose from 23⅓ percent in FY19/20 to nearly 26½ percent in FY23/24, well above the 15 percent minimum requirement. The non-performing asset ratio also declined from 6.8 percent to 4 percent for the same period.

13. While the insurance sector has a high solvency ratio, state-owned general insurers suffer from structural solvency challenges (Figure 8). State-owned general insurers (about 30 percent of this market and about 8 percent of the whole insurance market by premiums as of March 2024) are more vulnerable than private ones.[3] In 2023, the average solvency ratios were over 200 percent for life insurers and the private general insurers but 32 percent for the four public general insurers, because three of them had negative solvency ratios despite capital injection by the government. These three continue to operate and take on new business.

14. The credit cycle appears broadly neutral with solid borrower health (Figure 9). Private sector credit-to-GDP amounts to 90 percent of GDP, with banks contributing about 50 percent of GDP. The real growth rate of credit to the private sector rose from about zero during the pandemic to about 10 percent in 2023, well within historical short-term fluctuations. Some credit gap measures have been negative for over a decade. Banks shifted their credit portfolio toward personal loans since 2017, partly to reduce concentration of exposures to large corporates. As a precaution, the RBI has increased risk weights for some unsecured personal loans, which effectively slowed credit growth in those sectors. Key borrowers seem to have solid financial strength. Corporates' interest rate coverage ratio (ICR) improved since 2023 despite higher interest rates, thanks to solid earnings and deleveraging. Household leverage relative to disposable income has remained broadly stable since the 2017 FSAP and is moderate compared to EM peers.

15. Despite strong growth, asset market valuations appear broadly in line with underlying earnings growth (Figure 5). Since 2021, the equity market has outperformed many peers, supported by higher earnings per share growth despite some temporary volatilities. Foreign and individual investors contributed to this surge. Individual investors have also brought India's equity option trading volume to the largest in the world, which prompted the SEBI to announce several investor protection measures. While a potential dislocation of this market could have wealth effects on household consumption, it is likely to have a limited direct impact on the stability of financial institutions. House prices have steadily rebounded after COVID-19. Nonetheless, affordability metrics, such as the price-to-income ratio and overvaluation indicators, have remained stable. The IMF real estate risk scorecard suggests less vulnerability for India than other EMs.

16. India is subject to climate-related risks (Figure 10)**.** Some projections (for example, Kahn and others, 2019, and Kompas and others, 2018) indicate that by 2100, India could face annual GDP losses of 3 to 10 percent due to climate change, including extreme heat and humidity and the resulting lost labor hours. Specifically:

[3] General insurers' performance has been influenced by the compulsory third-party motor liability insurance with onerous product requirements. Until April 2024, the premiums were prescribed, and insurers were required to underwrite their pre-determined portion of the market. The 2024 reform to remove prescribed premiums should help improve their profitability. However, there is no cap over payout amount and there is no time limit for filing claims.

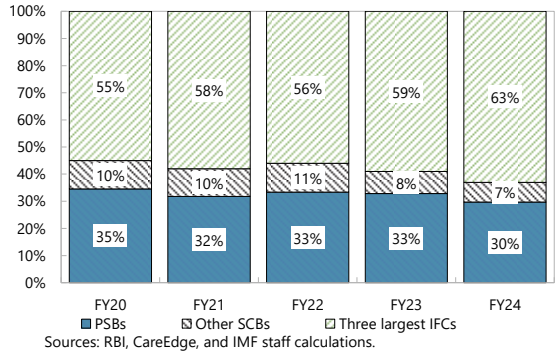
Physical risk: The country ranks fifth of 188 countries assessed in terms of climate-driven hazard and exposure (INFORM Risk Index). Cyclones have a concentrated impact in many coastal states where banks have half of the credits.[4] Global warming is projected to alter India's monsoon patterns with decreased overall rainfall, heightened frequency and intensity of extreme rainfall, and an escalating vulnerability to drought. It increases risks to the monsoon-dependent agricultural sector,[5] to which 13 percent of SCB loans and about 66 percent of regional and rural bank (RRB) loans go, partly because of PSL requirements.

Transition risk: India was the world's third-largest greenhouse gas (GHG) emitter in 2022, though it had one of the lowest per-capita emissions. The coal-dependent power sector contributes to half of India's total CO2 and nearly 40 percent of total GHG emissions. Banks lend 30–35 percent of loans directly to carbon-intensive sectors.[6]

India: Financial Interconnectedness through the Power Sector

NBFCs, especially IFCs have increased their lending to the power sector more than SCBs recently.

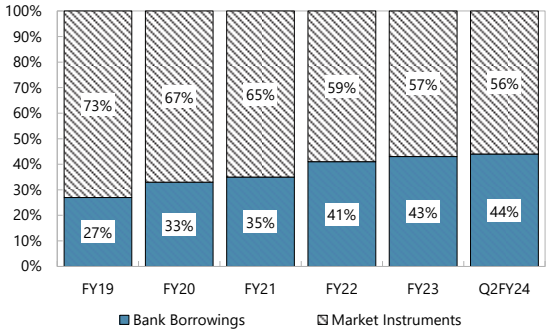
Lending to the Power Sector by SCBs and NBFCs
(In percent of total SCB and NBFC lending to the power sector)



Sources: RBI, CareEdge, and IMF staff calculations.

At the same time, these IFCs now rely more on bank borrowings than before, increasing SCB's indirect exposures to the power sector.[1]

Financing Sources of Selected Power Sector NBFCs
(In percent, the sample includes the largest three IFCs)



Sources: CareEdge and IMF staff calculations.

[1] *The three IFCs included in the chart have about one-third of the total NBFC sector's assets.*

17. Structural vulnerabilities in the power sector and concentrated exposures to them could have significant spillover effects on banks, NBFCs, the corporate bond market, and mutual funds. The power sector, along with infrastructure and metals, was a major source of banking distress in the late 2010s. While the government reformed the sector, it continues to suffer from structural vulnerabilities related to power purchase agreements, tariff-related disputes, coal price and availability, delays in project implementation, and cost overruns, among others (Ministry of Power, 2018). Moreover, large state-owned IFCs, which lend to the power sector, are vulnerable to concentration risks without a comprehensive large exposure limit applied to them. As these IFCs and the whole NBFC sector now rely more on bank borrowings, especially from PSBs, banks have

[4] Staff estimate based on the cyclone hazard map from the National Disaster Management Authority and RBI's state credit exposure data.

[5] India produces about ¼ of rice and over 10 percent of wheat production globally. The agricultural sector's share in India's GDP has been slightly below 20 percent, and it employs over half of the workforce.

[6] Staff estimate based on data from the Ministry of Environment, Forest and Climate Change (MoEFCC) and RBI.

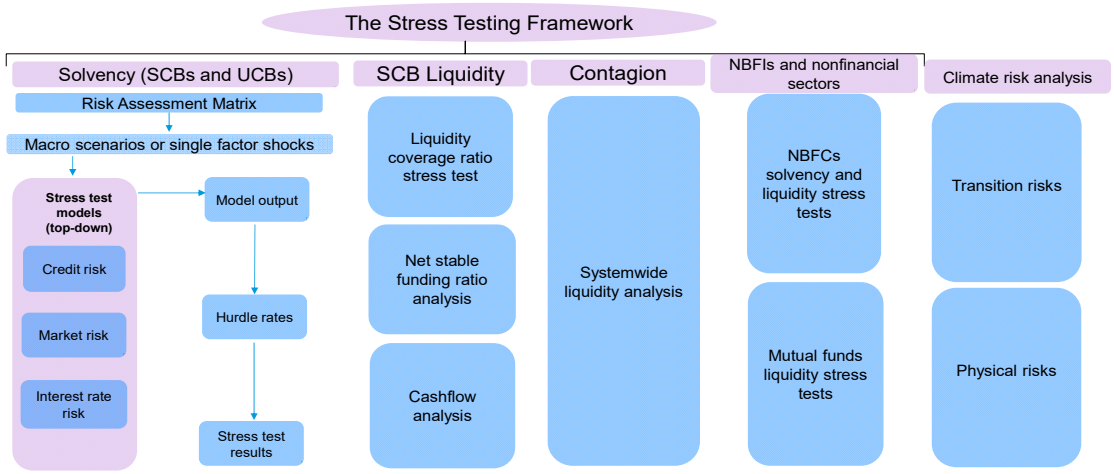
increased their direct and indirect exposures to the sector even though they reduced direct exposures after the RBI tightened their large exposure limit rules.

RISK ANALYSIS

A. Systemic Risk Assessment

18. As India's financial system became more complex and diversified, the scope of the risk analysis was broadened to include both banks and selected nonbanks (Table 6). Solvency and liquidity stress tests were carried out for both banks and NBFCs and liquidity stress tests for open-end bond mutual funds. Motivated by past systemic liquidity events (Box 1), staff performed a systemwide liquidity analysis focusing on bank-NBFC-mutual fund linkages. Finally, the analysis considered the impact of climate change on SCBs.

India: Scope of Quantitative Risk Assessment[1]



Source: IMF staff.
See Stress Testing Matrix (Table 6) for details. SCBs = scheduled commercial banks; UCB = urban cooperative banks.
[1] FSAP examined UCBs despite having only one percent of the system's assets because of their known vulnerabilities and possibility to be the weak tail of the system.

Scenarios

19. Systemic risk analyses were based on a baseline and adverse scenarios and were supported by sensitivity analyses of single factor risks (Figure 11, and Tables 6 and 7). The FSAP used the Spring 2024 WEO forecast for the baseline macro scenario. Two adverse scenarios were used that reflect extreme tail events, including less than 1 percent likelihood shocks to GDP. The key difference between the two adverse scenarios is the path of global interest rates. In the stagflation adverse scenario, while the likelihood of global stagflation receded in late 2024, geopolitical risks

and monetary policy miscalibration of major central banks could result in an increase in interest rates. The second adverse scenario is a standard recession scenario with monetary easing. The sensitivity analyses focused on concentration risks, which could have systemic impact on India's financial system. The 2016 banking sector distress was primarily caused by SCBs' concentrated exposures—well over standard Basel III limits—to defaulted large power and infrastructure companies, rather than generalized macroeconomic stress. Other sensitivity tests consider the impact of potential under-provisioning and under-estimation of NPLs to roughly proxy the potential impact of IFRS9, hypothetically accounting for SCBs' unrealized losses with held-to-maturity (HtM) securities, and credit shocks to fast-growing retail loans.

20. Mutual fund liquidity and systemwide liquidity stress tests consider a scenario of acute market dislocation originating from NBFCs. The scenario assumes a substantial increase in NBFCs' NPLs, which in turn impacts their cash inflows. Some NBFCs eventually default on their borrowings, partly because lenders trigger covenants, which unexpectedly increase repayments before maturity. As confidence in the sector deteriorates, other NBFCs may face a funding squeeze, coupled with dislocation in the corporate bond/CP markets. Mutual funds exposed to corporate bond/CP markets would experience significant redemptions. They may resort to fire sales of assets and stop providing liquidity in repo markets. This would further intensify the funding squeeze, reducing debt rollover rates of distressed borrowers.

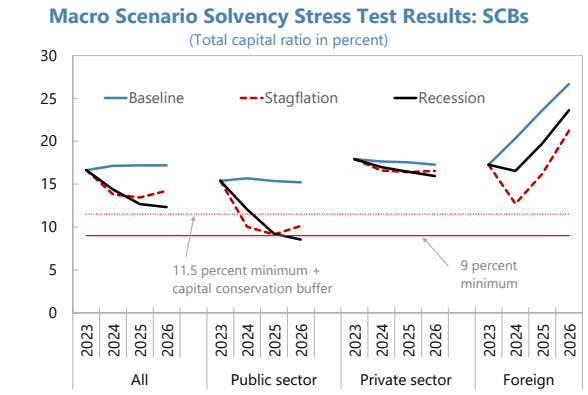
B. Banks

Bank Solvency Stress Tests

21. The stress tests indicate that the SCB sector retains enough aggregate capital to sustain moderate credit growth even in severe adverse scenarios, although PSBs' capacity to do so would be more limited (Figure 12). Assuming credit growth at the same rate as nominal GDP, in both adverse scenarios, private and foreign banks maintain CARs well above the 9 percent minimum requirement and the capital conservation buffer (CCB). However, PSBs need to dip into CCBs in the stagflation scenario and their CAR falls below 9 percent in the recession scenario. However, assuming zero growth to their loan portfolio, PSBs can maintain barely the 9 percent CAR in the recession scenarios. This means that PSBs should strengthen their capital base, including by retaining their earnings instead of paying dividends to the government as they have been doing in the past few years, to ensure they can support economic recovery in a potential future downturn. PSBs are relatively more vulnerable because they have lower initial CARs and are more sensitive to credit risk. By comparison, foreign banks suffer relatively less from credit risk but more from market

SCBs: Solvency Stress Test Results

Overall, the SCB sector remains resilient to macro-financial shocks, but PSBs are relatively more vulnerable.



Source: IMF Staff estimates.

risk, as they have smaller loan books and a higher share of securities in marked-to-market held-for-trading (HfT) and available-for-sale (AfS) accounts (Figure 7).

22. Although SCBs appear generally resilient, stress tests highlight a weak tail. About 10 PSBs and PVBs (with market share of 24-36 percent of SCBs total assets, depending on scenarios) would have CAR below 9 percent or CET1 ratio below 5.5 percent in the adverse scenarios. Most of these banks need additional capital with or without positive credit growth assumption (although the capital needs are only about 0.2 percent of GDP). This means that these banks are likely to deleverage during future downturns if they do not build up additional capital buffers.

23. Sensitivity analyses indicate that concentration risks have diminished, and there are distinct risk profiles across SCBs (Figure 13). First, loan concentration risks have declined since 2017, except for foreign banks. In response to tighter regulations, PSBs' largest exposures are now down to below 25 percent of CET1, in line with Basel III requirements, from about 40 percent in 2017. Second, reclassifying restructured loans to NPL could reduce aggregate capital ratios by approximately 1⅓ percentage point, which is larger than the impact of reclassifying past due loans, or one percent of performing loans into NPLs. This underscores the importance of keeping the one percentage point national add-on to the Basel III minimum capital requirements. Third, while PSBs are more sensitive to overall credit risk, private banks are particularly vulnerable to credit risk from retail loans. Finally, hypothetically reclassifying HtM assets to AfS in the stagflation (high interest rate) scenario would significantly impact PSBs' capital, as they invest a higher share of assets in securities and classify over 70 percent of bonds as HtM. However, most of the securities are G-SECs that are eligible collateral for RBI's liquidity facilities, making actual sales that would crystallize losses less likely.

24. The UCB sector remains well-capitalized in stress scenarios; however, some are currently undercapitalized (Figure 14). The sector currently maintains 31 percent CAR on aggregate, supporting its resilience under the adverse scenarios. Yet, some UCBs were undercapitalized as of June 2024, and several additional banks become undercapitalized or have negative capital under the baseline, indicating challenges to their viability. In the adverse scenarios, there are about 20-22 UCBs depending on the scenario (about 10 percent of the UCB sector's assets) that would have their CARs falling below the minimum requirements. Loan loss provisions are the main driver of the impact on capital.

Liquidity Stress Tests

25. Supported by significant G-SEC holdings, SCBs as a group show broad resilience to liquidity shocks (Figure 15). The aggregate LCR and net stable funding ratio (NSFR) have declined since 2020 but remain high at 131 and 125 percent in 2024. In the mild and adverse scenarios, the LCR declines to 111 and 99 percent, respectively. In the severe adverse scenarios, the LCRs of a few large PSBs and PVBs (70 percent of the system) fall below 100 percent, but all maintain 80 percent or more LCRs. Indeed, the cash flow stress test that allows banks to use all high-quality liquid assets

(HQLAs) shows all SCBs can withstand cash outflows for up to two months.[7] Even after one year, 49–97 percent of SCBs by assets can withstand the stress depending on scenarios, and the sector maintains positive liquid asset buffers. Reverse stress tests show that banks' LCRs are less vulnerable to valuation shocks than shocks to run-off rates. Compared to public and foreign banks, PVBs are relatively more vulnerable to higher retail or wholesale funding run-off rates.

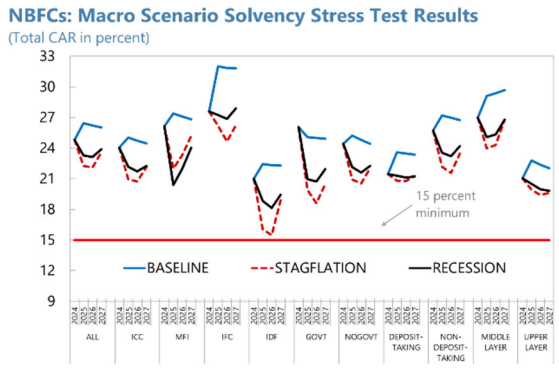
C. Nonbanking Financial Companies

NBFC Solvency Stress Tests

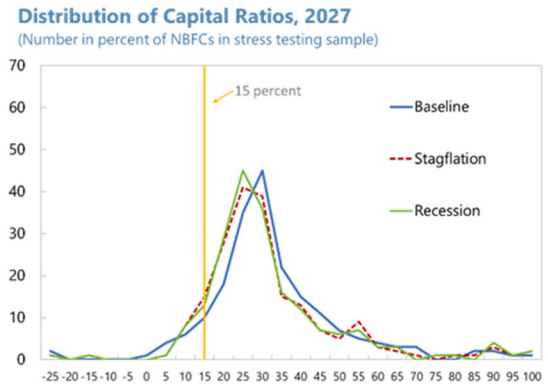
26. Stress test results indicate that the sector has high initial capital buffer and is resilient to macrofinancial shocks, although it has weak tails (Figure 16). Most segments maintain comfortable capital buffers above minimum requirements in the adverse scenarios to continue lending at the same rate as nominal GDP growth. Nonetheless, up to 27 NBFCs needs additional capital (0.4 percent of GDP) in the adverse scenarios. The main drivers are capital needs to maintain moderate credit growth followed by credit costs, accounting for 4 and 3 percent of risk-weighted assets (RWAs), respectively.

India: NBFC Macro Scenario Solvency Stress Test Results

NBFCs are generally resilient against macro scenario, except for MFIs showing high sensitivity to shocks…



There are significant weak tails in a diverse sector.



Source: IMF Staff estimates.
Note: Due to data availability constraints, satellite models for credit risk are estimated using 2020:Q1-2023:Q3 data and 2017:Q1-2023:Q3 data for interest rate risks and net interest income. Separate models are estimated for banks with different business focus (ICC, MFI, IFC, and IDF). When these data do not cover past distress episode (especially IFCs, some of which experienced major distress in 2018), the results should be interpreted with caution.

27. Nonetheless, the macro scenario tests mask critical vulnerabilities from concentration risks to the power sector, which has shifted from banks to NBFCs. IFCs' exposures are heavily concentrated in potentially vulnerable infrastructure companies, which contributed to past banking sector distress. The largest credit exposure accounts for up to 60 percent of IFCs' Tier 1 capital and

[7] The cash flow analysis assumes term deposits are kept till maturity, while the Basel III and stressed LCRs assume even term deposits could be withdrawn before maturity.

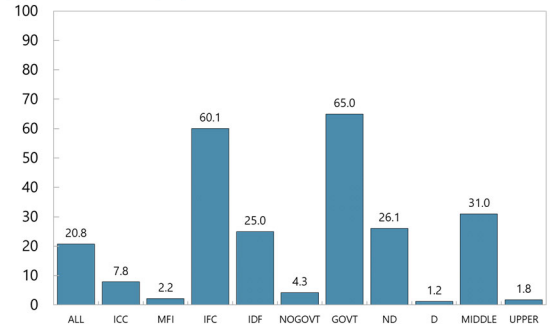
65 percent for government-owned NBFCs' Tier 1 capital, though this has declined noticeably since 2023 due to commendable regulatory tightening. These companies are largely state-owned and carry explicit or implicit state guarantees. Still, NPL problems could emerge from such exposures as was the case in the past. Payout from guarantees usually take time to determine losses, reducing the present value of future recovery.

28. Data constraints could also underestimate the impact of macrofinancial shocks. Data to estimate NPL sensitivities to macrofinancial conditions start only in in 2020. Excluding the 2018 distress episodes could significantly underestimate the impacts.

India: NBFC Concentration Risks

Concentration risks are particularly high for state-owned IFCs compared with the Basel III limit of 25 percent of CET1, as state-owned NBFCs are exempted from large exposure limits…

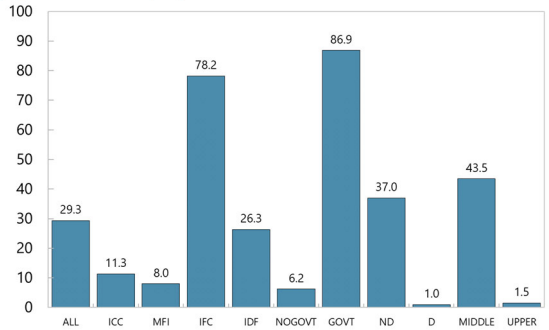
Top 1: Large Credit Exposure as of June 2024
(In percent of Tier 1 Capital)



Sources: RBI returns and IMF staff calculations.

…though they have notably declined since September 2023, as the RBI started to withdraw exceptions from the large exposure limit given to state-owned NBFCs on a case-by-case basis.

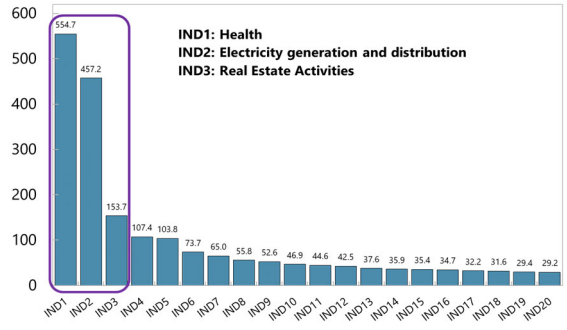
Top 1: Large Credit Exposure as of September 2023
(In percent of Tier 1 Capital)



Sources: RBI returns and IMF staff calculations.

Industry-wise, NBFCs have concentrated exposures to the health and power generation sectors (data as of June 2024)…

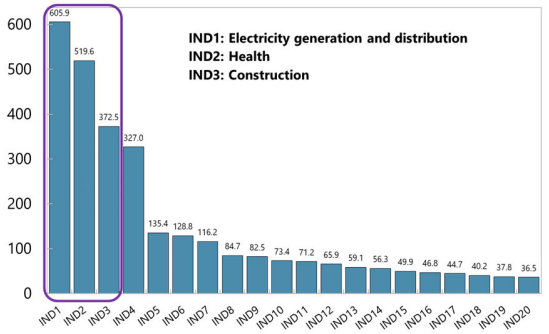
Top 20 Industries: Credit Exposure as of June 2024
(In percent of Tier 1 Capital)



Sources: RBI returns and IMF staff calculations.

…though the extent of concentration to the vulnerable power sector diminished recently (data as of September 2023).

Top 20 Industries: Credit Exposure as of September 2023
(In percent of Tier 1 Capital)



Sources: RBI returns and IMF staff calculations.

Liquidity Stress Tests

29. NBFCs appear resilient to short-lived liquidity strains, but loan defaults could trigger liquidity shortages after three months (Figure 17). NBFCs' liquid assets are only 5⅓ percent of total assets.[8] The main liquidity risks for NBFCs stem from loan defaults and reduced debt service inflows, as seen during the 2018 NBFC distress episode, while funding losses have only a moderate impact. Wholesale funding is mostly term, though creditors may trigger covenants to front load repayments.

D. Illustrative Bond Mutual Fund Liquidity Analysis

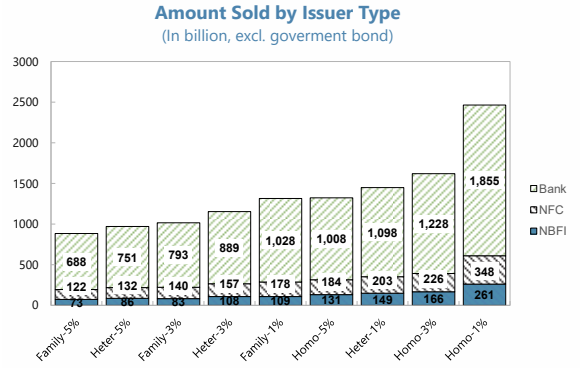
30. The analysis indicates that bond funds are resilient against redemption shocks, suggesting that systemic risks from asset liquidation in the sector are more relevant than fund-specific liquidity risks (Figure 18).[9] In the adverse scenarios, all funds maintain sufficient liquid assets (after haircuts) to withstand historically calibrated redemption stress. The relative vulnerability of shorter-term funds stems from historically large redemption experiences, partly because of seasonal and predictable cash demand for tax payments, which are little related to stability concerns.

31. The CDMDF currently has the capacity to mitigate NBFC bond fire sales but not a broader corporate bond market dislocation. In stress scenarios, mutual funds may sell INR70-260 billion worth of NBFI bonds. With net assets of INR38 billion and a government backstop of up to INR300 billion (as of September 2024), the CDMDF can offset mutual funds' fire sales pressures if stress is limited to NBFC bonds. However, if dislocation spreads to other corporate bonds, additional support may be necessary to limit sharp price falls.

32. The results should be taken as partial and illustrative with a large margin of error due to data limitation. Concentrated trading on a few representative G-SECs and infrequent corporate bond trading with stale pricing data limits the quality of asset haircut calibration, including market illiquidity discounts. Moreover, the

Mutual Fund Liquidity Stress Analysis

The capacity of the CDMDF (about 38 bn rupees) and the government backstop (an additional 300 bn rupees) appear sufficient to offset NBFC bond sales pressures but insufficient in the case of a more broad-based corporate bond dislocation event.



Source: IMF staff. The chart assumes mutual funds liquidate all assets pro-rata—the most likely behavior suggested by fund managers as funds aim to maintain target portfolio structures indicated in the prospectus.

[8] The definition follows standard FSAP cashflow analysis and includes cash in hand, government securities, deposits with banks, other cash and bank balances. The RBI examines only the cash flows for a given period, without accounting for the stock of liquid assets that do not mature (therefore do not cause cash flows) during the period.

[9] The global financial stability community recently started to emphasize the amplification effects from mutual funds' behavior (even when they maintain liquidity resilience) as the key contribution from the sector to systemic risks (e.g., Financial Stability Board's report).

approach assumes that all assets can be liquidated at lower prevailing market prices. If the market completely freezes, funds with sufficient securities may struggle to pay out redeeming investors. Detailed repo data will be necessary to gauge the impact on repo markets where mutual funds are key cash providers.

E. Systemwide Liquidity Analysis

33. The systemwide liquidity analysis identifies what kind of NBFC stress could trigger systemwide contagion and, if so, which sector would experience distress in the end (Figure 19). The shock scenario broadly aligns with the most severe scenario for banks and NBFCs liquidity stress tests (see ¶20 and Table 6). The NBFC liquidity stress test shows they are resilient to short-term liability- and asset-side stress. As in the past (Box 1), the most likely scenario that would put NBFCs under liquidity stress is a significant rise of NPLs that reduces cash inflows for few months. In such a case, some NBFCs would not be able to repay their maturing CPs, bank, and other borrowings. Then, bond mutual fund investors are assumed to run (using a similar scenario to that in the mutual fund liquidity exercise). In response, the funds sell off bonds or stop rolling over CPs, contributing to the dislocation of these markets and intensifying NBFCs' liquidity stress. Based on this scenario, the systemwide liquidity analysis shows which sectors gain cash as they cut back their lending or redeem investment and which sectors lose liquidity as some of their liabilities (e.g., bank deposits) are somebody else's liquid assets.

34. Overall, systemwide liquidity stress in India would likely emerge in specific pockets within the system rather than from a loss of liquidity across the entire system. Most sectors, except for banks, do not experience additional contagion effects as they gain cash by redeeming investments or cutting back lending, if any. Banks build up their cash buffers as they stop rolling over maturing borrowing by NBFCs but also experience outflows as NBFCs liquidate bank deposits and activate credit lines. Altogether, banks maintain ample liquid assets following these shocks, giving them the capacity to step in and help bridge the liquidity gaps for others. However, they may not lend to counterparts where liquidity is most needed if the borrowers do not have G-SECs, which banks can place as collateral for RBI facilities. The main mitigating factor in such a systemwide liquidity shock scenario is that debt markets are mostly closed, which limits the loss of liquidity via capital outflows, unlike many other EMs with a relatively more open capital account. Furthermore, the credibility of central bank money (i.e., limited financial dollarization, unlike jurisdictions with a history of hyperinflation) means investors are willing to hold rupee instead of FX cash (a form of capital outflow).

F. Climate Change Risk Analysis

Physical Risk

35. Macro-level risk analyses indicate that extreme cyclones may give localized, though not systemic, capital impact on SCBs, but the assessment is limited by the absence of more granular data (Figure 20). The geographical diversity of the economy limits nation-wide damage to physical capital. Still, the once-in-500-year likelihood cyclone can notably reduce bank capital ratios,

though aggregate CARs remain well above the hurdle rates. A caveat to these results is that this macro-level analysis may underestimate collateral damage. More granular data showing loan and collateral information by location is necessary to properly assess the impact on some banks with concentrated risk. Moreover, the analysis does not include smaller, more localized UCBs and RRBs, which could experience a disproportionally severe impact compared to larger SCBs.

36. Although the agricultural sector is resilient to small, single-year climate events, compounded climate shocks without additional adaptation measures could potentially lead to a systemwide impact. The analysis focuses on the impact of climate change on major crops. In the most severe scenario, where climate shocks occur over three consecutive years, the agricultural loan default probability could increase by over 30 percentage points, with expected losses surpassing 25 percent of total SCB agricultural loans. The impact on RRBs that have much higher exposures to the sector could be significantly higher. However, these estimates are subject to some caveats. The absence of geolocation and loan-level data may underestimate tail risks, while currently unknown adaptation measures, advanced technologies (e.g., precision farming and drought-resistant crops), and crop insurance—factors not explicitly included in the analysis—can mitigate the impact. Crop insurance could be another mitigating factor, but higher risk of extreme weathers could increase premiums so much, which could make them unaffordable in the future (see World Bank's Financial Sector Assessment, FSA).

Transition Risk

37. The FSAP analysis indicates that taking more progressive transition paths compared to current policy would cause moderate economic growth costs, though with concentrated impact on some sectors (Figure 21). The exercise considered five transition scenarios (up to 2040) aligned with the Network for Greening the Financial System (NGFS) Phase IV scenarios, including Current Policies, Nationally Determined Contributions (NDC), Below 2°C, Delayed Transition, and Net-Zero 2070. IMF staff estimate that India can maintain high GDP growth under all scenarios, although the Net-Zero 2070 transition may lead to a 5 percent loss in GDP by 2040 compared to Current Policies. The mining, heavy industry, refining, and electricity sectors see greater output reductions.

38. While the aggregate impact on SCB capital appears relatively benign, the concentrated impact on the structurally vulnerable power sector could potentially trigger a systemwide impact. SCBs continue to have large exposures to the power sector despite major reductions. While not formally assessed, NBFCs, especially IFCs, could also incur extensive losses given their sectoral loan concentration. The impact on SCBs could be higher if indirect exposures to the power sector through NBFCs are included: annual expected losses relative to Current Policies would increase by approximately 50 percent by 2040 under Net-Zero 2070. The expected losses are more concentrated in PSBs: five banks could account for 60 percent of additional expected losses in 2040.

G. Authorities' Views

39. The authorities noted that India's financial system recovered well from past distress and became resilient, including PSBs, though there are weak tails like UCBs and many mitigating factors. They highlighted that risks arising from the concentration of exposure to the power companies appear overstated. These companies are mainly state-owned, and their borrowings accompany explicit and implicit state guarantees. As for climate change risk analysis, they noted that the role of these companies' measures to mitigate the impact of climate risks on them should be incorporated explicitly. Many losses to the agricultural sector can be addressed through effective adaptation strategies, advanced technologies, government programs, and insurance coverage. Also, scenarios with faster transition paths than net zero 2070 will have severer negative impacts.

FINANCIAL SECTOR OVERSIGHT

A. Systemwide Oversight and Macroprudential Policy

40. The growth of NBFIs and market finance changed financial linkages in the system, making systemwide risk monitoring with cross-sectoral agency collaboration essential (Figure 23). The authorities should develop a centralized systemic risk dashboard and systemwide risk assessment tools by refining this FSAP's sectoral and systemwide analysis. The results should be periodically discussed in the Financial Stability and Development Council (FSDC). The authorities should also establish a dedicated interagency working group on risks from climate change, integrated within the FSDC Sub-committee.

41. The authorities should further enhance their risk analysis tools as global goalposts of financial stability risk analysis move forward.

- ***Closing data gaps and improving data sharing***: Creating a central data depository could facilitate automatic sharing and wider use of already extensive data. The authorities should collect more granular data, especially household surveys and/or a comprehensive credit registry; NBFCs' LCR and additional liquidity data tailored to their business model; credit data by location and industry for climate risk analysis; and more detailed flow of funds data including maturity and off-balance sheet information using granular supervisory data ideally at the institution levels.

- ***Enhancing risk analysis approaches***: The RBI and SEBI have significantly enhanced their risk analysis capacity. Suggested priorities for the future include (i) strengthening the macro scenario solvency stress tests of SCBs and developing them for UCBs and NBFCs; (ii) further improving liquidity stress tests of SCBs, NBFCs, and mutual funds; (iii) developing systemic liquidity risk assessment tools; and (iv) enhancing capacity on climate risk analysis.

42. Financial stability should be the primary objective of the macroprudential authorities to ensure the willingness to act. Authorities in India, like in many other EMs, understandably

pursue both financial stability and development objectives. However, it is important to give priority to financial stability in case conflicts arise, so as to achieve *sustainably* high growth through financial cycles. Financial stability should be the primary objective of the FSDC and/or its subcommittee, clearly anchored in the laws governing the institutional framework. Within the RBI, a dedicated unit should coordinate and monitor macroprudential policies. In the near term, publishing a macroprudential strategy clearly outlining the objectives can enhance policy transparency and public communication.

43. Borrower-based measures (BBMs) for household loans should be considered in addition to risk-weight measures. By directly prescribing limits for loans to certain borrowers, BBMs can mitigate vulnerabilities to high-risk borrowers. Consistent BBMs applied across lenders can prevent regulatory leakages, too. In addition, income-based measures can cover all loan types and stabilize consumption during recessions better than loan-to-value (LTV) caps. Therefore, the RBI could introduce a debt service to income (DSTI) limits for all household loans.[10]

44. Starting to build more releasable capital buffers before the next credit cycle should help India achieve higher sustainable growth at a relatively low cost. India's CCyB is currently zero, similar to other BRICS (Brazil, Russia, China, and South Africa) (Table 8). The experiences during the pandemic prompted the international community to consider preemptively building releasable buffers as insurance against future stress, even without evidence of excessive credit growth. Indeed, solvency stress tests suggest that PSBs need additional capital to support economic recovery in severe adverse scenarios with credit growth. The currently favorable macrofinancial conditions should allow most banks to start building the (positive neutral) (PN)CCyB with existing capital buffers or by retaining earnings more. There is yet a full consensus on how to calibrate the (PN)CCyB, and national authorities tend to rely on multiple exercises and expert judgment. Using a macro scenario stress test is one option, ideally with a more moderate adverse scenario than those used in this FSAP (Figure 22).

B. Sectoral Regulation and Supervision

Common Themes

45. Despite a broadly robust oversight framework, there have been long-standing challenges in the oversight of banks and insurers due to state influence and the pursuit of developmental objectives. Key regulators have stability and development objectives without clear prioritization, and the government pursues social policies through financial institutions.[11] These are long-standing issues, given the historical roles of the financial system and state-owned financial institutions to mobilize saving for economic growth. Easing these constraints by modifying legislations to clearly prioritize financial stability over development objectives will be important. As

[10] Microfinance loans are already subject to DSTI limit of 50 percent.
[11] International standards allow regulators to pursue multiple objectives if the financial stability objective is clearly prioritized.

the economy and financial system mature, the private sector can mobilize savings and allocate them efficiently and inclusively (see the Developmental Issues section).

46. Regulators' power and independence should be strengthened with legislative and institutional changes. The RBI, Banking Regulation (BR), IRDAI, and SEBI Acts allow the government to have control over senior managements and the boards of the regulators.[12] The Ministry of Finance (MoF) is also the appellate authority for the RBI and has the power to overturn the RBI's supervisory decisions. The power had not been used until 2019, when the government overturned the RBI's decision to revoke the license of a small UCB. Staff recommend transferring the appellate authority power from the MoF to an independent agency. Additionally, state-owned banks and some insurers are governed by their statutes, limiting regulators' powers over them.[13]

47. Governance and internal control requirements for financial institutions should be strengthened. The RBI has taken steps to strengthen the corporate governance of PVBs and PSBs.[14] Nevertheless, the RBI has limited power to compel PSB mergers, pre-approve and remove board members, and supersede the boards. Similarly, the IRDAI should have the power to take critical supervisory actions against the dominant state-owned life insurer. In addition, the RBI should issue more guidance on banks' boards' oversight function, ongoing suitability of the board, roles of independent members, and the management of conflicts of interest. It should discontinue the practice of placing RBI staff in the boards of banks to avoid conflicts of interest. Corporate governance requirements for insurers should separate the role and the functions of an insurer's board from those of executive management, which is essential for the transition to risk-based supervision.

48. Conglomerate supervision should be augmented. India has 12 financial conglomerates (FCs). Although the Inter Regulatory Forum (IRF) is an effective platform for domestic supervisors to cooperate, there are no legal powers to set and enforce group-level requirements. In particular, the assessment of several Insurance Core Principles (ICPs) was affected by the lack of comprehensive legal requirements, supervisory mandates, and powers over insurance groups. Establishing a legal framework for group-level standards in corporate governance, risk management, and internal control, along with enforcement powers over FCs, is essential for effective group-level supervision.

49. Regulators and financial institutions should enhance their capacity to better understand climate-related financial risks. Financial institutions recognize the potential implications of climate change, but climate risk analyses are nascent due to insufficient data and

[12] The MoF is represented in the RBI board. The government can remove the governor, deputy governor, and directors without justification; give directions to the RBI; supersede its board; request an inspection of banks; and exempt banks from applying for the BR Act, among others. The government can remove IRDAI's chair and the members of its board and appoint an insurance comptroller.

[13] For example, the RBI has authority to remove shareholder elected directors, but not other senior officers nor other board members of state-owned banks.

[14] The RBI increased independent board members and tightening their qualifications for PVBs. The qualifications of some board members of PSBs were strengthened, and the agency to recommend candidates for PSBs' executive board members and chairperson was reformed.

guidance. The RBI has mapped climate risk for the banking sector, providing non-binding guidance on governance, strategy, and risk management, and issued a draft disclosure framework. The IRDAI and SEBI included climate and environmental, social, and governance (ESG) considerations in revised regulations and disclosure requirements.

Banks

50. The RBI has continued to enhance its oversight since the last FSAP. It unified regulation and supervision departments covering all types of entities. It also established an enforcement department to consistently apply fines. Basel III liquidity requirements are phased in, and large exposure limits have been tightened (Figure 13 and ¶23 support its effectiveness)—a major gap that had contributed to the past banking sector distress. Moreover, the RBI has expanded its regulatory authority over UCBs.

51. The consolidated supervision framework for banks needs improvement. The RBI's risk-based supervision framework for SCBs, Supervisory Program for Assessment of Risk and Capital (SPARC), is performed on a solo-basis. The prompt corrective action (PCA) framework also does not specify whether triggers apply at the solo or consolidated level. The RBI would benefit from a systematic framework to evaluate risks from the overall group structure, including parent and affiliated companies, especially if subsidiaries are not RBI-regulated or the bank is not designated as an FC.

52. The credit risk management framework should continue to be enhanced. The RBI notably improved banks' compliance with NPL classification through automation requirements. However, provisions may not be adequate because of the still narrow definition of NPLs, exemptions and special treatments for certain exposures, and relatively low minimum provisioning rates. While preparatory work has been ongoing for some time, implementing IFRS 9 with prudential backstops would be critical so that credit costs do not jump drastically in a downturn as seen in the past. The RBI should also upgrade its supervision over individual loans, collateral valuation, connected borrower groups, large exposure limits, and related-party transactions.

53. The RBI should enforce Basel III Pillar 2 add-on charges. Currently, capital surcharges are set to zero for all banks. The RBI has all the essential toolkits to determine the surcharges, including supervisory risk profile assessments, supervisory stress tests assessing capital requirements under baseline scenarios, and banks' Internal Capital Adequacy Assessment Process (ICAAP).

Insurers

54. The government and IRDAI have taken major steps towards building a robust regulatory and supervisory framework for insurers. The graded assessment found an overall sound level of observance of ICPs (see Appendix I). Strengths include robust licensing and certification processes, suitability requirements for key persons and beneficial owners, and strong intervention and enforcement powers. The IRDAI has also established several information-sharing mechanisms with other domestic and foreign supervisors. Public disclosure requirements are

comprehensive. Moreover, there are extensive requirements relating to intermediaries, business conduct, insurance fraud, and anti-money laundering. However, several sections of the 1938 Insurance Act do not apply to the largest state-owned life insurer, including the ability to remove directors and officers, appoint an administrator, issue directions concerning reinsurance, and apply for full or partial liquidation.

55. The supervisory framework is mainly compliance-based, affecting several ICPs. Recognizing the limitations of their current framework, the IRDAI plans to transition to a new risk-based supervisory approach by end 2025, following the lead of many other Asian and G20 countries.

56. Solvency-related requirements should also be strengthened in line with ICPs. For example, valuation requirements should provide a consistent approach in all areas, and assets and liabilities should be valued on an economic basis. The current capital regime contains some risk-based elements, which should be adopted coherently throughout the balance sheet and appropriately calibrated. Directed investment requirements should be reviewed for potential conflict with the objective of policyholder protection. The enterprise risk management requirements should be dynamic and complete, including requiring insurers to assess their own solvency risks.

Non-Banking Financial Companies

57. The series of reforms undertaken after the 2018 distress episode are welcome. The RBI introduced scale-based regulation to enhance risk management, transparency, and stability in the sector. Such an approach is reasonable for supervising this diverse industry with about 9,500 entities. It also introduced a bank-like LCR and improved the PCA framework.

58. The RBI should apply the same rules to state-owned and private NBFCs. State-owned NBFCs, including several of the largest NBFCs such as the top three IFCs, are at most classified in the middle supervisory layer. Therefore, they are subject to less stringent requirements than those applied for NBFCs in the upper layer, including large exposure limits and corporate governance rules. The NBFC risk analysis underscores the importance of establishing ownership-neutral oversight. Indeed, recent efforts to withdraw some exemptions from large exposure limits helped reducing vulnerability to concentration risks since 2023 (¶27).

59. Given the distinct liquidity risks to NBFCs depending on their business models, it is critical to strengthen and tailor liquidity regulations and supervision. Although the RBI introduced bank-like LCR for large NBFCs, these entities can make optimistic assumptions, including credit line inflows, which often become unreliable in distress. Collection and analysis of LCR returns are still in the planning stages, and the RBI instead receives alternative cashflow projection data. The assumptions used for the projection are unclear. The RBI should start collecting the LCR returns, analyze them, and recalibrate key behavioral parameters to better reflect NBFCs' risk profile. In particular, the RBI should start collecting information on covenants (common with NBFCs' borrowings). Also, the RBI could consider additional liquidity indicators more suited to NBFCs' business models.

60. The RBI should assume supervision of HFCs in addition to regulation. The regulation was transferred to the RBI in 2019; however, supervision remained with the National Housing Bank (NHB). The NHB's supervisory framework is primarily compliance-based, hampered by limited resources, and missing the frameworks and capacity for supervisory actions, PCA, and stress testing despite training efforts. Moving supervisory function to the RBI would also eliminate the conflicts of interests arising from the NHB's being the promoter, refinancer, and the supervisor of the HFCs.

Securities Markets

61. The SEBI continues to enhance its regulatory framework in line with international practice to manage and prevent emerging risks in securities markets. Notable improvements include establishing the CDMDF and introducing swing pricing and liquidity requirements for bond funds after their distress episodes (Box 1). The SEBI has also expanded its regulatory scope over emerging areas such as sustainability and quickly enhanced investor protection measures for fast-growing equity derivatives products.

62. The SEBI should establish a risk-based approach to conducting risks and the internal capacity to undertake systemwide risk analysis, collaborating with other agencies as needed. To avoid excessive reliance on disclosures and industry's own analysis, the SEBI should consider undertaking its own analysis. Moreover, only supervisors can incorporate a systemic perspective such as contagion effects from mutual funds. Collaborating with other agencies in the context of macroprudential oversight would be useful. The SEBI should establish a risk-based supervisory approach to conducting risks focusing on sales practices, particularly for retail investors, and consider developing a methodology for integrating emerging risks across various supervision divisions.

Cybersecurity Risk

63. Indian authorities have advanced cybersecurity risk oversight, especially for banks. Early efforts included mapping the cyber and financial sectors and identifying over 100 critical services (information and communication infrastructures and information technology (IT), and service providers). The RBI conducted a thematic exercise to assess concentration risk. As for regulation, the RBI started issuing cybersecurity-related circulars to banks in 2016. Subsequent regulations set rules on IT, governance, risk controls, assurance practices, outsourcing, and digital payment security controls. Regulatory frameworks have also been tailored to smaller cooperative banks because of their digital depth and interconnectedness to payment systems.

64. Authorities could further strengthen cybersecurity resilience by extending the framework beyond banks. Cybersecurity requires constant, real-time coordination among many agencies. Cyber mapping could consider the critical functions provided by systemically important NBFIs, including financial market infrastructures (FMIs), enabling supervisors to better understand the use of technology, analyze business continuity and disaster recovery, and estimate the impact of cyber-attacks. Extensive cybersecurity crisis simulations and stress tests for banks could be expanded for cross-sectoral and market-wide events. The RBI and SEBI could suggest key

benchmarking metrics, particularly over recovery time in line with international best practice, to ensure that all key banks and FMIs have consistent recovery time objectives.

C. Anti-Money Laundering and Counter-Financing of Terrorism

65. The 2024 mutual evaluation by the FATF guides reform areas for the future. The report notes that the authorities have a good ML and TF risk understanding; engagement by the law enforcement authority; and strength regarding transparency of legal entities, confiscation, and international cooperation. The financial sector has a generally good understanding of risks and mitigating measures, too. Key reform areas include preventive measures, supervision, and enforcement, in particular regarding reporting obligations for domestic politically exposed persons; targeted financial sanctions for TF; mitigating the misuse of nonprofit organizations from TF; criminals' participation in key sectors such as dealers of precious metals and stones; enhancing supervision, especially for high-risk designated non-financial businesses and professions and the money transfer services schemes; and improving suspicious transaction reporting by high-risk sectors. Authorities should also enhance the beneficial ownership registry and strengthen ML/TF prosecutions, given the current backlog of court cases.

D. Authorities' Views

66. The authorities noted that the risk assessment tools shared by the FSAP and preceding technical assistance have helped advance India's capacity in this area as the global goalpost moves forward. The RBI adopted the model for its latest Financial Stability Report.

67. The authorities viewed many recommendations to be agreeable and noted that preparatory work for implementation has been ongoing. Key work programs include introducing IFSR 9 for banks, tightening NBFC regulations and supervision, especially for state-owned ones, and implementing risk-based supervision for insurers.

68. However, they argued that the financial system should help pursue high economic growth in an EM like India, and, separately, regulators should be held accountable for their mandates. They noted that State-owned financial institutions have been critical for financial inclusion and development. Further, the mandates of the FSDC and sectoral regulators are complementary to each other, and there has been no occasion when a trade-off was observed. Regulators should be accountable for their mandates, as their heads are not elected officials.

69. **As for positive CCyBs, the authorities see the global views are still divided.** There is limited evidence that releasing CCyB can enhance credit growth. Also, the responses of credit growth to CCyB changes could be asymmetric between the build-up and release phases, leading to a net negative impact on long-term growth. An EM like India needs to weigh these options more holistically. Moreover, macrofinancial conditions have evolved, and the timing does not appear conducive to introducing a new buffer.

CRISIS MANAGEMENT AND FINANCIAL SAFETY NET

A. Resolution of Financial Institutions

70. Finalizing and enacting the resolution legislation for banks and key NBFIs, aligned with the Key Attributes (KAs), is an essential first step in establishing a modern, comprehensive resolution regime. Resolution powers and tools are limited mostly to compulsory mergers or liquidation, which tend to entail considerably more fiscal risks than well-designed resolution regimes. Although the draft Financial Sector Development and Regulation (Resolution) Bill (FSDR) has been under discussion for several years, progress has been slow as various stakeholders appear to be concerned about the scope of the power of the proposed resolution authority, the Resolution Corporation, and certain resolution tools, such as bail-in. Also, staff did not have the opportunity to examine the latest draft bill, except for a summary presentation, to examine how it compares with the KAs.

71. In addition to RBI's extended supervisory powers, a comprehensive resolution regime is still needed. The PCA Frameworks for SCBs, UCBs, and NBFCs were revised and extended. The RBI and BR Acts were amended to extend the RBIs' crisis intervention powers to UCBs and NBFCs. The RBI can now execute compulsory merger and reconstruction schemes without a moratorium for private sector banks. The RBI has also established a resolution group within the Department of Regulation (applicable only to financial institutions under RBI's purview). However, these tools are not sufficiently comprehensive as envisaged by the KAs. The KAs encompasses state-of-art resolution tools and frameworks, including purchase and assumptions (P&A) framework and statutory bail-in power to minimize resolution costs.

72. Explicit triggers for resolution are needed to ensure an incontestable transition from supervisory corrective actions to bank resolution. The PCA framework should include clear guidance about the timeframe (but not a hard deadline) for taking an entity out of the PCA to avoid regulatory forbearance that keeps nonviable firms in PCA for unreasonably extended periods. The RBI should streamline resolution triggers to avoid confusion among supervisors and legal challenges by bank. Currently, the RBI can trigger resolution as a supervisory action under the PCA or resolution-focused measure under the BR Act. Consolidating the triggers into a crisis intervention-focused trigger is desirable. Moreover, there should be resolution-specific coordination and cooperation mechanisms with more encompassing memberships, especially the Deposit Insurance and Credit Guarantee Corporation (DICGC). While systemic bank and NBFC distress episodes passed, there are noticeable weak tails of small NBFCs and UCBs that are currently undercapitalized, underscoring the importance of these refinements.

73. The insurance resolution framework also needs to be overhauled. In addition to mergers and liquidation, insurers with fundamental challenges with their business viabilities should be allowed to voluntarily exit in an orderly manner with clear and specific criteria to minimize liquidation costs to policyholders. In addition, the supervisor should require insurers to develop recovery and resolution plans and then establish its own plan based on insurers' inputs.

India: High-Level Summary: Crisis Management Framework for Deposit-Taking Institutions

		Early Intervention	Preparation of Compulsory Scheme / moratorium	Entry into Compulsory Scheme	Institution under Compulsory Scheme	Emergency Liquidity Assistance	Liquidation/insolvency
Scheduled Commercial Banks	Regional Rural Banks	NABARD	Regional Rural Banks (RRB) Act, 1976 empowers the Central Government, in consultation with the RBI to make provisions for the amalgamation of Regional Rural Banks.			RBI via NABARD	RRB Act - winding up and liquidation by the order of Government, DICGC payout
	Public Sector/ Nationalized Banks	RBI	Banking Companies (Acquisition and Transfer of Undertakings) Acts of 1970 and 1980 governs the merger of Nationalized banks, other than SBI and IDBI Bank. The central government in consultation with RBI prepares a scheme for reconstitution, amalgamation and transfer of corresponding new bank.			RBI	Banking Companies Acts of 1970 & 1980, winding up and liquidation by the order of Government, DICGC payout
	Private Sector Banks		BR Act, 1949 empowers RBI to apply to Central Government for suspension of bank's business and to prepare reconstruction scheme or merger, or to impose a moratorium	RBI prepares scheme, approved by Government. RBI manages implementation of scheme.			
	Foreign Banks						
	Local area banks						
Scheduled Cooperatives	Urban Cooperative* Banks (multi-state and single-state)		RBI imposes directions on Urban Co-operative banks in the form of All Inclusive Directions (AID) (equivalent to moratorium imposed on banks).	RBI can also prepare scheme of Amalgamation under BR Act for multi state as well as single state urban co-operative banks which is approved by Government and implementation is monitored by RBI.			Courts, BR Act, DICGC payout
	Rural Cooperative	Early supervisory intervention done by NABARD. For District Central Coop Banks & State Coop Banks RBI prepares scheme, which is approved by Government. RBI / NABARD monitors the implementation of the scheme. Further, as per the State Co-operative Act, the State Registrar (SR) can also prepare scheme for District Central Coop Banks & State Coop Banks with RBI approval, SR and RBI monitor implementation of scheme.					BR Act, DICGC payout

Source: IMF staff.
Note: BR = bank regulation; DICGC = Deposit Insurance and Credit Guarantee Corporation of India; IDBI = Industrial Development Bank of India; NABARD = National Bank for Agricultural and Rural Development; and SBI = state bank of India.

B. Deposit Insurance

74. The deposit insurance framework requires significant refinements. The DICGC should have credible (prearranged, rule-based, and automatic) and sufficient backup funding from the government. The DICGC can borrow up to INR 50 million (about USD 580,000) from the RBI, which is small compared to the insurance limit of INR 500,000. The payout process should be streamlined and shortened to align with international guidance with a single customer view and should discontinue disbursing settled claims through a liquidator. When using deposit insurance funds' money to support mergers, there should be limit to the DICGC's power to delay repayment deadlines from the acquiring bank.

C. Systemic Liquidity and Liquidity Support

75. Authorities should continue reforms to make key markets more resilient to liquidity stress as the capital market develops. The legacy SLR should be reduced further as it has been historically a fiscal financing mechanism and limits bond trading volumes by booking all SLR securities in HtM. Such reforms appear less disruptive now, given the introduction of prudential LCR, and LCR alone is likely to maintain the demand for G-SECs, as G-SECs dominate debt markets. Measures to reduce precautionary liquidity demand—due to cyclical government cashflows, the daily RBI reserve requirement, and the transition to 24/7 settlement—could also help minimize

mechanical systemwide liquidity swings. The RBI should review the haircuts for its G-SEC repo, as they are far less than G-SEC repos between the private-sector institutions. Additional daily margining in line with market valuation for the life of longer-term facilities should be implemented, too. In scenarios where the sovereign risk premium spikes, the market value of G-SECs could deteriorate quickly. As India's capital market continues to develop and become open to more market-sensitive investors such as foreign investors,[15] such adaptation could become critical for the RBI.

76. While the RBI has effectively contained recent stress episodes, it should consider broadening policy options, as NBFIs and market financing gain prominence. To date, RBI crisis measures have been implemented indirectly through banks and the G-SEC purchase program (Box 1). As the nature of systemic liquidity risks evolves, itis vital to continually refine crisis-time liquidity management tools.[16]

Expanding eligible collaterals: The RBI should establish ex-ante guideline to be operationally prepared to accept certain collateral beyond G-SECs in crisis times, such as corporate bonds subject to appropriate haircuts. While banks have significant G-SECs, future systemic liquidity distress could emerge in other securities, repos, and derivatives markets and, mainly pressure NBFIs that may not have much G-SECs. In such cases, providing liquidity support to banks with broader set of eligible collaterals can incentivize them to on-lend to NBFIs and NFCs with non-G-SEC collaterals. Credit risks can be managed better once securitization, especially covered bonds with overcollateralization (¶85), takes off.[17]

Asset purchase program: As part of its systemic response toolkit, the RBI should also consider the option to undertake asset purchase programs (along with repos) beyond G-SEC market when there is systemic dysfunction in key markets in collaboration with other agencies as needed.

77. The RBI should improve its approach to emergency liquidity assistance (ELA). The RBI Act should be modified to address existing ambiguity and strengthen the legal basis for ELA. While staff did not have an opportunity to review the ELA memorandum that outlines criteria, risk controls, and governance, there seems to be benefit for the RBI to develop an internal policy that clearly separates monetary operations from ELA. Publicly communicating some high-level summary of the ELA framework that differentiates normal operations from ELA would be beneficial in bringing clarity to the arrangement.

D. Authorities' Views

78. The authorities noted that while the work on the new resolution bill is ongoing, existing legislation provides the RBI effective resolution powers and tools. They believe provisions in the Insolvency and Bankruptcy Code (IBC), the BR, and the DICGC Act allow the RBI to take various resolution actions, including mergers, moratoriums, suspension of management, and

[15] In 2024, J.P. Morgan added India's domestic G-SECs to its EM local government bond index, which is expected to increase demand from index funds and other global bond funds.
[16] See October 2020 GFSR and MCM's note.
[17] Such covered bonds helped liquidity-stressed European banks to maintain access to the central bank facilities during the European debt crisis episode.

liquidations. They also highlighted that recapitalization by existing shareholders also played a critical role in some cases.

79. **The RBI strongly feels that the existing liquidity regulations and support frameworks have served India well, and there is little need for further action.** They noted that there is little harm in keeping the SLR as it is far less constraining than decades ago, and the securities held for SLR could be fully used to obtain cash if needed. Since banks have sufficient G-SECs, the RBI feels little need to expand eligible collaterals and is concerned over taking on credit risks by accepting private securities.

DEVELOPMENTAL ISSUES[18]

80. **The authorities should continue enhancing PSL flexibility.** Any directed lending requirements have some opportunity costs by altering efficient allocation of capital. India's system has several mitigating mechanisms including (i) full autonomy for banks to set lending rates, (ii) the PSL certificate trading mechanism (2016) where banks trade excess PSL-qualifying loans for market-determined fee, and (iii) the history of expanding qualifying sectors over the years, such as adding the renewable sector in 2015 There is evidence that for-profit PVBs are voluntarily lending to the sector beyond requirements, too. In addition to enhancing these flexibilities, access to credit would be better improved by refocusing the government's role toward building the infrastructure to reduce credit constraints of underserved populations (e.g., enhancing credit information infrastructure, securitization, and credit enhancement; see below).

81. **The authorities should pursue diversifying with richer credit enhancement tools for MSME financing beyond traditional bank channels.** Only 11 percent of small businesses have bank loans, with high collateralization requirements (185 percent of loan amounts). Factoring and leasing remain underdeveloped. To close the finance gap, policies must encourage asset- and cashflow-based digital lending. For such purposes, authorities should equalize tax treatment between leasing and debt and incentivize large corporate buyers to use platforms like the online trade receivables discounting system (TReDS) for MSMEs to cash in invoices quickly. Factoring and MSME loan securitization could be further supported by enriched credit enhancement services (beyond simple guarantees) from the Small Industries Development Bank of India (SIDBI) and the national housing bank.

82. **The success of covered bond and securitization markets are critical to further fostering India's corporate bond markets.** Domestic banks and NBFIs have risk aversion and some regulatory requirements lead them to prefer investing in high-rated fixed income assets, which are hard to achieve for unsecured corporate papers and bonds. Securitized products, especially covered bonds backed up by the law with overcollateralization could satisfy such buyers' investment criteria. Such instruments could also serve as eligible collateral for RBI's repo facilities with much less credit risk concerns to the RBI (¶79 and ¶82).

83. **The 2016 IBC improved collective recovery procedures somewhat, but the process remains time consuming.** The National Company Law Tribunals lack specialized knowledge and

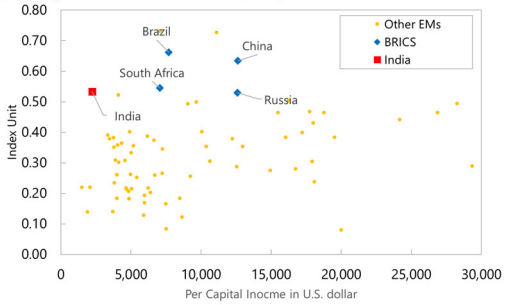
[18] See WB's FSA for details.

face delays and frequent adjournments. The recovery process remains slow, with only one-third of the original loan amount recovered. Authorities should make additional efforts to expedite the process by (i) strengthening the skill and performance of the Tribunals supported by specialized insolvency rules, a dedicated bench within the Tribunals, and adequate funding; (ii) promoting alternative out-of-court dispute enforcement process; and (ii) introducing personal bankruptcy options for small business and individuals.

Figure 1. India: Financial Sector Development: India and Selected Economies

India's financial system is well developed among EMs…

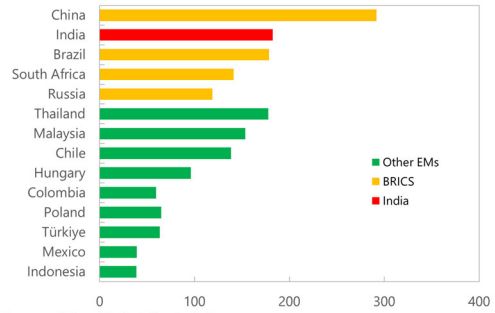
Financial Development Index: Emerging Markets
(2021, higher index unit = more development)



Sources: IMF Financial Development Index

…and provides significant credit to the private sector…

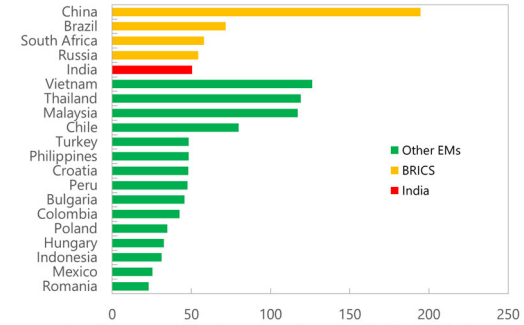
Credit to the Private Non-financial Sector from All Lenders
(In percent of GDP, 2024Q2)



Sources: BIS and IMF staff calculation.

…while bank credit to the private sector is relatively small among BRICS.

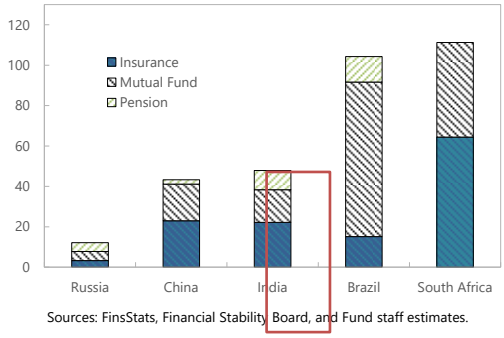
Bank Credit to the Private Sector
(In percent of GDP, 2023 or latest)



Sources: World Bank, World Development Indicators and IMF staff calculation.

Insurance, pensions, and mutual fund sectors are moderately developed among BRICS.

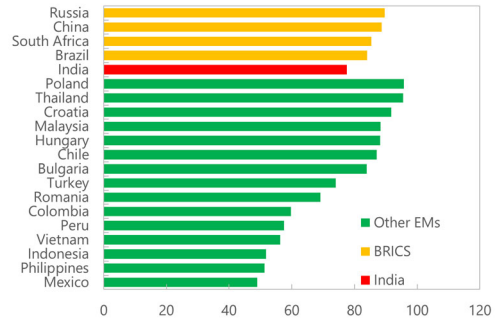
Nonbank Financial Institutions
(Assets in percent of GDP, latest available)



Sources: FinsStats, Financial Stability Board, and Fund staff estimates.

80 percent of adults have access to financial accounts.

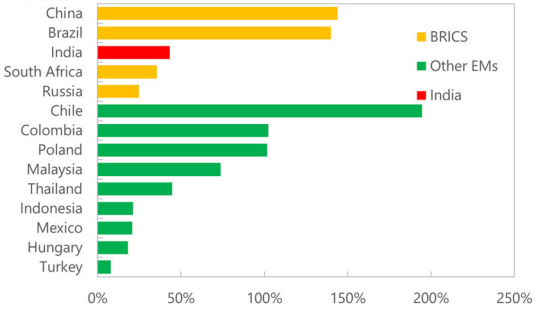
Adults with Financial Accounts
(In percent of survey respondents, Age 15+, 2022 latest)



Sources: World Bank, Global Findex data

Household leverage is moderate among peers.

Household Credit
(In percent of Gross Disposable Income, 2024Q3, consumer, mortgage, and household as employers)

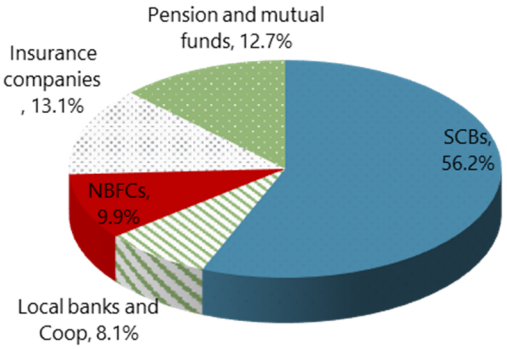


Sources: BIS, CEIC data and IMF staff calculation

Figure 2. India: Structure of the Financial System

Banks dominate the financial system, though their share has declined by 9 percentage points since 2017.

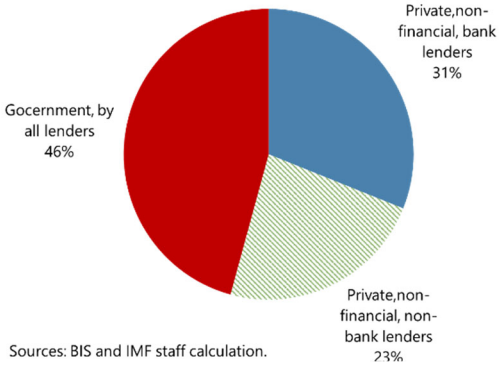
Financial Structure, March 2024
(Percent of total financial assets)



Sources: RBI and IMF staff calculation.

The system and international markets provide 170 percent of GDP in credit, half of which to the public sector.

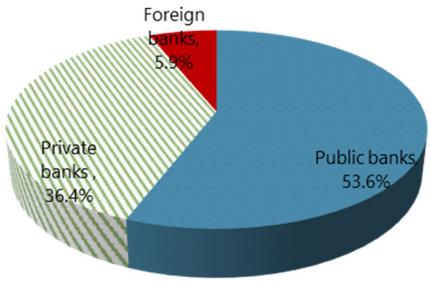
Credit by Lender and Borrower Types, 2024Q2
(In percent of total)



Sources: BIS and IMF staff calculation.

PSBs dominate the banking sector, but their share has declined by 11 percentage points since 2017.

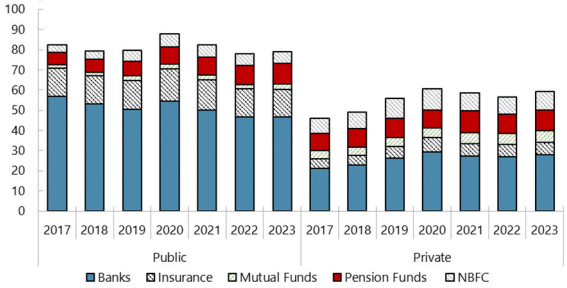
India Banking System Assets by Type of Bank, March 2024
(Percent of total banking assets)



Sources: RBI and IMF staff calculation.

The state maintains a significant footprint in the system, although it's share in total assets declined recently.

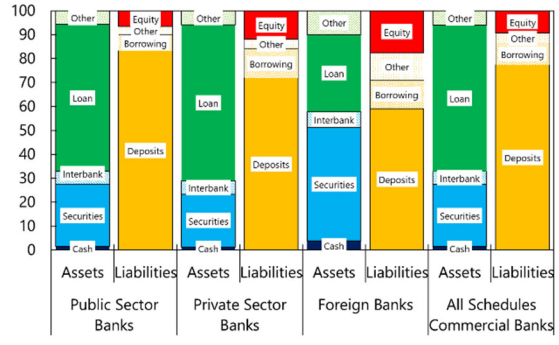
Financial sector assets
(In percent of GDP)



Source: WEO, World Bank, Indian authorities, and IMF staff calculation.

Banks have a typical commercial banking business model, providing loans with deposits.

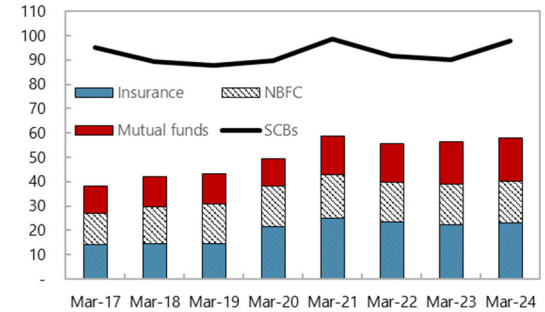
Bank Balance Sheet Structure
(In percent of total assets, 2024)



Sources: RBI and IMF staff calculation

Since the last FSAP, nonbank intermediaries have grown, while the banking sector retrenched slightly.

Size of Selected Financial Institutions
(Assets in percent of GDP)

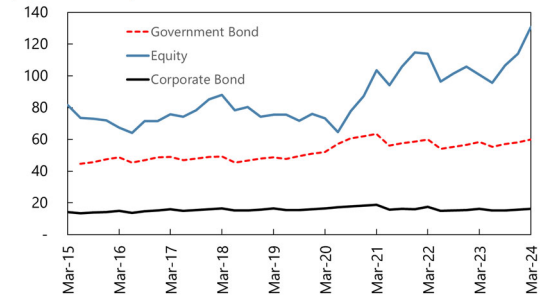


Sources: RBI and IMF staff calculation.

Figure 3. India: Capital and Money Markets

Equity markets dominate the domestic financial markets, followed by the G-SEC market.

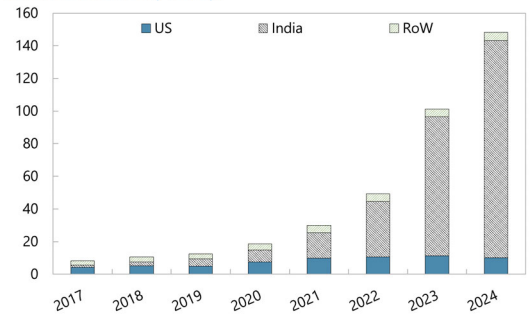
Size of Financial Markets
(In percent of GDP)



Sources: RBI; Haver Analytics; IMF World Economic Outlook; and IMF staff calculation.
Note: Government bond includes dated government securities, T-bills and State Development Loans (SDL).

The strong equity market led to surging option trades in India, mostly by retail investors who purchased puts and calls on equity indexes.

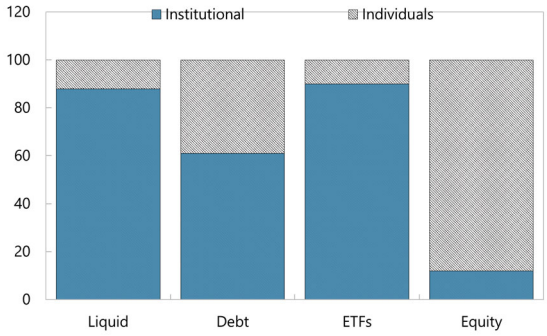
Exchange Traded Options Volume
(Number of contracts, by country)



Source: India: 2024 Article IV Consultation Staff Report, IMF

Domestic institutional investors primarily invest in bonds while foreign investors and domestic individual prefer equity, as represented by the investor base structure of mutual funds.

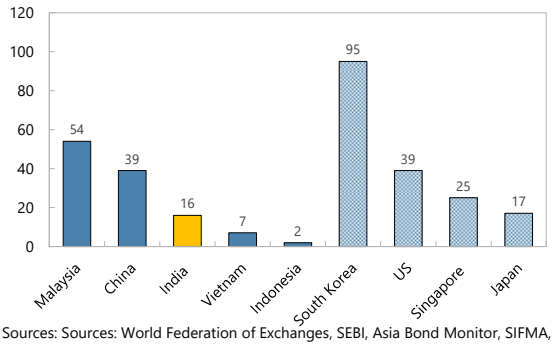
Investor Categories by Scheme
(In percent)



Sources: AMFI.

India's corporate bond market is relatively underdeveloped than peers.

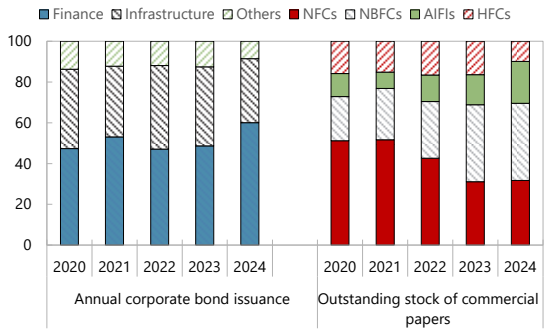
Corporate Bond Outstanding
(In percent of GDP, as of 2023)



Sources: Sources: World Federation of Exchanges, SEBI, Asia Bond Monitor, SIFMA, and World Bank staff calculation.

Financial institutions and infrastructures are main issuers of corporate bonds, and NBFCs also increased their share in CP issuance markets.

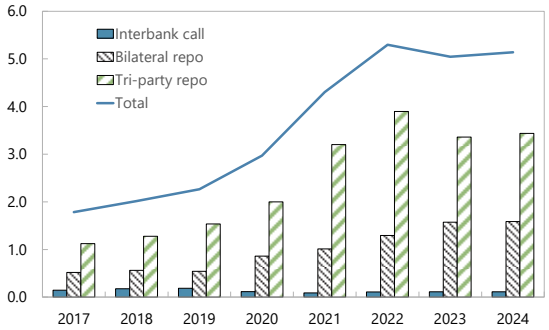
The Structure of Corporate Bond Market, by Issuer Type
(In percent of total)



Sources: CCIL, RBI, and World Bank staff calculation.

With the growth of NBFIs, the structure of key money markets shifted away from bank-only uncollateralized call markets to repos with broader types of participants.

Selected Money Market Size
(Average daily volume, tn INR rupees)



Sources: RBI

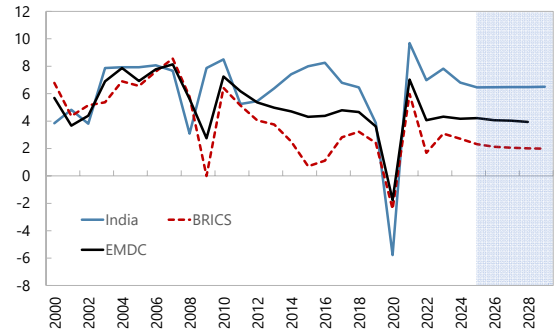
Notes: AIFI =all India financial institutions; AMFI = association of mutual funds in India; CCIL = clearing corporation of India limited; HFC = housing finance company; NBFC = non-bank financial companies; and NFC = non-financial corporate.

Figure 4. India: Macroeconomic Indicators: India and Selected Economies

Near-term economic growth is one of the highest globally, also with strong staff-estimated potential growth of 6½ percent.

Real GDP Growth: India and Selected Economies

(In percent)

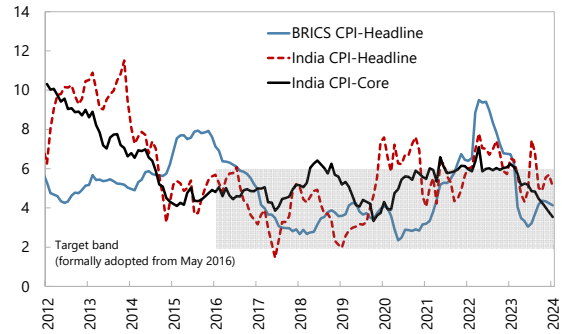


Sources: WEO; and IMF staff estimates.

Inflation, on average, has declined from its peak but remains volatile because of food prices.

Inflation

(In percent, year-on-year)

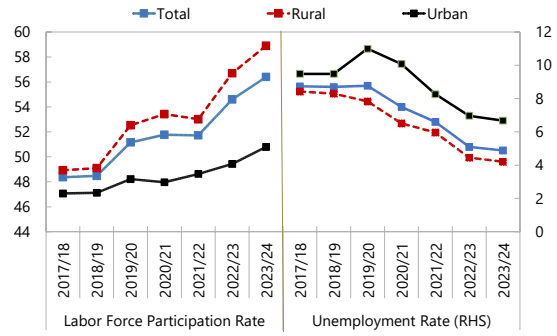


Sources: Haver Analytics; and IMF staff calculations.

Employment has continued to recover since the last FSAP, supporting households' capacity to repay debt.

Headline Labor Market Indicators in India

(Aged 15 and above, in percent)

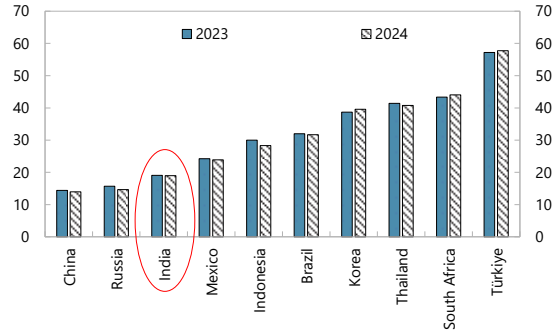


Sources: PLFS and IMF staff estimates.

External vulnerability is limited: moderate current account deficits, low external debt, and ample international reserves.

Total External Debt

(In percent of GDP)

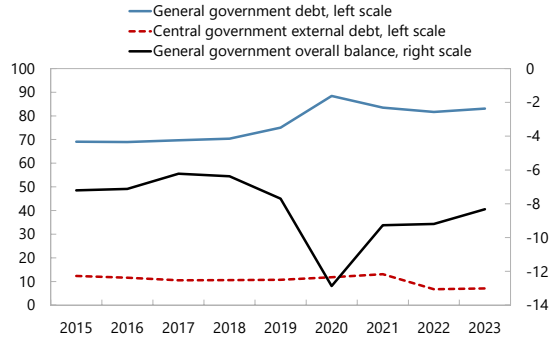


Source: IMF, *World Economic Outlook*.

However, public debt and fiscal deficits remain elevated…

Public Debt and Fiscal Deficit

(In percent of GDP)

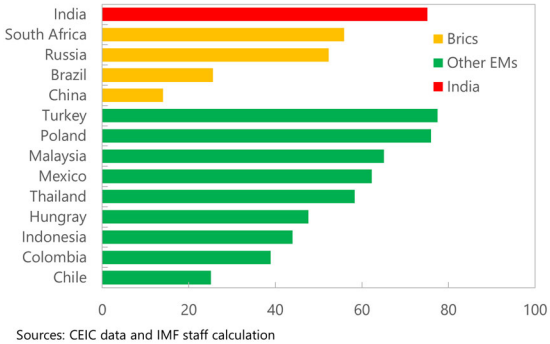


Source: Haver Analytics

…and one of the highest among major EMs.

Public Debt

(In percent of GDP, 2024Q3)



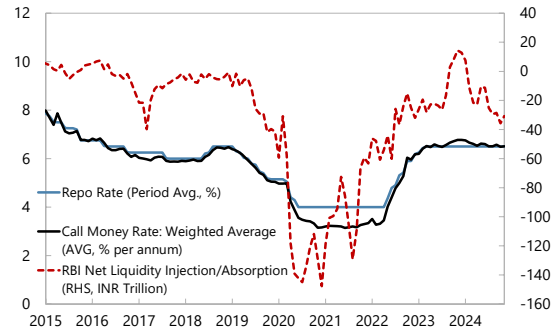
Sources: CEIC data and IMF staff calculation

Figure 5. India: Monetary and Financial Markets and Conditions

In response to high inflation, the RBI has raised the repo rate by a total of 250 bps since mid-2022.

Policy Rates and RBI Liquidity Injection

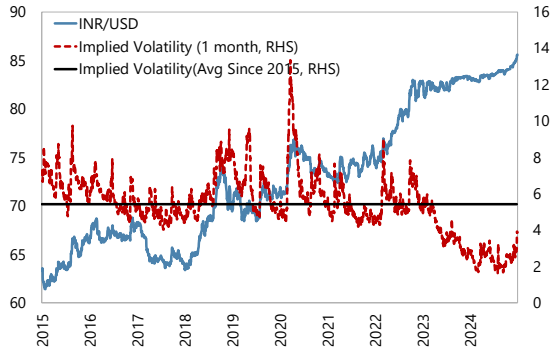
(Percent; trillions of INR)



Sources: Haver Analytics; CEIC CDMNext; and IMF staff estimates.

The rupee depreciated moderately in 2024, but volatility was well contained.

Rupee Exchange Rates and Volability

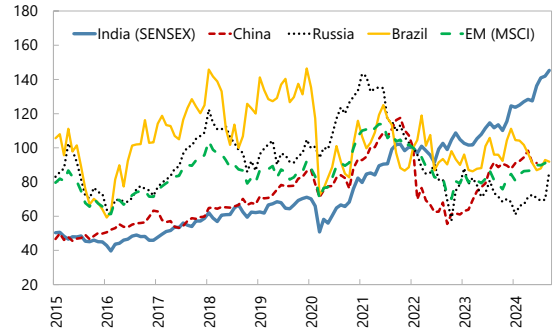


Sources: Bloomberg; and IMF staff calculations.

The stock market has continued to recover steadily since the pandemic in contrast with other BRICS' markets…

Stock Market Indices

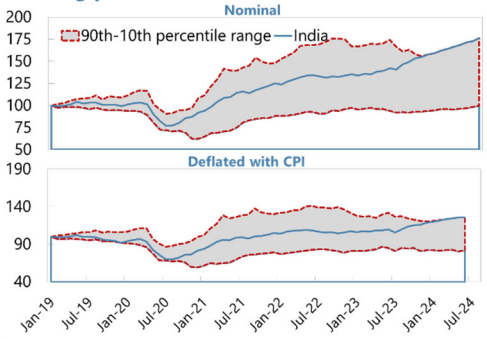
(Jan 2022=100)



Sources: Thomson Reuters EIKON; and IMF staff calculations.

…partly supported by faster earnings per share growth than other EMs since 2019.

Earning per share, India and EME

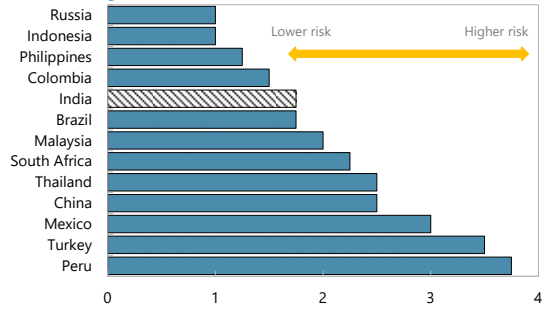


Source: LSEG IBES and IMF staff calculation

Vulnerabilities in real estate markets appear to be less than other EMs.

Real Estate Market Vunerabilities

(Score card, Range 0 - 6)

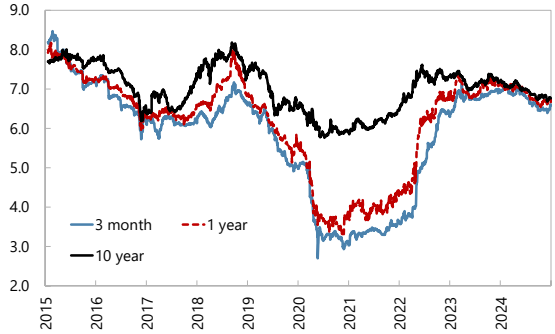


Sources: IMF, 2023.

Yield curve is almost flat at about 7 percent as shorter-end rates jumped with policy rate hikes in 2022.

Government Bond Yields

(In percent)

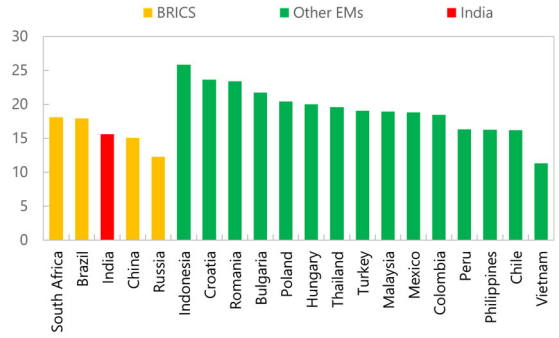


Sources: Thomson Reuters EIKON; and IMF staff calculations.

Figure 6. India: Financial Soundness Indicators, India and Selected Economies

India's solvency ratio fares well among BRICS but at the lower end among broader EMs.

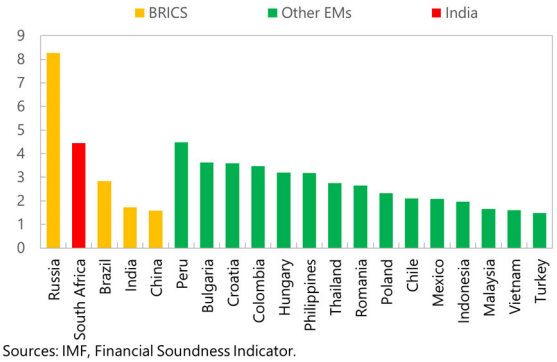
Total Capital to Risk Weighted Asset
(In percent, 2023 or latest)



Sources: IMF, Financial Soundness Indicator.

NPL ratios are still relatively high among EMs but rapidly declining.

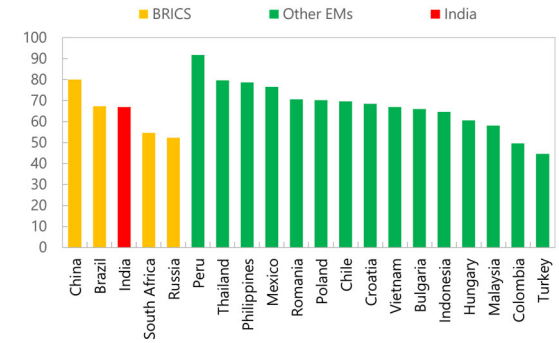
Non-Performing Loan to Gross Loan
(In percent, 2023 or latest)



Sources: IMF, Financial Soundness Indicator.

Similar to other EMs, net interest income is the largest contributor to income…

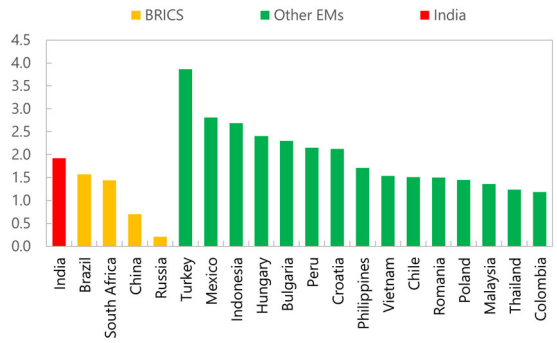
Interest Margin to Gross Income
(In percent, 2023 or latest)



Sources: IMF, Financial Soundness Indicator.

… but profitability is relatively lower (though highest among BRICS).

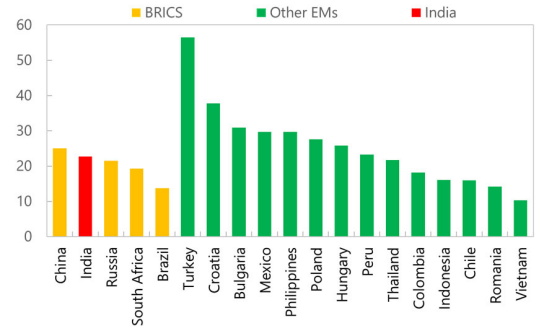
Return on Assets
(In percent, 2023 or latest)



Sources: IMF, Financial Soundness Indicator.

Banks have good liquid asset buffers, in part because of SLR…

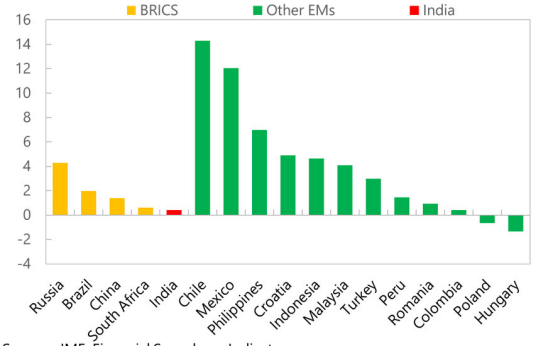
Liquid Assets to Total Assets
(In percent, 2023 or latest)



Sources: IMF, Financial Soundness Indicator.

…while exposures to FX risks are very limited.

Open FX Position to Capital
(In percent, 2023 or latest)

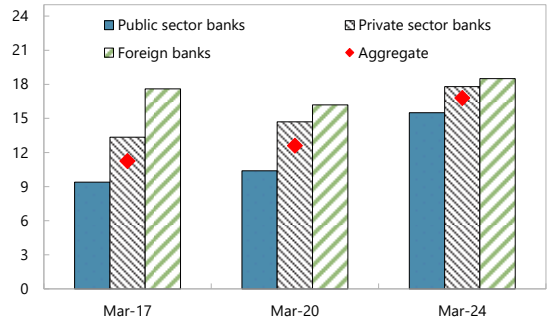


Sources: IMF, Financial Soundness Indicator.

Figure 7. India: Bank Resilience

Capital levels in banks, especially PSBs, have increased since the last FSAP....

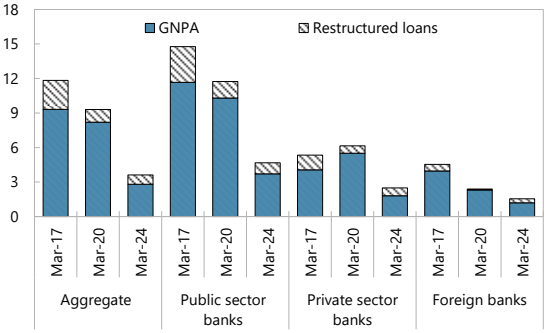
Regulatory Tier 1 Capital Adequacy Ratio
(Percent)



Sources: RBI and IMF staff calculation.

...and PSBs' asset quality improved.

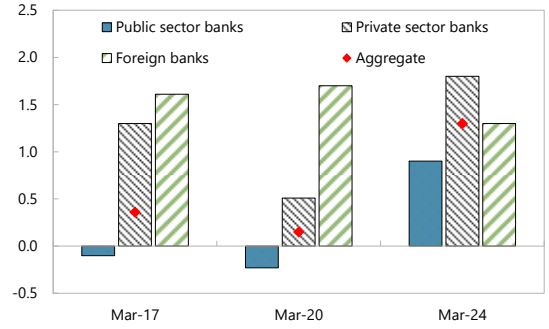
Asset Quality
(In percent of total gross loans)



Sources: RBI and IMF staff calculation.

However, PSBs continue to show much lower profitability than private-sector and foreign banks...

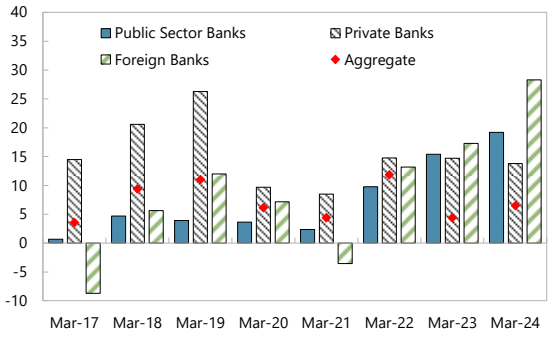
Return on Assets
(Percent)



Sources: RBI and IMF staff calculation.

...and lagged the credit growth compared to other types of banks until 2023.

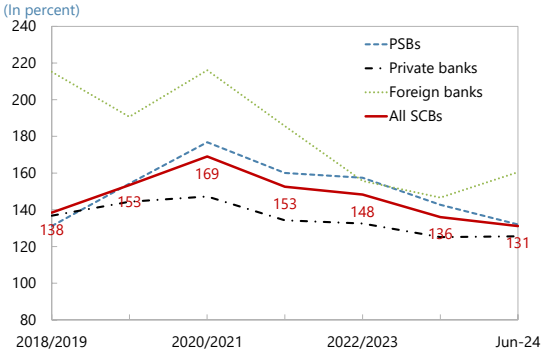
Credit Growth
(Year-on-year percent change)



Sources: RBI and IMF staff calculation.

Aggregate liquidity coverage ratio (LCR) has declined since 2020 but remains well above the Basel III requirement.

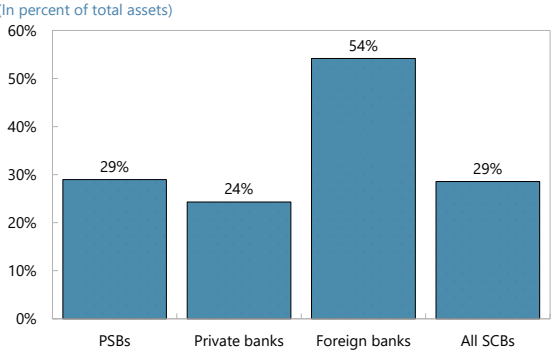
Aggregate LCR by Type of Banks
(In percent)



Sources: RBI and IMF staff estimates

Foreign banks, followed by PSBs, invest the largest share of assets in securities.

Fixed Income Securities Holdings, by Type of Banks
(In percent of total assets)

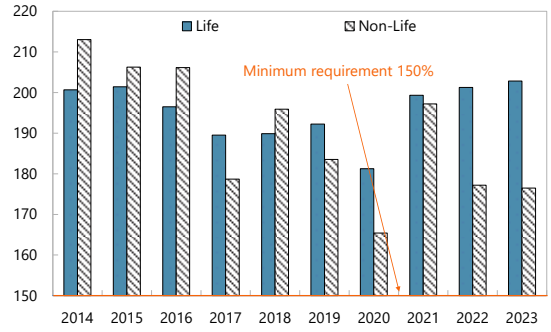


Sources: IMF staff estimates

Figure 8. India: Nonbank Financial Institutions

Insurance companies have high solvency ratios…

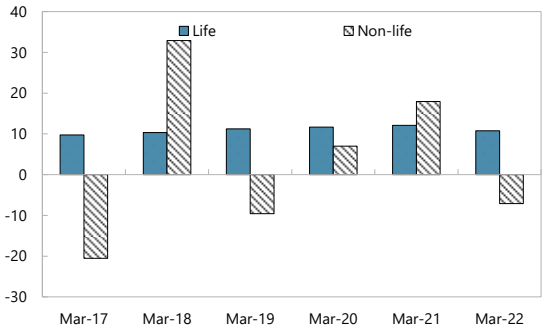
Aggregate Solvency Ratio
(Percent, weighted by premium)



Sources: IRDAI and IMF staff calculation.

…but profitability is modest and volatile for non-life insurers, especially for state-owned ones.

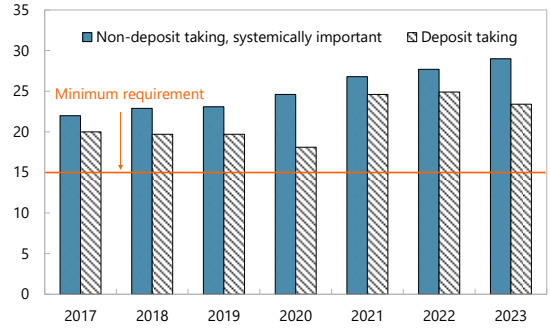
Insurance Companies Return on Equity
(Percent)



Sources: IRDAI and IMF staff calculation.

The largest NBFCs have strong and improving solvency ratios…

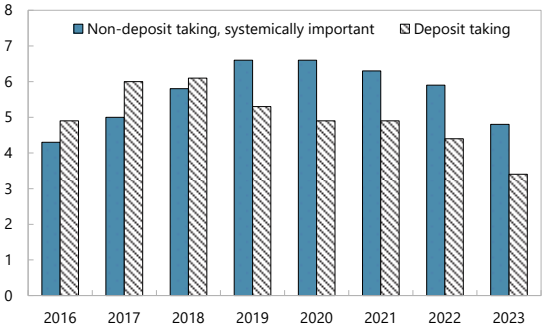
NBFCs Capital Adequacy Ratio
(Percent)



Sources: RBI and IMF staff calculation.

…and improving asset quality.

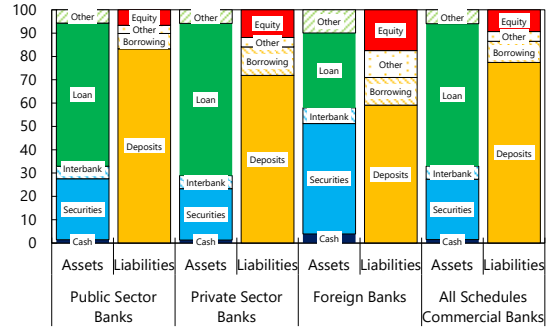
NBFCs Non-Performing Asset
(In percent)



Sources: RBI and IMF staff calculation.

Three quarters of NBFC assets are loans. NBFCs tend to hold far fewer liquid assets than banks and hold a notable amount of equity (for participation). NBFCs are financed mostly by banks and markets with term borrowings.

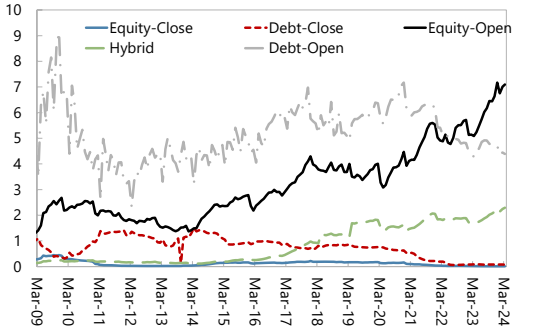
Bank Balance Sheet Structure
(In percent of total assets, 2024)



Sources: RBI and IMF staff calculation

The mutual fund industry offers primarily open-ended funds. Equity funds have grown strongly in the past few years, surpassing the AUM of bond funds.

Total AUM Strategy to Strategy
(In percent of GDP)



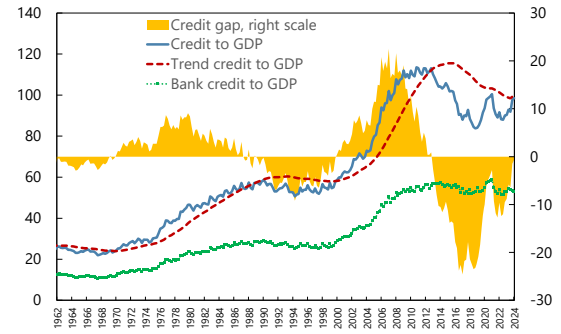
Sources: AMFI, WEO and IMF staff calculation.

Figure 9. India: Credit and Borrower Indicators

Private sector credit-to-GDP remained broadly flat in the past decade with no strong indication of a credit boom…

Total Credit to the Non-financial Private Sector

(In percent of GDP, total credit = bank + non-bank credit)

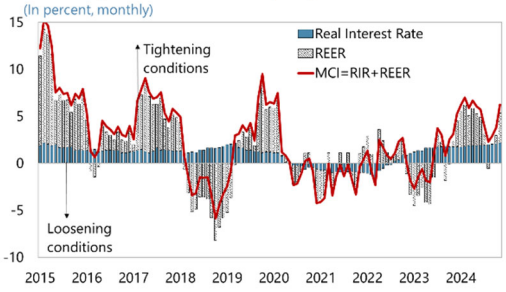


Sources: BIS

…under tightening monetary conditions.

Monetary Conditions Index (MCI)

(In percent, monthly)

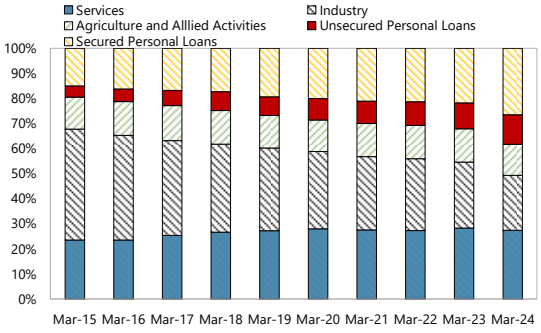


Sources: Haver Analytics; CEIC CDMNext; Consensus Economics; and IMF staff calculations.
Note: Real Interest Rate (RIR) is calculated as a difference between nominal repo rate (end-of-period) and 1-year ahead inflation expectations.

Banks extended credits to services and household sectors, while the share of agriculture remains high due to priority sector lending requirements.

Bank Credit Decomposition

(In percent)

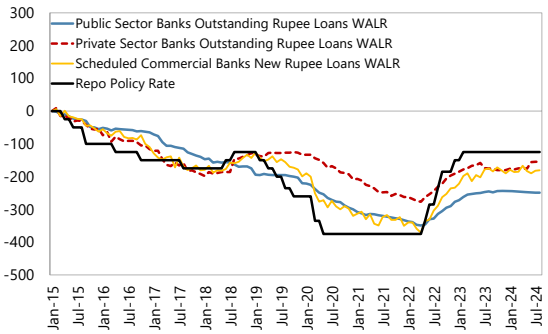


Sources: CEIC; and IMF staff calculations.

Banks have passed through a part of policy rate hikes to all loans on average.

Bank Lending Rates

(Cumulative change in basis point, January 2015 as baseline)

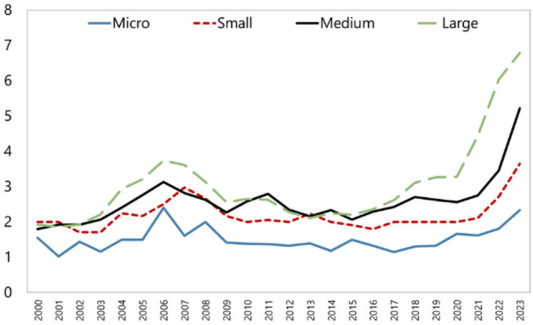


Sources: Haver Analytics; Bloomberg; and IMF staff calucations.

Despite higher interest rates, the corporate sector resilience improved with a sharp rise in ICR.

Interest Coverage Ratio

(Earnings before Interest and Taxes (EBIT) to Interest Expenses, median)

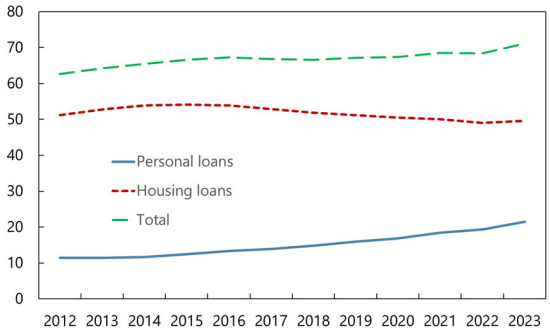


Sources: CMIE Prowess; and IMF staff calculations.

Overall household debt rose moderately compared to income despite the recent rapid growth of unsecured personal loans.

Personal and Housing Loans to Disposable Income Ratios

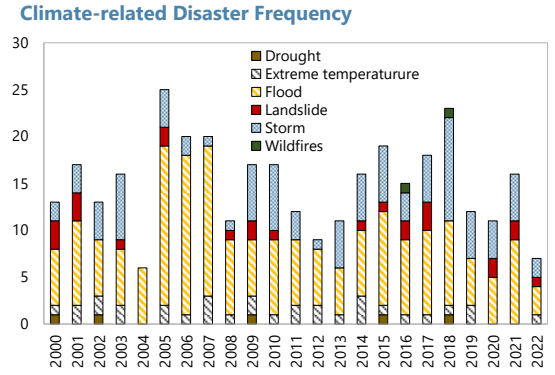
(In percent of disposable income)



Sources: CEIC and IMF staff calculation.

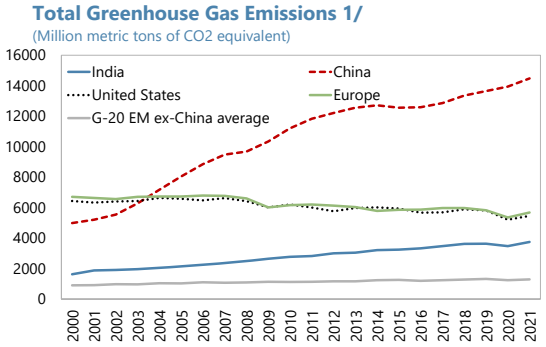
Figure 10. India: Climate Change

India faces various types of weather-related natural disasters…



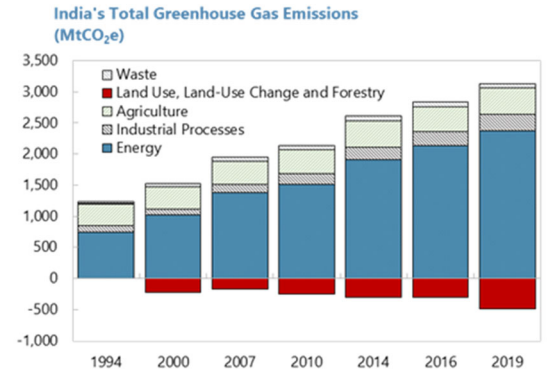
Sources: IMF, *Climate Change Indicators Dashboard*; CRED / UCLouvain, *EM-DAT*.

…and is an increasingly important contributor to global greenhouse gas emissions…



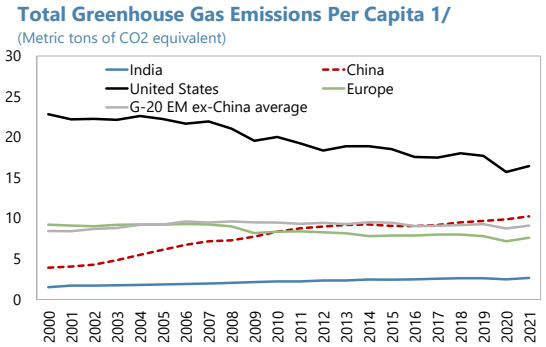
Sources: IMF, *Climate Change Indicators Dashboard*; UNFCCC; EDGARv7.0; EU; FAO; and IMF staff calculations.
1/ Including land-use, land-use change and forestry.

…with total GHG emissions growing by 40 percent between 2000 and 2019, mainly from the energy sector.



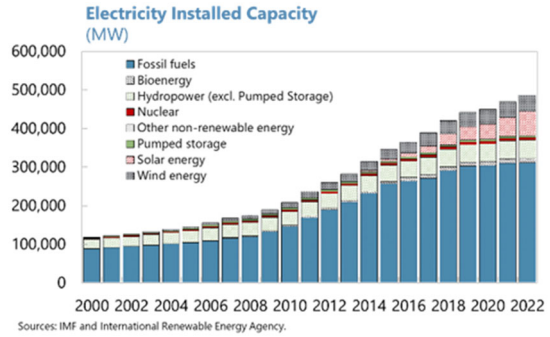
Source: India Third Biennial Update Report to the United Nations Framework Convention on Climate Change.

…but remains one of the lowest per-capita emitters.



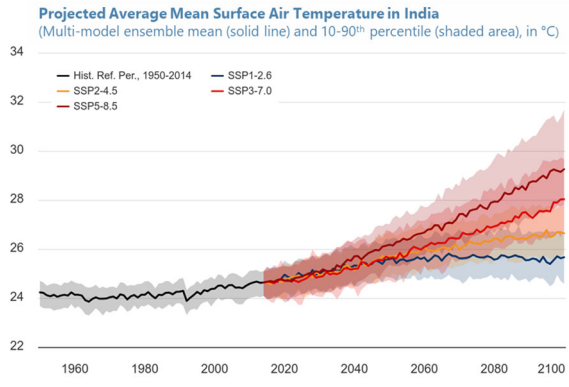
Sources: IMF, *Climate Change Indicators Dashboard*; UN; IMF, *World Economic Outlook, July 2023*; and IMF staff calculations.
1/ Including land-use, land-use change and forestry.

While modern renewables are the fastest-growing energy source, fossil fuels continue to dominate electricity production capacity.



Sources: IMF and International Renewable Energy Agency.

The average temperature in India is projected to grow rapidly under high emissions scenarios.[1]

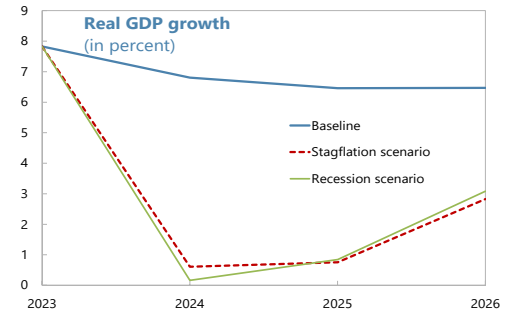


Sources: CMIP6 and World Bank Climate Change Knowledge Portal.

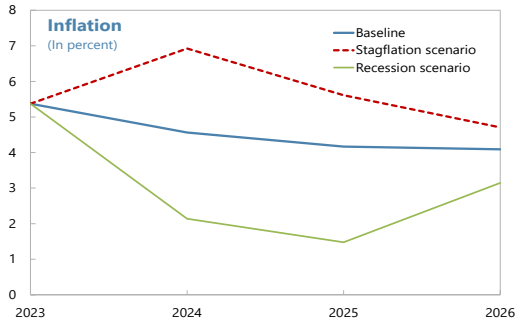
1/ Future projections of changes in global surface temperature are based on the Coupled Model Intercomparison Project Phase 6 (CMIP6) scenarios. The CMIP6 scenarios combine two frameworks: the Shared Socioeconomic Pathway (SSP) and the Representative Concentration Pathway (RCP). For example, SSP1-1.9 indicates the combination of SSP1 and RCP1.9.

Figure 11. India: Macroeconomic Scenarios of Solvency Stress Tests

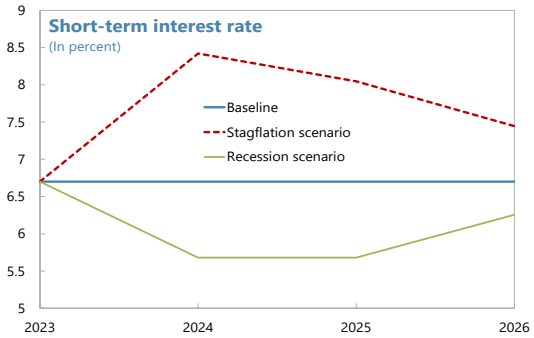
The decline in real GDP growth is similar in both adverse scenarios.



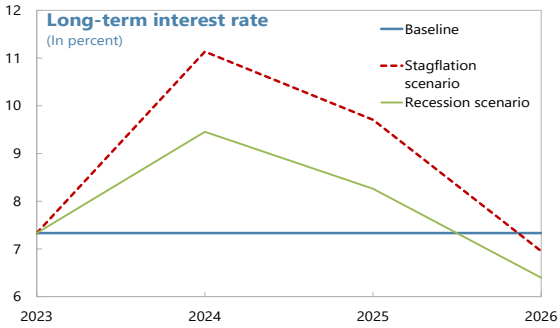
The two adverse scenarios encompass opposite inflation dynamics…



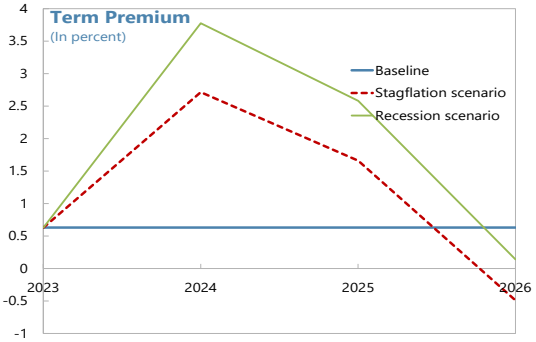
…leading to contrasting monetary policy reactions.



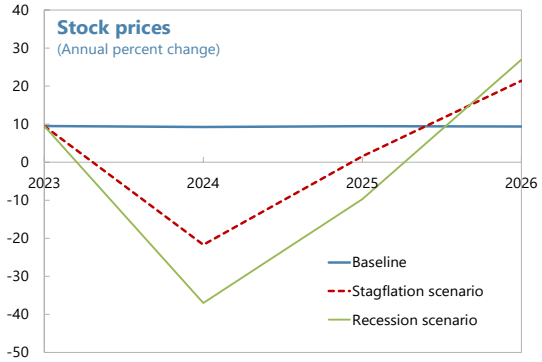
The spike in long-term rates is larger in the stagflation scenario…



… but the term premium increases more in the recession scenario because of lower short-term rates.



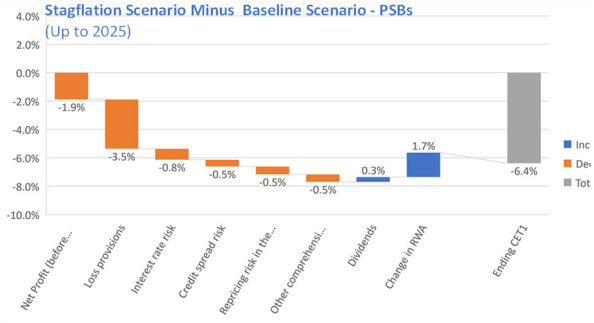
The adverse shock to stock prices is more severe in the recession scenario because of a larger domestic confidence shock.



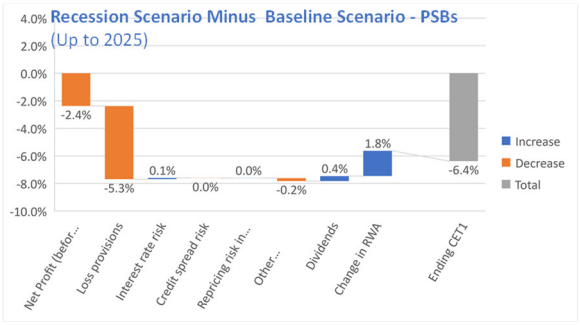
Source: WEO and IMF staff estimates based on GFM simulations

Figure 12. India: SCB Solvency Stress Test Results: Key Drivers

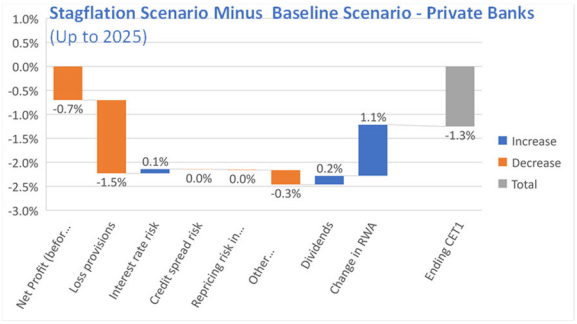
PSBs' solvency is reduced mainly by credit risk and interest rate risk in the stagflation scenario ….



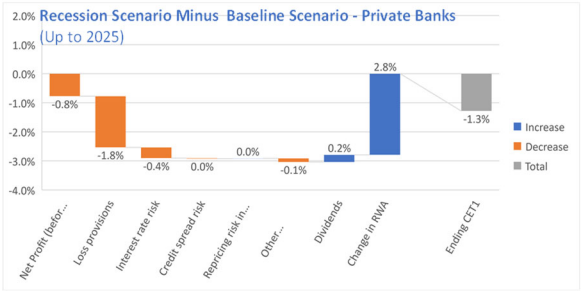
…while in the recession scenario, it is primarily impacted by credit risk….



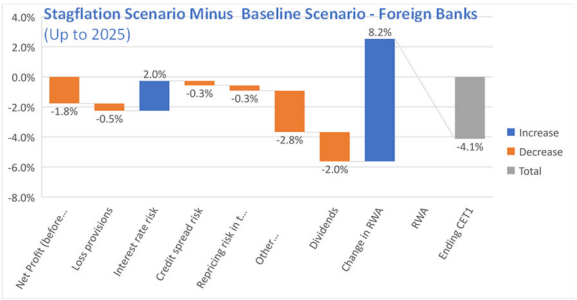
Private banks' capital ratios decline mostly because of credit risk in the stagflation scenario….



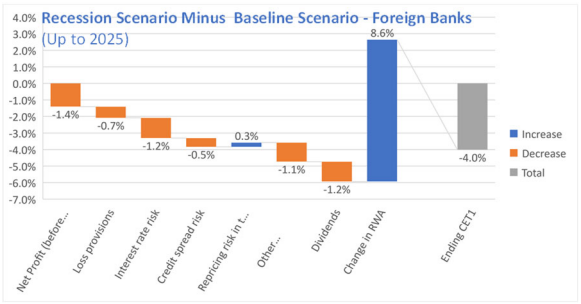
…and in the recession scenario.



Foreign banks' capital ratios decline the most due to market risk in the stagflation scenario…



…and in the recession scenario.



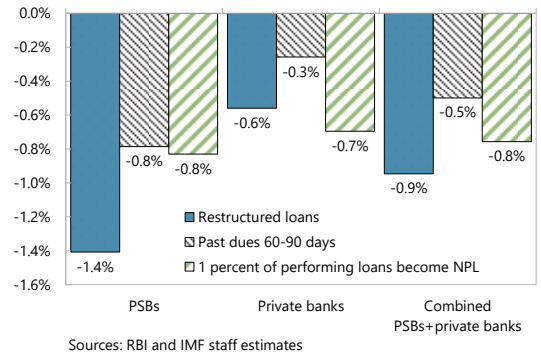
Source: IMF Staff estimates.

Figure 13. India: SCB Solvency Stress Test Results: Sensitivity Analysis[1]

Alternative measurement of NPLs could reduce capital ratio by additional ½ -1 percentage points, supporting the need for keeping one percentage point higher minimum capital requirements than Basel III.

Peak Decline in Tier One Capital Ratio

(Percentgage points, additional decline under the recession scenario)

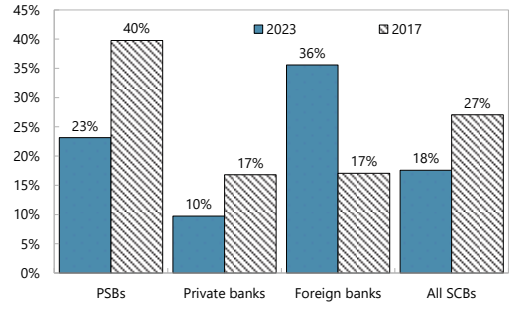


Sources: RBI and IMF staff estimates

Concentration risks moderated for PSBs to within Basel III large exposure limit (25 percent of CET1) and also for private sector banks but rose for foreign banks.

The Largest Gross Exposure, by Type of Banks

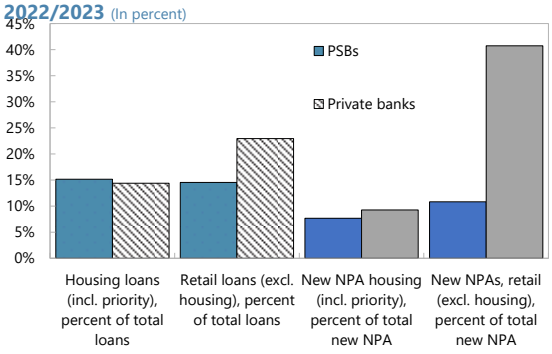
(In percent of Common Equity Tier1)



Sources: RBI and IMF staff estimates

Private-sector banks are the most active in the rapidly growing unsecured retails loans and have incurred the highest credit risks from the segment recently…

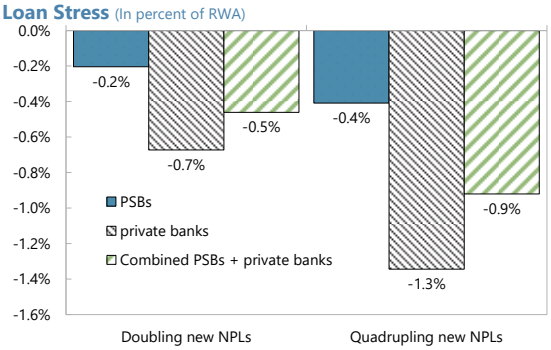
Sectoral Credit Risks: Housing Loans and other Retail Loans 2022/2023 (In percent)



Sources: IMF staff estimates

…suggesting more vulnerability to the risks from the sector.

Decline in Tier One Capital Ratio from Unsecured Retail Loan Stress (In percent of RWA)

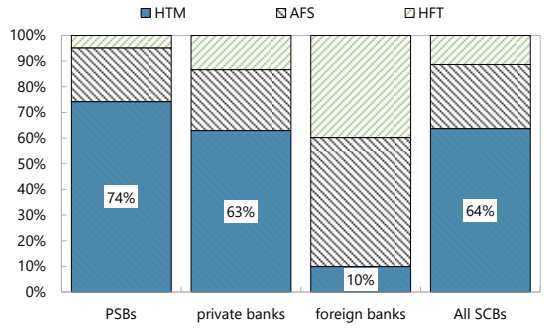


Sources: IMF staff estimates

PSBs and private sector banks hold most fixed income securities in HtM account, limiting the impact of valuation changes to capital under Basel III.

Classification of Fixed Income Securities

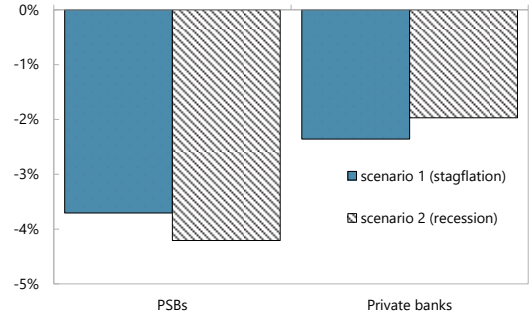
(In percent of total fixed income investments, as of June 2024)



Sources: IMF staff estimates

However, if banks were hypothetically pressed to sell HtM securities, PSB could incur much more significant losses than private sector banks, through repo facilities from the RBI could prevent such valuation losses.

MTM Losses on HtM Exposures due to Interest Rate Shock Year 1 of Scenario (Percentage Points of Tier One Ratio)



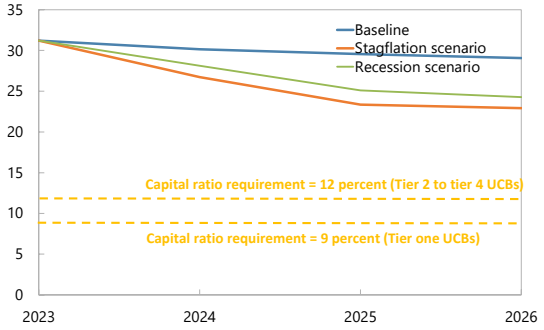
Sources: IMF staff estimates

1/ See Table 6 for the details of each sensitivity analysis. The sensitivity tests are undertaken using September 2023 data.

Figure 14. India: UCB Solvency Stress Test Results

The overall capitalization remains comfortable under both adverse scenarios…

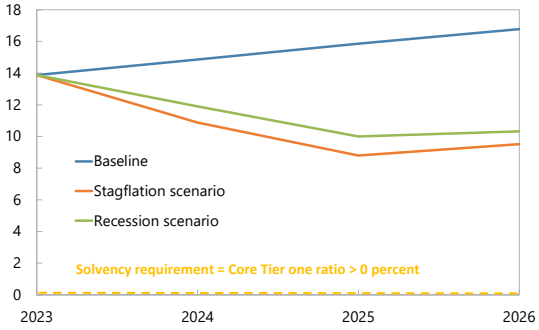
Total Capital Ratio (Tier 1 + Tier 2)
(In percent of RWAs)



Sources: RBI and IMF staff estimates

…though most of the capital buffers are Tier 2 capital.

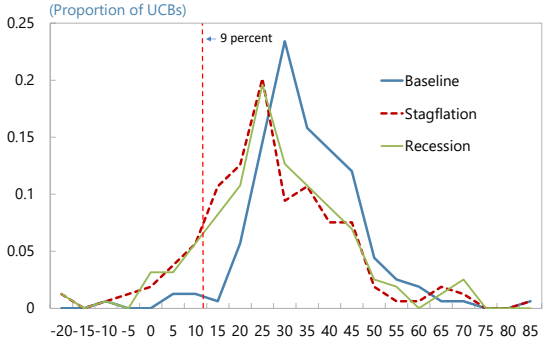
Core Tier One Capital Ratio
(In percent of RWAs)



Sources: RBI and IMF staff estimates

Also, a good number of banks see capital fall under the hurdle rate, including in the baseline….

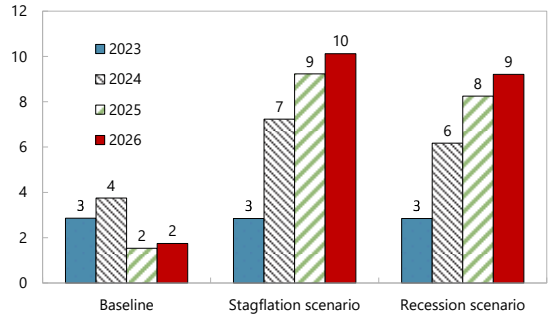
Distribution of Capital Ratios, 2026
(Proportion of UCBs)



Sources: RBI and IMF staff estimates

… and the market share of these banks is notable.

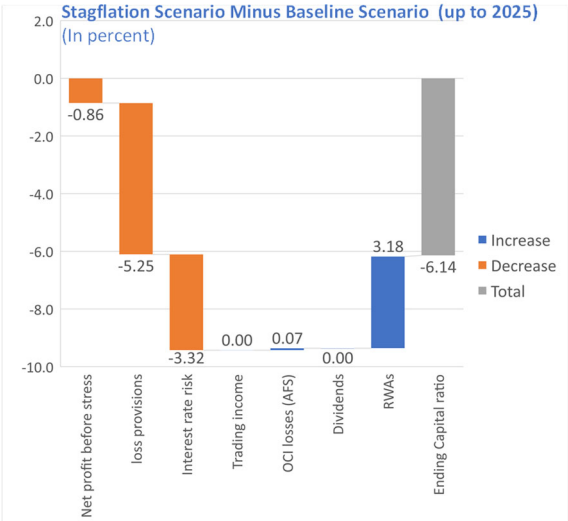
UCBs with Total CARs below Requirements 1/
(Market share by assets in percent)



Sources: RBI and IMF staff estimates
1/ The requirements are 9 percent for Tier 1 UCBs and 12 percent for Tier 2 UCBs.

Credit risk is the main driver of capital reduction in the stagflation scenario…

Stagflation Scenario Minus Baseline Scenario (up to 2025)
(In percent)



…and in the recession scenario.

Recession Scenario Minus Baseline Scenario (up to 2025)
(In percent)

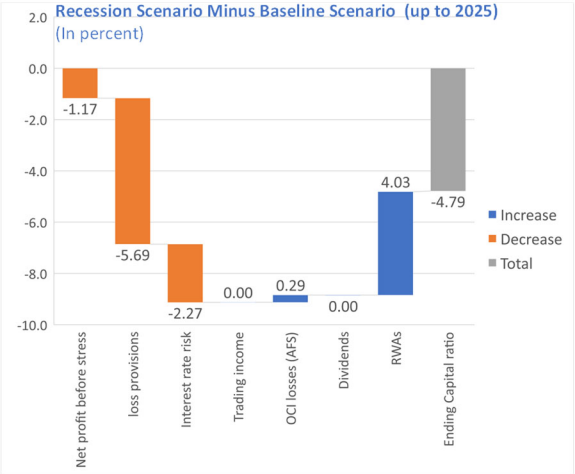
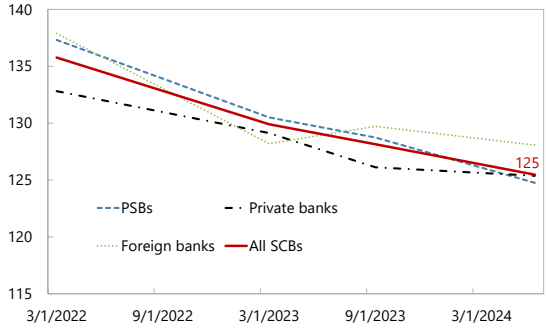


Figure 15. India: SCB Liquidity Stress Test Results

Similarly to LCR, aggregate NSFR has declined in the past few years but remained comfortably above the Basel III requirement.

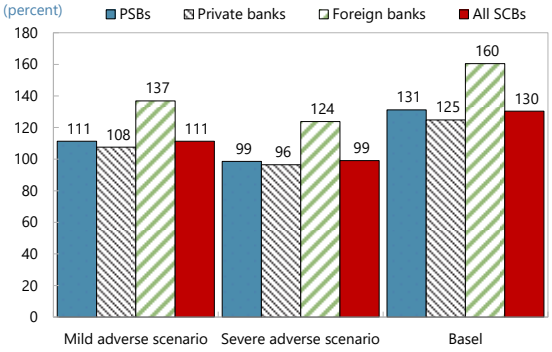
Aggregate NSFR by type of banks
(In percent)



Sources: RBI and IMF staff estimates

On the aggregate, the LCR remains above the 100 percent requirement in the mild adverse scenario, but it falls to slightly below 100 percent in the severe stress scenarios…

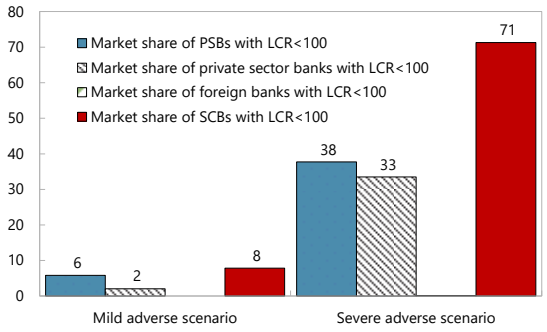
Aggregate LCR by type of banks
(percent)



Sources: RBI and IMF staff calculations

…SCBs with LCR below 100 percent include large private-sector banks and PSBs in the severe adverse scenario…

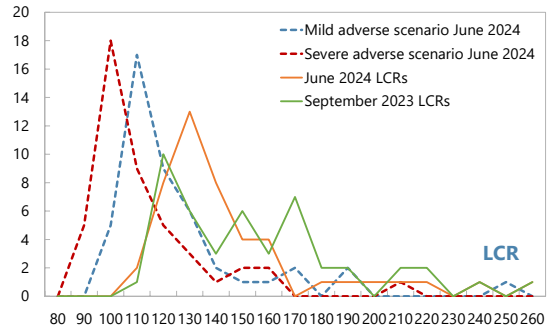
Stressed LCRs: market share of banks with LCR <100
(in percent of 46 SCBs' assets)



Sources: RBI and IMF staff estimates

…but all affected banks have only small shortfalls relative to the 100 percent requirement…

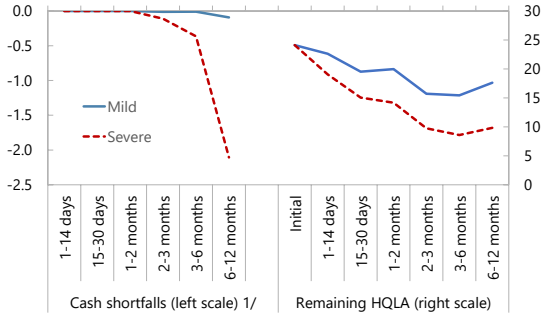
Distribution of LCRs: actual LCRs and under stress scenarios
(Number of banks)



Sources: RBI and IMF staff estimates

…and cashflow stress test shows that, if banks are allowed to use all HQLAs, all banks can absorb liquidity stress up to 2 months. The sector maintains positive aggregate HQLAs even after a year.

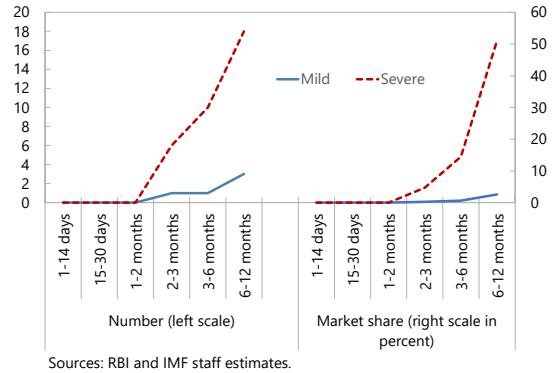
Cash Flow Stress Test Results: SCBs
(In percent of total sample banks' assets)



Sources: RBI and IMF staff estimates.
1/ Cumulative sum of cash shortfalls for banks exhausting all HQLAs.

Even in the severe adverse scenario, most SCBs can withstand longer-term stress up to 6 months.

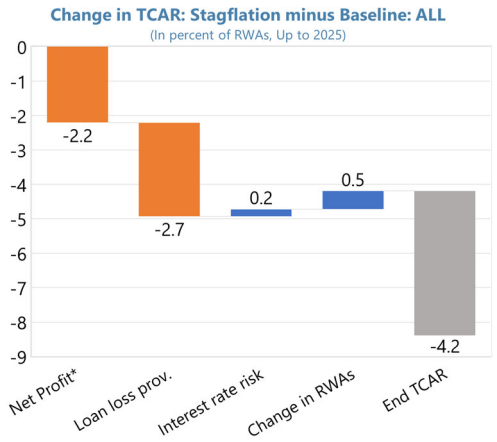
Cash Flow Stress Test Results: SCBs with Cash Shortfalls



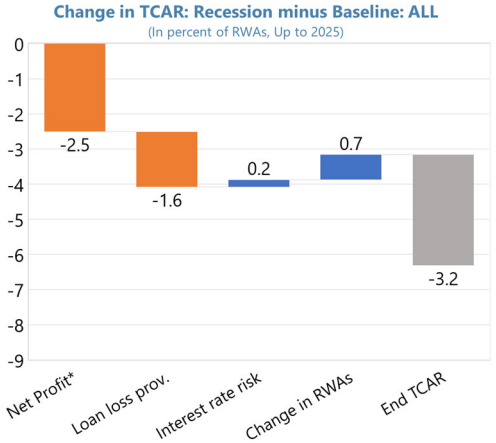
Sources: RBI and IMF staff estimates.

Figure 16. India: NBFC Solvency Stress Test Results

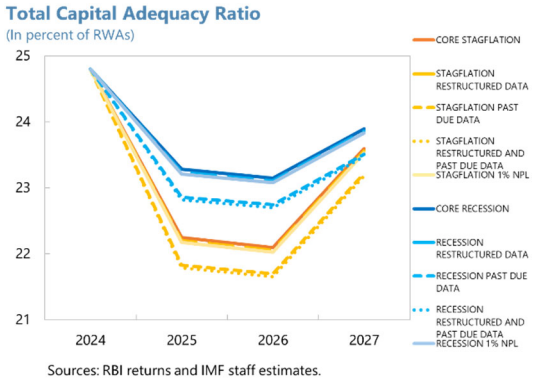
Loan loss provisions and the need for capital to maintain moderate credit growth (RWA expansion) reduce the capital ratio in the stagflation scenario…



…and in the recession scenario.

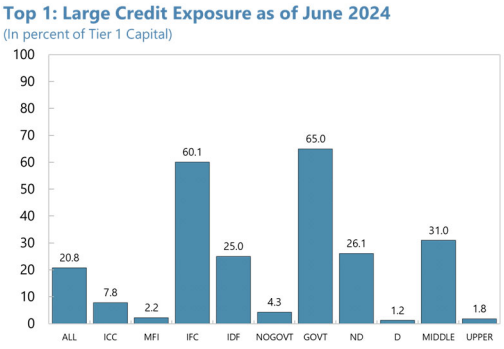


Using alternative measurements of NPLs reduces the capital ratio by additional one percentage point, similar to the SCBs' results.



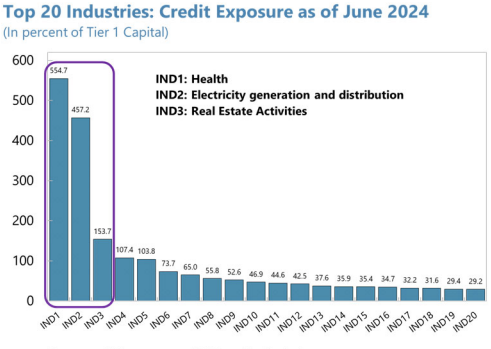
Sources: RBI returns and IMF staff estimates.

The IFC segment (mostly government owned) shows significant credit concentration, as state-owned NBFCs are mostly exempted from large exposure limits.



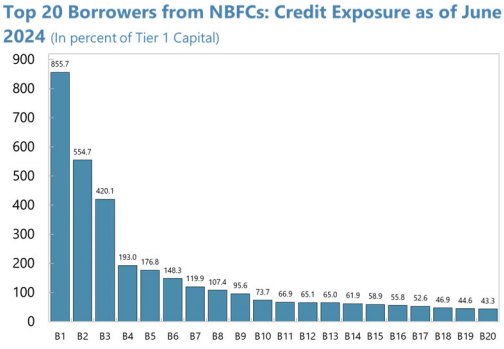
Sources: RBI returns and IMF staff calculations.

NBFC credits are concentrated in certain industries, especially health and power sectors…



Sources: RBI returns and IMF staff calculations.

…and to some borrowers.

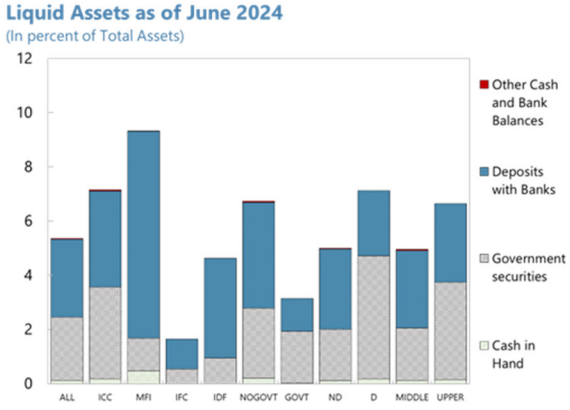


Sources: RBI returns and IMF staff calculations.

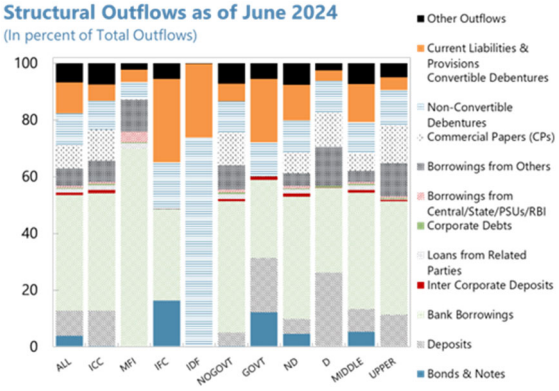
Sources: RBI data and IMF staff estimates.
Sample: Solvency Stress Test Sample: 198 NBFCs in the Upper and Middle Regulatory Layers as of June 2024.

Figure 17. India: NBFC Liquidity Stress Test Results

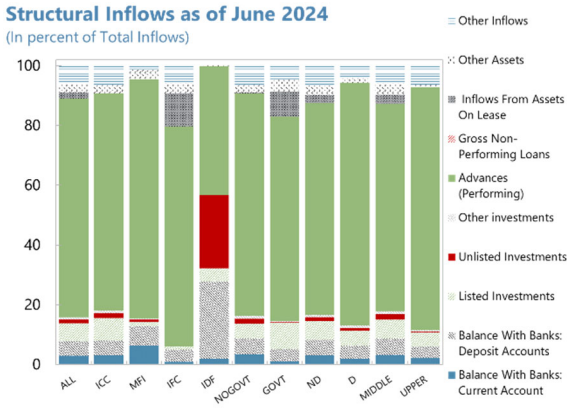
NBFCs have lower liquid asset buffers than banks, especially government securities. Bank deposits take substantial share in liquid assets.



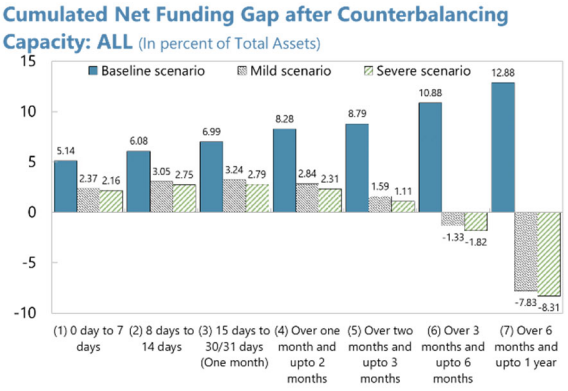
Debt service to bank loans is the largest component of the cash outflow.



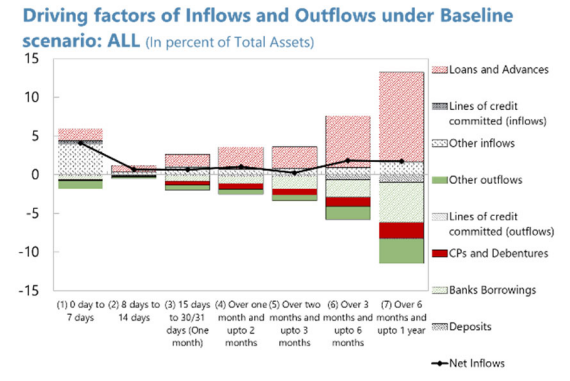
Most cash inflows are debt service from performing loans.

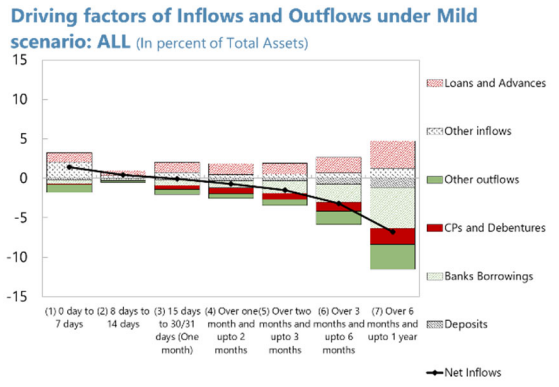


NBFCs start experiencing liquidity shortage after three months under the adverse scenarios.



The results are driven by reduced debt service inflows from higher NPLs, rather than the funding stress, as most NBFCs do not rely on deposits. Liabilities tend to have much longer maturity than banks, and repayment outflows seem moderate unless creditors demand early repayment aggressively by activating covenants.



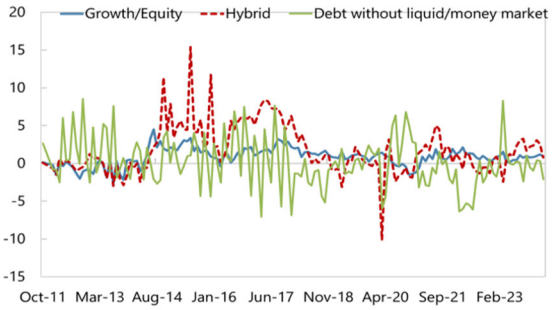


Sources: The RBI and IMF staff estimates for all six panels.
Sample: Solvency Stress Test Sample: 295 NBFCs in the Upper and Middle Regulatory Layers as of June 2024.

Figure 18. India: Illustrative Mutual Fund Liquidity Analysis

Excluding seasonal fluctuations, bond funds recently experienced two redemption episodes (COVID and the change of interest rate cycle).

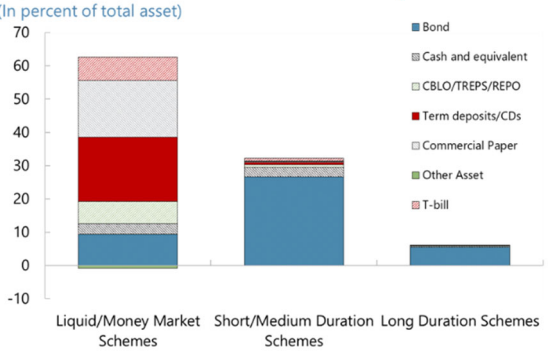
Netflow Ratio by Fund Strategy
(In percent of AUM)



Sources: AMFI and IMF staff calculation

Bond funds (in the stress testing sample, which represents about ¾ of all bond funds) invest mostly in money markets and shorter-term bonds.

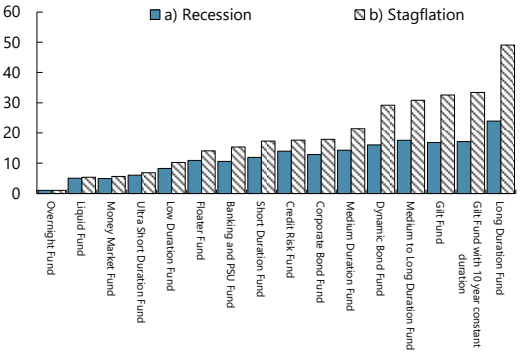
Liquid Asset by Instrument and Fund Groups
(In percent of total asset)



Sources: SEBI and IMF staff calculation

Haircuts reflect valuation shocks from front-loaded interest rate changes in the adverse macro scenarios and increase more for longer-duration schemes.

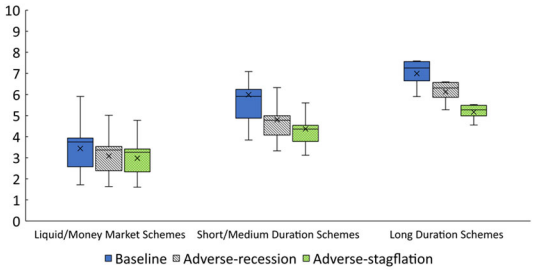
Asset Valuation Shocks by Scheme Type and Scenario
(In percent)



Sources: SEBI and IMF staff calculation.

All funds can sustain the stress. Despite smaller haircuts, shorter-term funds are most affected because they face much higher redemption shocks (reflecting history).

Redemption Coverage Ratio by Scenario and Fund Group
(Below 1 indicate stress)

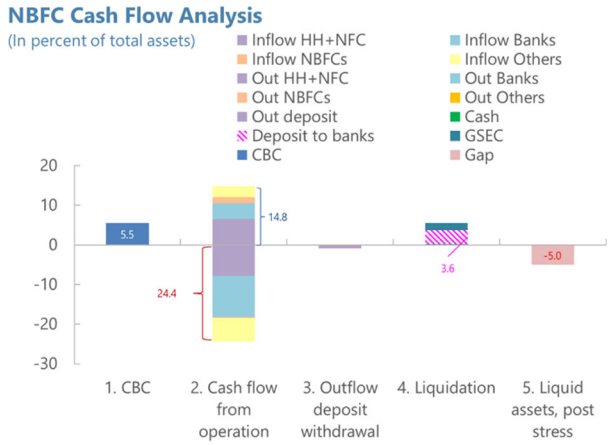


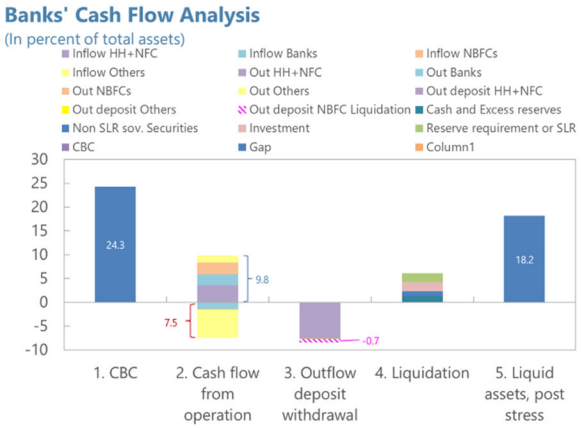
Source: SEBI and IMF staff calculation.
Note: The panel shows the distribution of RCR ratio calculated at redemption rate with homogeneity assumption at 3% after asset revaluated with interest rate assumption under inflation macro scenario.

Figure 19. India: Systemwide Liquidity Analysis

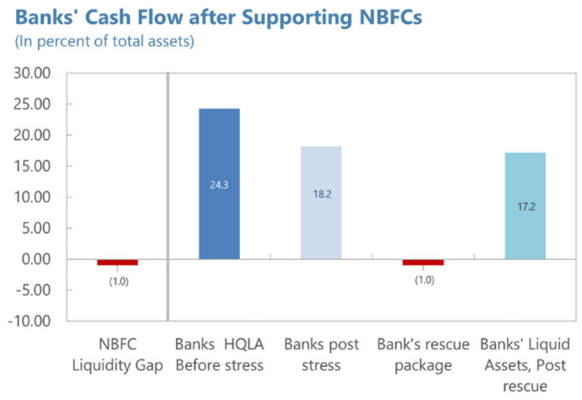
After six months of reduced debt service cash inflows due to higher NPLs, NBFCs experience significant liquidity shortage even after liquidating all their liquid assets…

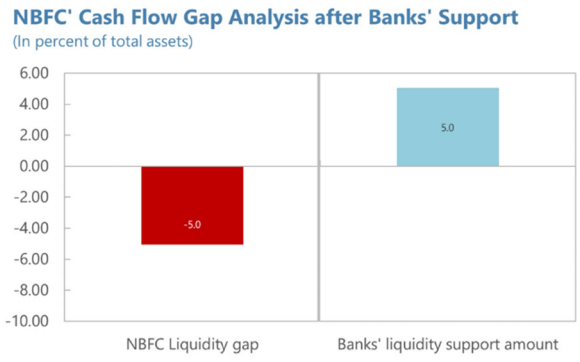
…while banks can withstand adverse shocks.





To address NBFCs' liquidity shortage, banks have capacity to step in and provide liquidity support to the system, though they may not be willing to do so due to concerns over counterparty risks. If banks do not support, then the system would experience uneven distribution of liquidity with pockets of vulnerability concentrated among NBFIs.

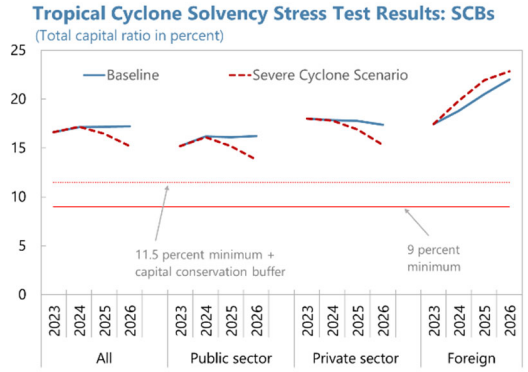




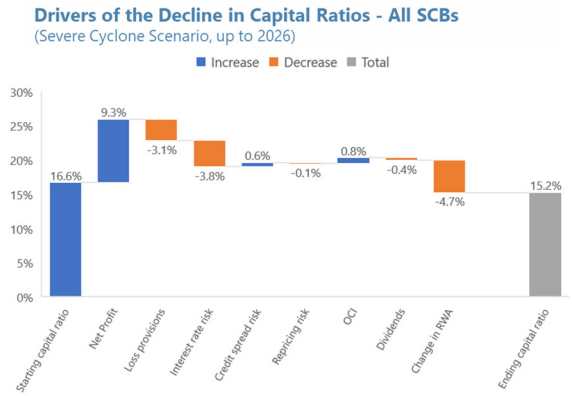
Sources: RBI and IMF staff calculations.

Figure 20. India: Climate Change Risk Analysis: Physical Risk

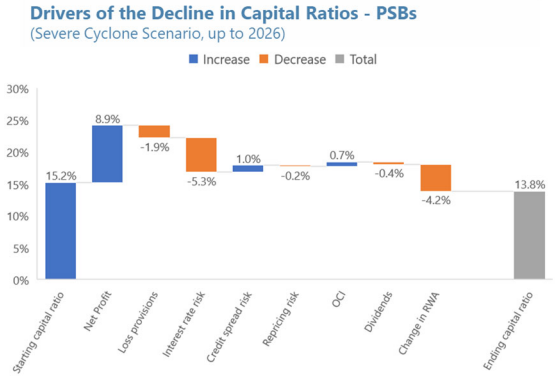
Under an extreme tropical cyclone scenario, the aggregate capital ratio for all SCBs drops to about 15 percent by 2026 but remains above the capital requirements.



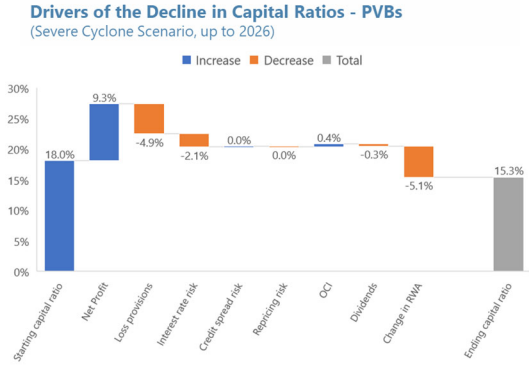
Changes in RWA, interest rate risk, and credit risk drive the decline in capital ratio at the aggregate level.



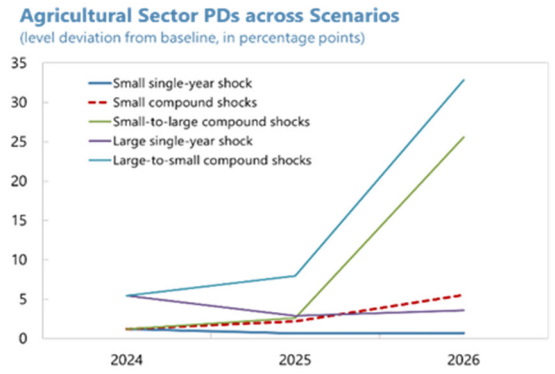
PSBs are more affected by the compression of margins and less by credit risk.



Private-sector banks pass on more of the rise in interest rates to borrowers but experience larger increase in credit risk.

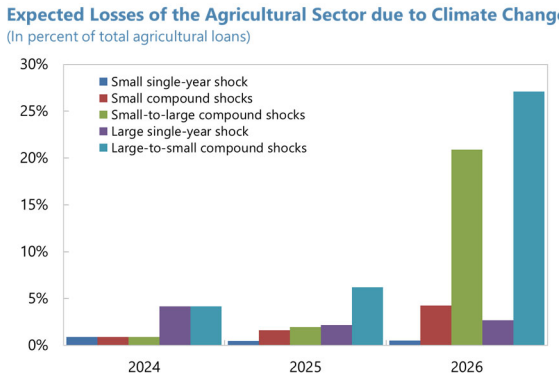


Agricultural sector's probability of defaults increases with climate shocks, and the impact depends on the severity and frequency of these shocks.



Source: IMF staff.

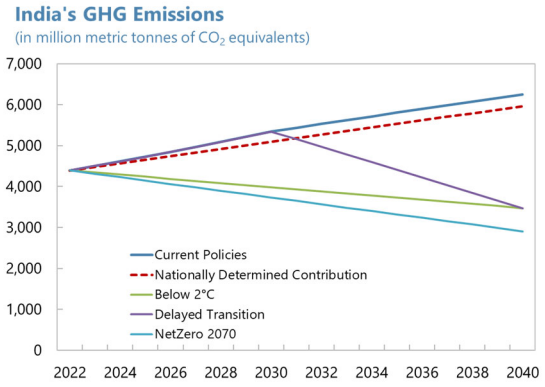
Severe compounding climate shocks lead to large potential losses in agricultural loans, but SCBs are resilient to small-to-moderate climate shocks.



Source: IMF staff.

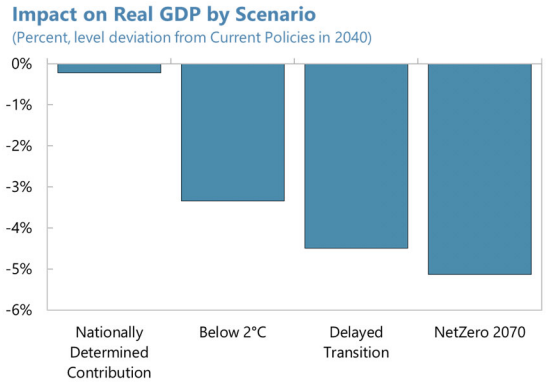
Figure 21. India: Climate Change Risk Analysis: Transition Risk

Total GHG emissions in Below 2°C/Delayed Transition and Net-Zero 2070 are 44 percent and 53 percent lower by 2040, compared to Current Policies.



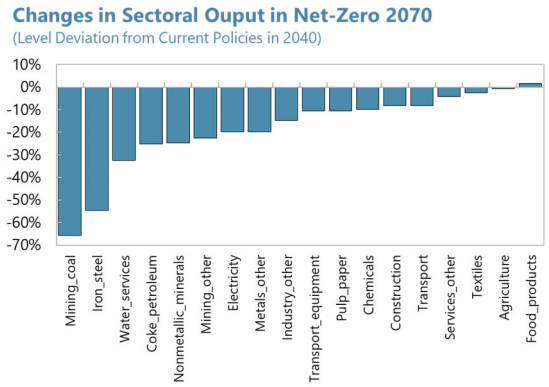
Source: IMF staff.

Mitigation policies have only minor growth impact by 2040. Orderly transition has stronger GDP growth than disorderly transition.



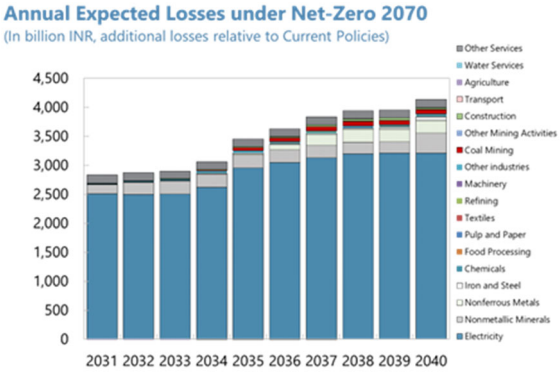
Source: IMF staff.

The impacts on sectoral output vary across scenarios and sectors, influenced by sectoral emission intensities, abatement costs, inter-industry linkages, among others.



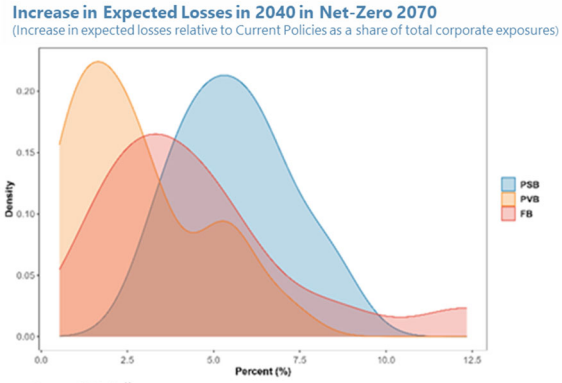
Source: IMF staff.

Climate-related transition risks are concentrated within a few carbon-intensive sectors, especially the power sector.



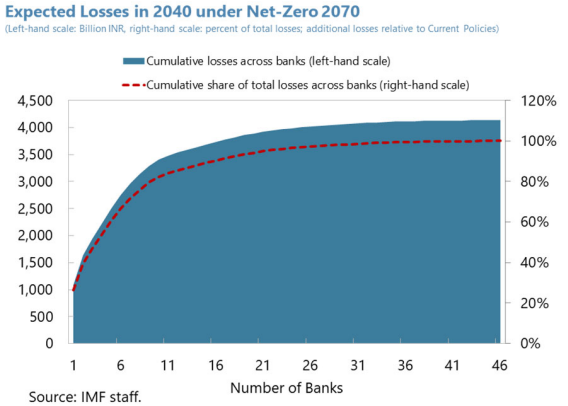
Source: IMF staff.

PSBs with greater exposure to carbon-intensive sectors are more vulnerable to transition risks.



Source: IMF staff.

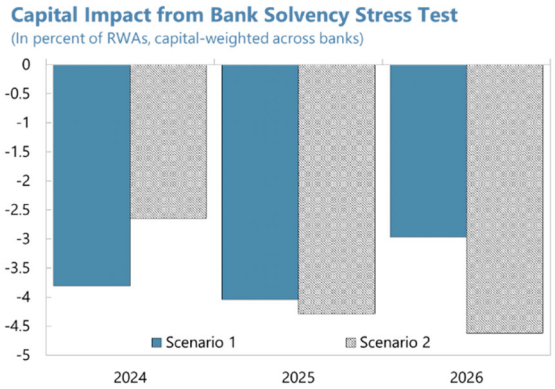
Expected losses would be considerably higher in the tails and concentrated in a few banks.



Source: IMF staff.

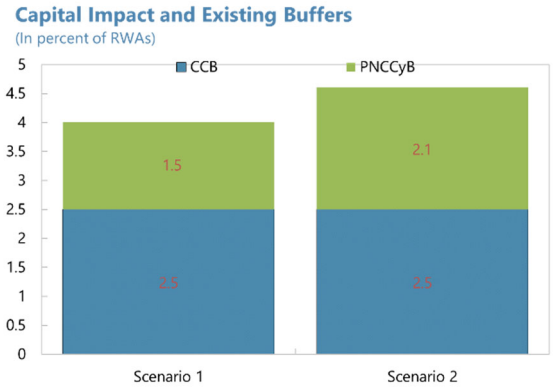
Figure 22. India: Illustration: Benefit of CCyB in Mitigating Macrofinancial Impact of Bank Distress

Overall macroprudential capital buffer needs are estimated as the largest difference of CARs between the baseline and adverse scenarios over the stress test horizon.



Sources: IMF Staff

Given these illustrative levels, the total buffers (CCB and CCyB) are sufficient to absorb the average capital depletion from FSAP stress tests.



Sources: IMF Staff

Figure 23. India: Structure of Financial System Regulators

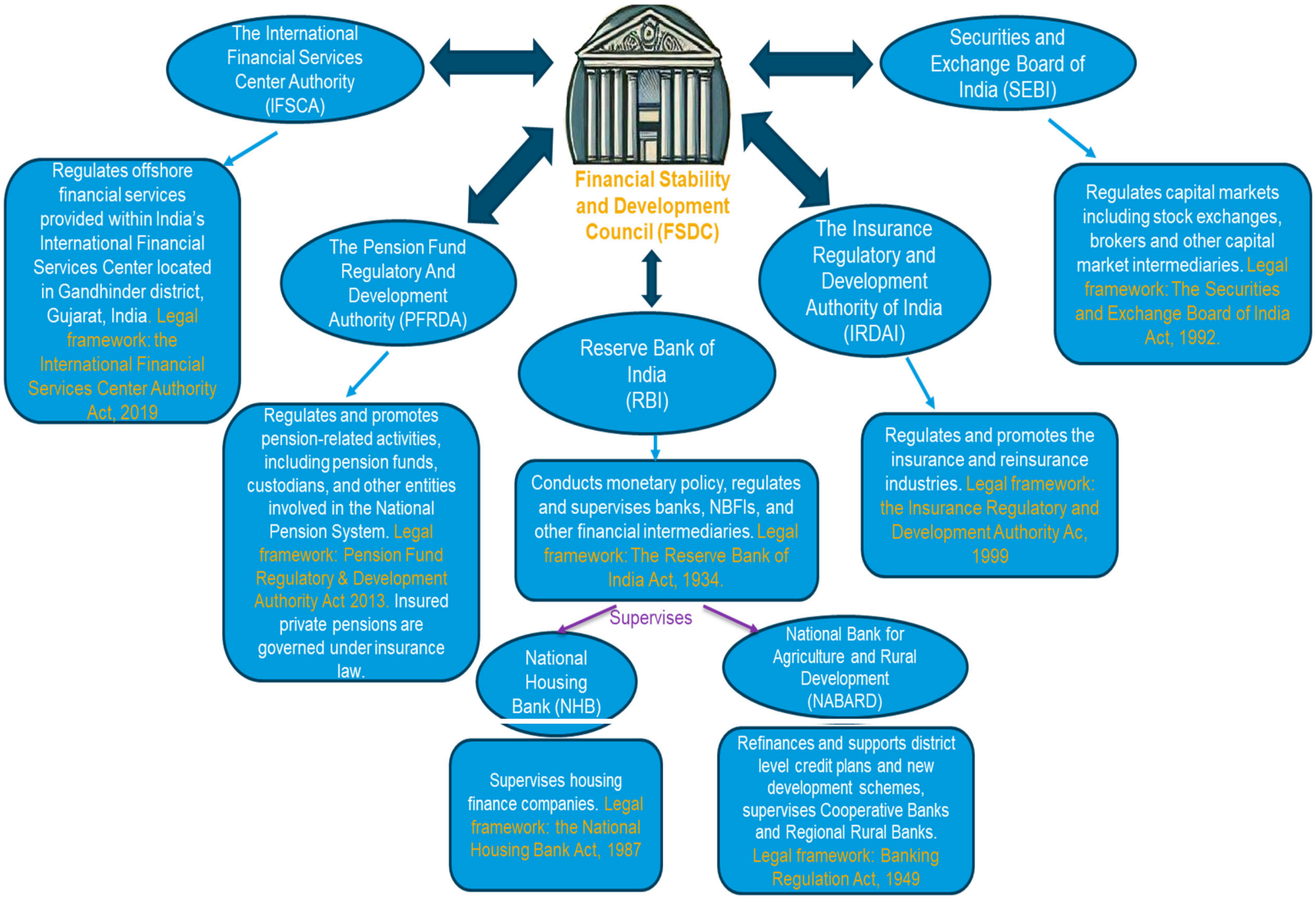


Table 2. India: Financial System Structure

	Mar-17				Mar-24			
	No. of institutions	Assets in INR billion	Percent of total assets	Percent of GDP	No. of institutions	Assets in INR billion	Percent of total assets	Percent of GDP
Total	**98,766**	**246,869**	**…**	**160**	**110,167**	**553,571**	**…**	**187**
Banks 1/	**2,113**	**159,481**	**65**	**104**	**1,996**	**308,839**	**56**	**105**
Scheduled Commercial Banks (incl. RRBs)	***156***	***146,690***	**59**	**95**	***137***	***289,207***	**52**	**98**
Public Sector Banks (PSBs)	*27*	*97,366*	**39**	**63**	*12*	*154,932*	**28**	**52**
Private Sector Banks (PVBs)	*21*	*36,014*	**15**	**23**	*21*	*105,214*	**19**	**36**
Foreign Banks	*44*	*8,246*	**3**	**5**	*45*	*17,060*	**3**	**6**
Payments Banks	*2*	*120*	**0**	**0**	*4*	*247*	**0**	**0**
Small Finance Banks	*6*	*276*	**0**	**0**	*12*	*3,353*	**1**	**1**
Regional Rural Banks (RRBs)	*56*	*4,660*	**2**	**3**	*43*	*8,401*	**2**	**3**
Local Area Banks - Non Scheduled	***3***	***8***	**0**	**0**	***2***	***16***	**0**	**0**
Cooperative Credit Institutions	***98,163***	***15,778***	**6**	**10**	***109,433***	***24,312***	**4**	**8**
Urban Cooperative Banks	*1,551*	*5,399*	**2**	**4**	*1,472*	*7,077*	**1**	**2**
Rural Cooperative Credit Institutions	*96,612*	*10,379*	**4**	**7**	*107,961*	*17,235*	**3**	**6**
State Co-operative Banks	*33*	*2,329*	**1**	**2**	*34*	*4,883*	**1**	**2**
District Central Co-operative Banks	*370*	*5,055*	**2**	**3**	*351*	*7,656*	**1**	**3**
Primary Agricultural Credit Societies (PACS) 2/	*95,595*	*2,400*	**1**	**2**	*106,955*	*4,094*	**1**	**1**
State Co-operative Agricultural and Rural Development Banks (SCARD) 2/	*13*	*304*	**0**	**0**	*13*	*278*	**0**	**0**
Primary Co-operative Agricultural and Rural Development Banks (PCARDB) 2/	*601*	*291*	**0**	**0**	*608*	*324*	**0**	**0**
Non-bank Financial Institutions (NBFIs)	**444**	**84,393**	**34**	**55**	**595**	**240,036**	**43**	**81**
Non-banking Financial Institutions	***356***	***26,018***	**11**	**17**	***436***	***80,892***	**15**	**27**
Non-banking Financial Companies (NBFCs) 3/	*345*	*19,672*	**8**	**13**	*331*	*50,686*	**9**	**17**
Housing Finance Companies (HFCs)			-	-	*93*	*10,744*	**2**	**4**
All India Financial Institutions (AIFIs)	*4*	*6,034*	**2**	**4**	*5*	*17,926*	**3**	**6**
Standalone Primary Dealers (SPDs)	*7*	312	**0**	**0**	*7*	1,536	**0**	**1**
Real Estate Investment Trust (REIT)					***5***	***971***	**0**	**0**
Infrastructure Investment Trust (InvIT)					***24***	***4,725***	**1**	**2**
Employees' Provident Fund (EPFO) 4/	*1*	***8,330***	**3**	**5**	*1*	***20,740***	**4**	**7**
Pension (Assets) under National Pension System	*7*	***1,740***	**1**	**1**	***11***	***11,727***	**2**	**4**
Insurance Companies	***62***	***30,765***	***12***	**20**	***73***	***67,579***	***12***	**23**
Life-Insurance	*24*	*28,541*	*12*	**19**	*26*	*61,568*	*11*	**21**
Non-life Insurance	*29*	*1,823*	*1*	**1**	*35*	*4,751*	*1*	**2**
Reinsurance	*9*	*401*	*0*	**0**	*12*	*1,260*	*0*	**0**
Mutual Funds	***45***	***17,540***	**7**	**11**	***45***	***53,402***	**10**	**18**

Sources: Indian authorities and IMF staff calculations

1/ Excluding Primary Agrictural Credit Societies, State Cooperative Agricultural and Rural Development Banks and Primary Cooperative Agricultural and Rural Development banks as per the statute.

2/ Data for PACS, SCRDBs and PCARDBs pertain to end-March 2023. In case of payment banks, two non-scheduled banks are excluded at end-March 2024.

3/ NBFCs have been segregated into four layers, comprising Top, Upper, Middle or Bael Layers with the implemenation of of Scale Based Regulation from October 2022.
Accordingly data for NBFCs for 2023-24 are based on Upper Layer and Middle Layer and exclusive of core investment companies, HFCs and SPDs constituting 94 per cent of assets of NBFCs.

4/ Data for EPFO pertain to end-March 2023.

Table 3. India: Selected Economic Indicators, 2023/24–2025/26

(Annual percent change, unless otherwise indicated)

Population (2023/24): 1.42 billion
Per capita GDP (2023/24 estimate): 2,534 USD
Main exports: Engineering goods, petroleum products, gems and jewellery, chemicals and electronic goods.
Key export markets: EU, USA, United Arab Emirates, China, Bangladesh, and Singapore.

FISCAL YEAR 1/	2023/24	2024/25	2025/26
	Est.	Projections	
Output			
Real GDP growth (%)	8.2	6.5	6.5
Output gap (% of potential output)	0.1	0.1	0.1
Prices			
Inflation, CPI-Combined (%)	5.4	4.8	4.3
General government finances			
Revenue (% of GDP)	20.8	21.3	21.1
Expenditure (% of GDP)	29.0	28.8	28.6
Fiscal balance (% of GDP)	-8.2	-7.6	-7.5
Public debt (% of GDP)	82.7	83.0	82.4
Money and credit			
Broad money (% change)	11.1	9.8	10.5
Domestic Credit (% change)	12.0	10.5	11.3
Credit to the private sector (% change)	15.5	11.9	12.7
Balance of payments			
Current account (% of GDP)	-0.7	-1.1	-1.2
FDI, Net Inflow (% of GDP)	0.3	0.3	0.4
Reserves (months of imports)	8.5	8.3	8.2
External debt (% of GDP)	18.7	18.9	18.7

Sources: Data provided by the Indian authorities; Haver Analytics; CEIC Data Company Ltd; Bloomberg L.P.; World Bank, World Development Indicators; and IMF staff estimates and projections.
1/ Fiscal Year is April to March (e.g. 2023/24 = Apr-2023 - Mar-2024).

Table 4. India: Financial Soundness Indicators, 2019/20–2023/24

	2019/20	2020/21	2021/22	2022/23	2023/24
	(In percent, unless indicated otherwise)				
I. Scheduled commercial banks					
Risk-weighted capital adequacy ratio (CAR)	**14.8**	**16.3**	**16.8**	**17.2**	**16.8**
Public sector banks	12.9	14.0	14.6	15.5	15.5
Private sector banks	16.5	18.4	18.8	18.6	17.8
Foreign banks	17.7	19.5	19.8	19.8	18.5
Number of institutions not meeting 9 percent CAR	**2**	**1**	**0**	**0**	**0**
Public sector banks	1	0	0	0	0
Private sector banks	1	1	0	0	0
Foreign banks	0	0	0	0	0
Net nonperforming assets (percent of outstanding net advances) 1/	**2.8**	**2.4**	**1.7**	**1.0**	**0.6**
Public sector banks	3.8	3.1	2.2	1.2	0.8
Private sector banks	1.5	1.4	1.0	0.6	0.5
Foreign banks	0.5	0.6	0.7	0.3	0.2
Gross nonperforming assets (percent of outstanding advances)	**8.2**	**7.3**	**5.8**	**3.9**	**2.8**
Public sector banks	10.3	9.1	7.3	5.0	3.7
Private sector banks	5.5	4.9	3.8	2.3	1.8
Foreign banks	2.3	2.4	2.9	1.9	1.2
Return on assets 2/	**0.1**	**0.7**	**0.9**	**1.2**	**1.3**
Public sector banks	-0.3	0.3	0.5	0.8	0.9
Private sector banks	0.4	1.1	1.4	1.6	1.8
Foreign banks	1.5	1.6	1.4	2.0	1.6
Balance sheet structure of all scheduled commercial banks					
Total assets (in percent of GDP)	88.6	98.6	91.9	90.2	95.1
Credit-to-deposit ratio	78.1	73.1	74.3	77.4	80.3
Government securities/total assets	20.1	22.6	22.5	22.6	22.4
Liquid assets/total assets 3/	22.1	27.1	23.7	24.2	22.7
Liquid assets/short-term liabilities 4/	76.5	81.1	68.6	72.5	69.4
II. Non-Banking Financial Companies 5/					
Total assets (in percent of GDP)	16.6	17.7	15.8	16.2	17.2
Risk-weighted capital adequacy ratio (CAR)	23.7	25.0	26.8	27.5	26.6
Gross nonperforming assets (percent of outstanding advances)	6.8	6.4	6.3	4.3	4.0
Net nonperforming assets (percent of outstanding net advances) 1/	3.4	2.7	2.3	1.3	1.1
Return on assets 2/	1.3	1.2	1.6	2.4	3.3

Sources: RBI; Bankscope; IMF, *Financial Soundness Indicators* ; and IMF staff estimates.

1/ Gross nonperforming assets less provisions.

2/ Net profit (+)/loss (-) in percent of total assets.

3/ Reflect calendar year.

4/ Data for 2023/24 is as of 2023Q4.

5/ As of July 31, 2022, there were 9640 NBFCs, where 49 were deposit taking (NBFCs-D), and 415 systemically non-deposit taking NBFCs (NBFCs-ND-SI).

Table 5. India: Status of Key 2017 FSSA Recommendations—Staff Assessment		
Key Recommendations	**Authorities Actions**	**Status**
Policies to address vulnerabilities		
Improve the governance and financial operations of PSBs and develop a strategic plan for their consolidation, divestment, and privatization.	The authorities have reported an improvement in the governance and financial operations of PSBs. The improvements include the extension of the Banks Board Bureau role to advise the government on the selection, appointment and all matters relating to of Board of Directors in PSBs as well as suitable training and development programs for management personnel in PSBs and the reduction of PSBs. However, gaps remain.	Partially implemented
Conduct granular assessments of banks' capital needs and require additional provisions and swift recapitalization and restructuring.	The Banks Board Bureau now conducts quarterly assessments of PSB capital requirements and reports to the government and the RBI.	Implemented
Redesign the corporate debt restructuring mechanisms to make them more flexible.	The flexible Prudential Framework for Resolution of Stressed Assets issued by RBI on June 7, 2019 (replaced guidelines issued on February 12, 2018) lays out the principles underlying the new regulatory approach for resolution of stressed assets, including early recognition, and reporting of default; discretion of lenders to design and implement resolution plans (RPs); and a system of disincentives for delays in implementation of RPs.	Partially implemented
Financial sector oversight framework		
System-wide oversight and macroprudential policies • Retain regulators' role in collecting firm-level data.	India has implemented the recommendation by enhancing supervision and micro-prudential limits. Regulators continue to collect data directly from financial institutions and financial service providers in their respective domain and this may not be sufficient to address systemic risks that arise from the interconnectedness of the financial system. The rapidly expanding and diversifying financial system, particularly among nonbank financial companies (NBFCs), and the strong economic rebound with strong credit growth pose even more challenges for supervisors and regulators.	Partially implemented
Banking supervision • Review loan classification and provisioning rules in the context of IFRS, and with respect to special loan categories. • Amend the legal framework to provide RBI with full supervisory powers over PSBs and clarify its legal independence.	A discussion paper on the introduction of Expected Credit Loss Framework for Provisioning by banks was released by RBI on January 16, 2023, for stakeholders' comments. The key requirement under the proposed framework shall be for the banks to classify financial assets - depending upon the assessed expected credit losses, at the time of initial recognition as well as on each subsequent reporting date and to make necessary provisions. No changes.	In progress No changes
Insurance supervision • Introduce a risk-based solvency regime and risk-based supervision.	The IRDAI has established two project teams to lead the work on the transition to risk-based solvency regime and risk-based supervision. For the risk-based solvency regime the IRDAI completed its first quantitative impact study (late in 2023) and was busy analyzing the results during the mission. A further quantitative impact study might	In progress. Authorities are planning to implement in 2025

Table 5. India: Status of Key 2017 FSSA Recommendations—Staff Assessment (Continued)		
Key Recommendations	**Authorities Actions**	**Status**
	be performed during 2024 to finalize the regime. In respect of the risk-based supervision approach the IRDAI has done some pilot testing, appointed an external provider for support and is in the process of developing its supervisory tools and guidance.	
Securities regulation • Transfer legal authority over public listed company reporting to SEBI and introduce a risk-based review of company disclosures.	The Companies Act 2013 (CA-13) provides minimum requirements for a company with respect to preparation, circulation, filing and review of various disclosures through specified reports/returns. SEBI has developed an Early Warning System to aggregate financials filed by listed companies and other publicly available information.	Implemented
• Adopt a strategy to unify regulation of commodities trading markets.	No changes	No changes.
Financial markets infrastructure oversight • Improve stress testing scenarios and methodologies.	Several revisions have been made to the credit stress test model to improve testing scenarios and methodologies. MCM has provided TA on stress testing.	Partially implemented
Crisis management framework • Resolution legislation should preserve RBI's full supervisory authority over going concern banks and promote equal treatment of domestic and foreign creditors.	The draft resolution bill is still under development. The authorities advised that issues relating to duplication of supervisory authority in the pre-resolution phase, strengthening of resolution tools and safeguards, recovery and resolution plans, treatment of domestic and foreign liability holders, and matter of crisis preparedness are expected to be adequately accommodated in the ongoing review of the Bill, in consultation with the RBI. The Deposit Insurance and Credit Guarantee Corporation Act, 1961 was amended on August 27, 2021, with a view to ensuring time bound interim payment of deposits to depositors, up to the amount insured, in case of banks with restrictions on withdrawal of deposits placed by the Reserve Bank.	No changes
• Improve the frameworks for emergency liquidity assistance, deposit insurance, and crisis preparedness.	On crisis preparedness, the authorities are working to strengthen the 'Early Warning Group' and the frequency of its meetings has been increased from once in three months to at least every two months. No changes on ELA.	In progress
Market integrity • Subject domestic politically exposed persons to adequate due diligence and qualify domestic tax evasion as a predicate offense to money laundering.	The findings of the latest mutual evaluation support the conclusion that the recommendation has not yet been implemented.	No changes

Table 5. India: Status of Key 2017 FSSA Recommendations—Staff Assessment (Concluded)		
Key Recommendations	**Authorities Actions**	**Status**
Market development		
Progressively reduce the SLR to help deepen markets and encourage lending.	The SLR has been reduced from 22.5 percent in June 2014 to 18 percent of net demand and time liabilities (NDTL) since April 2020.	In progress
Undertake a cost-benefit and gap diagnostic of the PSL program and develop a plan to reduce its scope and ensure it targets underserved segments.	A review of the PSL guidelines was carried out and revised guidelines were issued to banks on September 4, 2020. Significant changes include financing of start-ups; increased limits for renewable energy, including solar power and compressed biogas plants; higher limits for health infrastructure, increasing the targets for lending to 'Small and Marginal Farmers' and 'Weaker Sections' in a phased manner.	In progress

Table 6. India: 2024 FSAP Stress Testing Matrix

Domain		Top-Down Banking Sector Stress Tests
Solvency Risk		
1. Institutional perimeter	Institutions included	• 46 SCBs, including 12 PSBs, 20 private sector, and 14 foreign banks (all under standardized approach). • 215 Urban Cooperative Banks (UCBs)
	Market share	• The sample of SCBs covers 94 percent of commercial bank assets; the sample of UCBs covers 68 percent of the assets of the cooperative bank sector.
	Data source and baseline date	• Supervisory data provided by the Reserve Bank of India. Historical data are adjusted for past bank mergers. • Other data sources include commercial databases (Fitch, Haver Analytics) including for NFC credit risk overlay, IMF Global Assumptions (GAS) and IMF WEO. • The main scenario-based stress tests use data as of June 2024, and the sensitivity analysis uses data as of September 2023. • All data on exposures are consolidated at national bank level; except for large borrowers which is based on global exposures.
2. Channels of risk propagation	Methodology	• Balance sheet-based tool developed by the IMF. • Satellite models developed by the FSAP team (dynamic panel estimate using 2015: Q1-2023: Q3 data).
	Satellite models for macro-financial linkages	• Credit risk: Parameters (default probabilities, NPL ratios, and provisions) are projected at the bank level. • Net Interest Income: Based on two complementary approaches (structural and empirical). The empirical approach relies on estimates from regression models using individual bank data and pass-through estimates (net interest income, interest income, interest expenses). The structural model combines this with repricing ladders on the portfolio of interest-bearing assets and liabilities in the banking book. • Net Fees and Commission income and other income/expenses: assumption (growing with total assets). • Market risk: Duration approach for interest rate instruments for SCBs, for UCBs assuming average duration from SCBs). • Models estimated separately for PSBs, private sector banks, foreign banks, and UCBs.
	Stress test horizon	• 3 years (2024-2026).
3. Tail shocks	Scenario analysis	• ***Baseline*** is the Spring 2024 WEO. • ***Two adverse scenarios*** are derived from IMF's 40-country dynamic stochastic general equilibrium model (DSGE) Global Macrofinancial Model (GFM). • The ***stagflation scenario*** is characterized by a U-shaped path for real GDP growth, tightening of global financial conditions, global supply chain disruptions, the rise of commodity prices, a de-anchoring of inflation expectations, a trade-off for monetary policy between unemployment and inflation, and sovereign distress as described in the RAM. • The ***recession scenario*** is characterized by negative domestic demand shocks and loss of confidence in addition to global shocks but without the de-anchoring of inflation expectations domestically or globally. • ***The adverse scenarios assume extreme tail stress*** aiming at a 2.8 standard deviation shock over two years cumulative GDP growth relative to the 2024 Spring WEO baseline GDP, comparable to other FSAPs undertaken when baseline forecast is strong. The 2017 FSAP assumed a smaller 2.1 standard deviation shock, partly because of the ongoing distress at the time. Moreover, the standard deviation is estimated using the data up to 2017. The 2017 FSAP shock corresponds to a 1.7 standard deviation shock using the data up to 2023.

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)		
3. Tail shocks	Scenario analysis	• Excluding the Covid-shock, the most severe growth decline occurred in 1991 (a 1.1 standard deviation shock relative to baseline). The GFC shock was even milder. However, the combination of the 2018-2019 NBFC crisis and the 2020 Covid-shock was about a 4 standard deviation shock relative to 2018 WEO projection. • ***The scenarios assume a constant credit-to-GDP ratio.*** This means that that banks continue to supply credit to the real economy in each scenario at the same rate as nominal GDP growth rate. The average yearly growth of credit in the baseline, stagflation and recession scenarios are respectively 11.1 percent, 72. percent and 5.7 percent.
4. Risks and buffers	Risks/factors assessed	• Credit risk on loan portfolio. • Interest rate risk in the banking book. • Market risk from fixed income securities (interest rate, spreads).
	Behavioral adjustments	• Balance sheet assumptions such that credit growth ensures that credit to GDP ratio remains constant. • Cures no/with write-offs and new credit production endogenously consistent with credit growth assumption, based on data availability. • Portfolio composition unchanged over time.
5. Regulatory and market-based standards and parameters	Calibration of risk parameters	• Interest Income, Interest Expenses (or Net Interest Income), and other P&Ls items evolve in line with the scenarios considered (WEO baseline, adverse scenario), starting point from supervisory data adjusted for potential seasonality patterns. • Dynamics on model estimated NPLs and/or default rates in line with the scenario considered (WEO baseline, adverse scenarios), and starting point from supervisory data adjusted for potential seasonality patterns.
	Regulatory/ accounting and market-based standards	• National regulatory ratios, hurdle rates of 9 percent and 5.5 percent, for capital and CET1 respectively, for SCBs. Results with higher hurdle rates of the 2.5 percent CCB are also considered. UCBs are subject to only minimum CAR ratio (without capital charges for market risks nor CCBs) of 9 percent for UCB classified as Tier 1 and 12 percent for UCB classified as Tier 2 to four. • Bank level average risk weights for credit risk from recent bank supervisory data
6. Reporting format for results	Output presentation	• Aggregate results and contributions to evolution of capital ratios. Distribution of bank level capital ratio and NPL ratio results in the TN as in the Reserve Bank of India Financial Stability Report

Domain		Top-Down Banking Sector Stress Tests
Liquidity Risk		
1. Institutional perimeter	Institutions included	• Subject to availability of cash-flow data: 46 SCBs
	Market share	• The 46 SCBs account for 94 percent the commercial bank assets
	Data and baseline date	• Liquidity Coverage Ratio, Net Stable Funding Ratio and Cash flow table from supervisory data. • Data as of September 2023. • Consolidated at national bank level, domestic exposures

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)		
Domain		**Top-Down Banking Sector Stress Tests**
Liquidity Risk		
2. Channels of risk propagation	Methodology	• The cash-flow stress test analyzes the net cash balance, accounting for available unencumbered assets, contractual cash inflows and outflows, and behavioral flows. • The analysis is complemented with LCR stress test and NSFR analysis.
	Stress test horizon	• For the cash-flow analysis, the horizon of stress events extends up to a period 12 months. • The horizon for LCR stress test is one month.
3. Tail shocks	Scenario analysis	• Baseline and various scenarios are considered together with a reverse-stress testing approach and adverse liquidity conditions and reflecting different liquidity risks tailored to the country. • In the mild-severe LCR adverse scenario, run-off rates on respectively retail deposits and unsecured wholesale deposits are set at respectively 125 percent and 115 percent of the Basel III run-off rates. In the severe LCR scenario, run-off rates on respectively retail deposits and unsecured wholesale deposits are set at respectively 150 percent and 125 percent of the Basel III run-off rates.
	Sensitivity analysis	• Higher run-off rates, and additional haircuts on sovereign bond holdings. • Reverse stress tests scenarios considered.
4. Risks and buffers	Risks/factors assessed	• Funding liquidity risk is reflected in funding and asset roll-off rates, the latter providing cash inflows are related to non-renewal of maturing assets. • Market liquidity risk is reflected in asset haircuts, which could be influenced by market movements, potential fire sales and collateral supply considerations.
	Behavioral adjustments	• The cash-flow analysis may consider some behavioral assumptions about a counterparty's ability or willingness to transact based on banks' solvency and liquidity conditions.
5. Regulatory and market-based standards and parameters	Calibration of risk parameters	• Stress funding run-off rates, asset roll-over rates, and asset haircuts are calibrated based on relevant international experiences.
	Regulatory/accounting and market-based standards	• The LCR hurdle rate is set at 100 percent at the aggregate currency level (per Basel III and domestic regulation). • NSFR per Basel III; limit of 100 percent.
6. Reporting format for results	Output presentation	• Outputs include (1) Changes in the system-wide liquidity position, (possibly including important drivers for cash outflows, cash inflows and counterbalancing capacity), (2) Distribution of banks' liquidity positions, (3) Number of institutions with LCR/NSFR below regulatory limits, and (4) amount of liquidity shortfall.

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)		
Domain		**Top-Down NBFC Stress Tests**
Solvency Risk		
1. Institutional perimeter	Institutions included	• 197 NBFCs in the upper and middle layers of the tiered supervisory framework that apply more stringent rules for more systemically important NBFCs. • For each sub-category, the corresponding number of NBFCs is the following: Business Focus: ICC (167), IFC (5), MFI (22), and IDF (3); Deposit policy: Deposit-taking (16) and non-deposit-taking (181); Ownership: Government-owned (13) and non-government-owned (184); Supervisory Intensity: Upper (8) and Middle (189). While the largest three NBFCs are all IFCs, they are classified in the middle layer group because they are state owned NBFCs, which can be classified at most in the middle layer.
	Market share	• 78% total assets of NBFCs as of June 2024.
	Data source and baseline date	• Supervisory data provided by the RBI. Other data sources include Haver Analytics, Financial Soundness Indicators and IMF WEO. • Data as of June 2024.
2. Channels of risk propagation	Methodology	• The balance sheet-based tool is developed by MCM. • The satellite models are estimated by the FSAP team based on credit risk and interest rate risk. Credit risk satellite models are estimated using 2020:Q1-2023:Q3 data due to data constraints.
	Satellite models	• Several satellite model estimations are examined: • Credit risk is assessed by estimating and projecting the PDs, NPLs and provisions at the NBFC level. • Profitability is determined based on panel regressions to obtain projections of the interest income, interest expenses and net interest income. This empirical approach is complemented by a structural one based on the repricing ladders of interest-bearing assets and liabilities. • The other balance sheet and profitability components grow with the total assets. • Satellite models are estimated by Business Focus (ICC, IDF, IFC, and MFI).
	Stress test horizon	• 3 years (2025 – 2027).
3. Tail shocks	Scenario analysis	• The scenario analysis is similar to the one specified above for bank solvency stress test. • Projections are produced for each NBFC under a baseline and two macroeconomic stagflation and recession adverse scenarios.
	Sensitivity analysis	The sensitivity analyses include: 1) Tightening of financial conditions by applying an additional interest shock (1 to 3 percent). 2) Reclassifying restructured loans (1), loans past due 60-90 days (2), and additional 1 percent NPLs (3) as additional new NPLs during first year of the adverse scenarios. 3) Applying a sectoral credit risk shock to retail loans (including housing and unsecured loans) consisting in multiplying by 2 and 4 the NPLs on retail loans.
4. Risks and buffers	Risks/factors assessed	• Credit risk. • Interest rate risk (interest rate risk in the banking book (IRRBB)). • Concentration risk: Computation of the large exposures by NBFC type for the Top 1 and Top 10 exposures as well as borrower and industry concentration.

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)

Domain		Top-Down NBFC Stress Tests
Solvency Risk		
4. Risks and buffers	Behavioral adjustments	• The behavioral adjustments are aligned to the one specified above for bank solvency risk stress test.
5. Regulatory standards, parameters	Calibration of risk parameters	• The calibration of risk parameters is aligned to the one specified above for bank solvency risk stress test.
	Regulatory/ accounting standards	• The regulatory requirements, specified in the Master Direction - Reserve Bank of India (Non-Banking Financial Company – Scale Based Regulation) Directions, 2024 are the following: Tier 1 and Tier 2: 15 percent, Tier 1: 10 percent (12 percent for NBFC-MFI) and Common Equity Tier 1: 9 percent.
6. Reporting format	Output presentation	• The output presentation will include aggregate results on the evolution of the capital adequacy ratio and its driving factors.
Liquidity Risk		
1. Institu-tional perimeter	Institutions included	• 295 NBFCs in the upper and middle layers. • For each sub-category, the corresponding number of NBFCs is the following: Business Focus: ICC (262), IFC (7), MFI (23) and IDF (3); Deposit policy: Deposit-taking (19) and non-deposit-taking (276) ; Ownership: Government-owned (19) and non-government-owned (276) ; Layers: Upper (7) and Middle (288).
	Market share	• 92% total assets of NBFCs as of June 2024.
	Data source and baseline date	• Supervisory data provided by the Reserve Bank of India. Other data sources include Haver Analytics, Financial Soundness Indicators and IMF WEO. Data are considered as of June 2024.
2.Channels of risk propagation	Methodology	• The cash-flow analysis analyzes the net cash balance based on the statement of structural liquidity.
	Test horizon	• Up to a period of 12 months for the cash-flow analysis.
3. Tail shocks	Scenario	• The scenario analysis is aligned with the one specified above for bank liquidity risk stress test.
	Sensitivity analysis	• The sensitivity analyses account for two distinct government securities classification's assumptions as well as front-loading of outflows. • In the first classification's exercise, government securities are kept in the CBC and in the inflows since no detailed classification of investments' inflows is provided. • In the second exercise, investments flows are excluded and assumed to be only government securities flows and government securities are maintained in the CBC based on the stock of government securities from the balance sheet.
4. Risks and buffers	Risks/factors assessed	• The funding liquidity risk is reflected in the liquidity mismatch over the 12 months. • The market liquidity risk coming from market shocks is also assessed.
	Behavioral adjustments	• The behavioral adjustments are aligned to the one specified above for bank solvency risk stress test.

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)

Domain		Top-Down NBFC Stress Tests
Liquidity Risk		
5. Calibration of risk parameters		• The calibration of risk parameters is aligned to the one specified above for bank solvency risk stress test. • The exercise assumes a zero percent rollover rates on non-performing loans' cash inflows over the 12-month stress horizon and a rollover rate ranging between 30 and 80 percent for performing loans' cash inflows.
6. Report	Output presentation	• The output presentation will include the cumulated net funding gap after counterbalancing capacity, the number of NBFCs with a negative cumulated net funding gap after counterbalancing capacity, the changes in the system-wide liquidity position (cash outflows, cash inflows and net inflows).

Domain		Top-Down Mutual Fund Liquidity Risk Analysis
1. Institutional perimeter	Institutions	• 243 open-end debt-oriented schemes managed by 45 Asset Management Companies (AMCs), subject to comprehensive data availability
	Market share	• 78% of the total AUM of open-end debt schemes
	Data and baseline date	• Data provided by AMCs including: 1) Fund level characteristics and AUM, 2) Cash flow data, 3) Fund investment portfolio, and 4) bond market trading data from March 2018 to March 2024. • Other commercial data sources: Bloomberg (for pricing and trading volume)
2. Channels of risk propagation	Methodology	• Based on standardized IMF framework for assessing price impact from mutual fund sales (Letizia and Zhang, forthcoming) • The liquidity resilience of funds is measured by the Redemption Coverage Ratio, which is based on the value of high-quality liquid assets and the calibration of redemption shock. **Redemption shocks** • The calibration of redemption shock uses both the historical simulation (Value-at-Risk, 1, 3, and 5 percentiles) and the flow-performance approach. • The historical simulation approach includes three sub-approaches. ▪ ***Fund homogeneity***: The redemption shock is based on net flow data across all the funds of a specific type. This approach assumes that each fund of the same type will receive the same shock. This is a more conservative calibration, as it aggregates on the redemption shock level beyond each individual fund's own history. ▪ ***Fund heterogeneity*:** The redemption shock is based on each fund's own net flow history. In this approach, the size of the shock cannot go beyond the historical tail events. Therefore, this is a milder assumption than the previous calibration. Importantly, for this calibration to be meaningful, each fund must have sufficiently long historical data so that tail events are well captured. Funds for which flow data are not available are assigned a shock based on a fund homogeneity assumption.

Example of Calibration Based on Historical Net Flows

percent	Bond Funds			Equity Funds		
Date	Fund 1	Fund 2	Total	Fund 3	Fund 4	Total
Week 1	1	5	3	5	-5	0
Week 2	6	4	5	-6	-1	-3
Week 3	1	-5	-2	-5	-4	-4
Week 4	-1	-7	-4	5	9	7
Week 5	0	1	1	8	-8	0
Week 6	0	-8	-4	3	1	2
Week 7	-1	7	3	1	-8	-4
Week 8	-1	-3	-2	6	1	8
Week 9	0	1	0	-1	-1	-1
Week 10	5	5	5	10	-6	2
Fund homogeneity	-2	-2		-5	-5	
Fund heterogeneity	-1	-5		-2	-6	
Fund family			-3			-3

Note: The example assumes flows calibrated with the 20th percentile, and funds have all the same AUM. "Total"' indicates the aggregate net flow for all the funds of the same type.
Source: IMF staff

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)

<table>
<tr><th colspan="2">Domain</th><th>Top-Down Mutual Fund Liquidity Risk Analysis</th></tr>
<tr><td></td><td></td><td>▪ Fund family: The redemption shock is based on an aggregate net flow for each fund type (= family). This approach treats the fund segment as a whole, thus disregarding flows among funds of the same type.

Asset valuation shock (haircuts)
• Mutual funds' asset will lose value (haircuts) in line with interest rate shocks from the adverse scenarios considered in bank liquidity stress tests. The haircuts differ depending on the term structure assumptions in the adverse scenarios and asset type and duration.

Asset liquidation strategy upon redemption
Funds are assumed to liquidate all assets pro-rata, based on the conversation with the industry.</td></tr>
<tr><td></td><td>Test horizon</td><td>Instant</td></tr>
<tr><td>3. Tail shocks</td><td>Scenario</td><td>Three scenarios:
• A baseline scenario uses the historical simulation approach that calibrates the redemption shock based on March 2018 – March 2024 cash flow data.
• The two adverse scenarios (recession and stagflation) with exogenous market shock that trigger the asset depreciation through interest rate risk and creates additional redemption shocks.
Interest Rate Shocks in Mutual Fund Liquidity Analysis
<table><tr><th>Interest Rate Shock</th><th>a) Recession</th><th>b) Stagflation</th></tr><tr><td>Government Bond</td><td></td><td></td></tr><tr><td>Short-term</td><td>(0.25)</td><td>2.10</td></tr><tr><td>Long-term</td><td>1.86</td><td>4.30</td></tr><tr><td>Corporate bond</td><td>4.16</td><td>5.70</td></tr></table></td></tr>
<tr><td colspan="2">4. Output presentation</td><td>• Redemption Coverage Ratio (RCR, liquid assets/redemption amount) and liquidity shortfalls on fund level.
• Number of funds that cannot survive the shocks (with the RCR ratio below one and liquidity shortfall larger than zero).
• Total value of assets sold under different scenario, compared with the firepower of the CDMDF.</td></tr>
<tr><th colspan="2">Domain</th><th>Interconnectedness/ Systemwide Liquidity Analysis</th></tr>
<tr><td rowspan="2">1. Institutional perimeter</td><td>Institutions included</td><td>• Economy-wide flows of fund for aggregate macroeconomic-financial linkages
• Intra-financial sector network: banks, non-bank financial institutions (NBFCs), mutual funds, and flow of funds data for the network analysis within the financial system.
• For stress tests, 46 SCBs account for 94 percent of the commercial bank assets and 307 NBFCs in the upper and middle layers, accounting for 86 percent of total NBFC assets.</td></tr>
<tr><td>Data and baseline date</td><td>• Data source: sector-aggregate balance sheet for banks, NBFCs, and mutual funds, supplemented by supervisory data (bank, NBFC, mutual funds) and structural liquidity of banks and NBFCs.
• Starting position: end 2023
• Data granularity: economic sector aggregate and financial linkages by counterparts and instruments</td></tr>
</table>

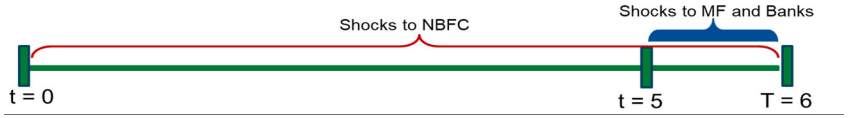
Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)		
2. Channels of risk propagation	Methodology	• Based on IMF working paper (Oura, 2022) • Cash-flow based liquidity stress tests for banks and NBFCs and link assumption parameters across these institutions and other counterparts, including mutual funds, non-financial corporations, households, and other financial institutions. • The cash flow analysis is based on sectoral aggregate. • For banks and NBFCs, liquidity shortfalls (-) or post are calculated by ▪ Post-stressed liquid asset = Counterbalancing capacity (CBC) at month x + net cash flows from operation within x months with the shock parameters – deposit withdrawal (stock concept) ▪ If post-stress liquid asset is less than zero, it means the system experiences aggregate liquidity shortfalls. • The cash-flow stress test analyzes the net cash balance, accounting for available unencumbered assets, contractual cash inflows and outflows, and behavioral flows.
	Stress test horizon	• For banks and mutual fund: one month • For NBFCs: six months 
3. Tail shocks	Haircuts to liquid assets	• Cash and banks' deposit: no haircut • Other current assets (only applies to mutual fund): 5 percent • Government securities: 15 percent • Non-government debt securities: 50 percent • Equity (mutual fund only): 50 percent • Silver, gold, and other commodities: 100 percent
	Shocks to NBFCs	• Loans and advances: 10 and 40 percent of no repayment (no shock to other sectors) from households and NFCs, respectively • Committed line of credit: not called. • Refinancing of NBFCs' maturing borrowings: 0 percent • Refinancing of maturing customers' loans: 40 percent • Front loading payment (covenants) from the next cashflow bucket: 10 percent • All other inflows and outflows are materialized as shown in the structural liquidity return.
	Shocks to banks	• Term loans: 36 percent of runoff rate (repayment + refinance) only apply to Households and NFCs • Committed line of credit from other FIs: 100 percent called • Banks' committed line of credit (outflow): 20 percent called. (assuming 80 percent of total banks' committed credit line goes to NBFCs) • Deposit withdrawal (applies to stock of all deposits): 7 percent from households, 17 percent from NFCs, 20 percent from other financial institutions, and NBFCs deposit withdrawal (actual liquidation from stress)
	Shocks to mutual funds	• Redemption shock 25 percent • Shock to asset (asset revaluation with the following haircuts)
4. Output presentation		• Outputs include (1) changes in the system-wide liquidity position, (possibly including important drivers for cash outflows, cash inflows and counterbalancing capacity), (2) distribution of banks' liquidity positions, (3) number of institutions with LCR/NSFR below regulatory limits, and (4) amount of liquidity shortfall.

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)

<table>
<tr><th colspan="2">Domain</th><th>Banking Sector Climate Risk Analysis</th></tr>
<tr><td colspan="3">Physical Risk (Tropical Cyclone and Agriculture)</td></tr>
<tr><td rowspan="2">1. Institutional Perimeter</td><td>Institutions included</td><td>46 SCBs, including 12 PSBs, 21 PVBs, and 13 FBs. The sample of SCBs covers 94 percent of commercial bank assets.</td></tr>
<tr><td>Data and baseline date</td><td>• Individual banks' loan exposures and NPL by sector from RBI.
• Micro firm-level data for balance sheet and income statement (P&L) for 2013-2023 from Moody's Orbis.
• PDs of listed firms for 2017-2023 from Moody's KMV.
• Data as of March 2023 (cut-off).</td></tr>
<tr><td>2. Channels of Risk Propagation</td><td>Methodology</td><td>Tropical cyclone
• The impacts of tropical cyclones are assessed in a catastrophe risk modeling framework with the following components:
• Hazard: a probabilistic set of cyclone tracks perturbed in the CLIMADA model (an open-source catastrophe risk model) with varying track locations, wind speeds, and landing locations and with climate change impact under the Representative Concentration Pathway (RCP) 8.5 scenario.
• Exposure: spatially disaggregated capital stock based on LitPop data.
• Vulnerability: damage functions calibrated for the North India Ocean.
• The macro-approach using same DSGE model (GFM) as in bank and NBFC solvency stress tests, augmented to included potential damages to physical capital, total factor productivity (TFP), and recuperation period due to climate risks, is applied to assess the impact of tropical cyclones on banks.
• Satellite models are the same as those applied in the bank solvency stress test. Risk analysis horizon is 3 years for tropical cyclone impact on the banking sector.

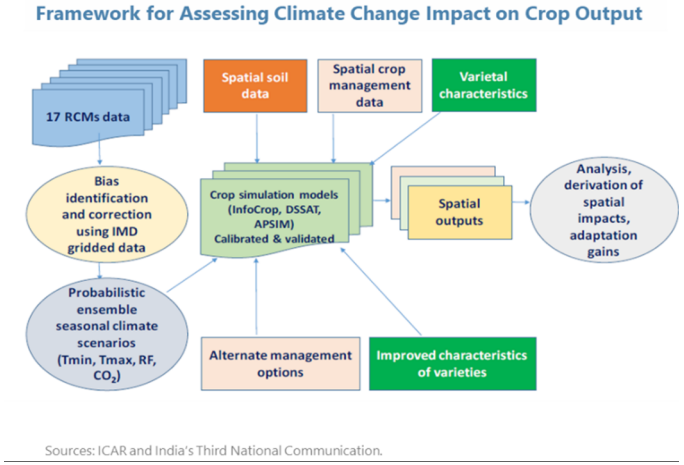
Tropical Cyclone Damage Estimates
(Median estimates under the RCP8.5 scenario, with mid-century climate conditions)
<table><tr><th>Shocks</th><th>1-in-20-year return period (TC20 Scenario)</th><th>1-in-100-year return period (TC100 Scenario)</th><th>1-in-500-year return period (TC500 Scenario)</th></tr><tr><td>Direct damages to capital stock</td><td>0.2%</td><td>0.8%</td><td>1.5%</td></tr><tr><td>TFP shock</td><td>0.4%</td><td>1.6%</td><td>3%</td></tr><tr><td>Recuperation period</td><td>1 year</td><td>2 years</td><td>3 years</td></tr></table>Source: Staff estimate using CLIMADA.

For the analysis, staff used the extremely severe one-in-500-year return period scenario. Direct effects of physical hazards are generally accompanied by indirect effects via other channels that could potentially amplify the initial direct effects resulting from physical hazards. The capital stock damages materialize in one period. The direct damages to physical capital are estimated at the gridded level based on the granularity of exposure data and then aggregated to derive scenario- and return-period-specific damage rates at the national level. Disasters also reduce productivity as</td></tr>
</table>

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)			
Banking Sector Climate Risk Analysis			
Physical Risk (Tropical Cyclone and Agriculture)			
			the reconstruction process does not immediately lead to output recovery. When physical infrastructure is damaged by a disaster, non-physical capital can also become unproductive, amplifying the impact of the disaster. Long-lasting TFP shocks are applied, similar to the approach used by Hallegatte (2022)[19]. The reconstruction period after disasters depends on the severity of hazards as well as financial, regulatory, and technical factors. Under the severe one-in-500-year return period event, it may take up to three years to fully recover from the event.
		Agriculture • Climate change impact on the agricultural sector is assessed in an integrated modeling framework tailored to India-specific climate conditions and agricultural practices: (1) changes in crop yield in the hydrological, crop, crop-pest, and economic models; (2) impact on individual firm's revenues and costs through firm-level P&L and balance sheet modeling; and (3) bank-level credit risk modeling. Risk analysis horizon is 3 years for the agricultural sector analysis. • The analysis specifically focuses on the impact of climate change on major cereal crops in India. At the aggregate level, crop output declines by 13 percent, 14 percent, and 30 percent under the 1.5°C, 2°C, and 3.5°C scenarios, respectively. • Five climate scenarios are used to assess the impact of climate shocks on the agricultural sector, considering both the severity and frequency of shocks. Small, medium, and large shocks correspond to climate conditions under a 1.5°C, 2°C, and 3.5°C temperature rise. ▪ Small, single-year shock: a small climate shock occurs in year one, with no additional climate shocks in subsequent years. ▪ Small compound shocks: small climate shocks occur over three consecutive years. ▪ Small-to-large compound shocks: a small climate shock occurs in year one, followed by medium and large climate shocks in years two and three. ▪ Large single-year shock: a large climate shock occurs in year one, with no additional climate shocks in subsequent years. ▪ Large-to-small compound shocks: a large climate shock occurs in year one, followed by medium and small climate shocks in years two and three.	

[19] Hallegatte, Stephane, Fabian Lipinsky, Paola Morales, Hiroko Oura, Nicola Ranger, Martijn Gert Jan Regelink, and Henk Jan Reinders. 2022. "Bank Stress Testing of Physical Risks under Climate Change Macro Scenarios: Typhoon Risks to the Philippines." Working Paper No. 2022/163. Washington, D.C.: International Monetary Fund.

Table 6. India: 2024 FSAP Stress Testing Matrix (Continued)

Banking Sector Climate Risk Analysis		
Physical Risk (Tropical Cyclone and Agriculture)		
		 Notes to the figure: APSIM = Agricultural Production Systems Simulator; DSSAT = Decision Support System for Agrotechnology Transfer; ICAR = Indian Agricultural Research Institute; IMD = India Meteorological Department; RCM = regional climate model; RF = risk frequency.
3. Risks and Buffers	Risks	• Credit risks. • Scenario dependent projections of losses are produced based on tropical cyclone events as well as single and compounding climate shocks for the agricultural sector.
4. Output presentation		• Measures of credit risk at the system-wide level. • Comparison between scenarios with and without climate change.
Banking Sector Climate Risk Analysis		
Transition Risk		
1. Institutional Perimeter	Institutions included	46 SCBs, including 12 PSBs, 21 PVBs, and 13 FBs. The sample of SCBs covers 94 percent of commercial bank assets.
	Data and baseline date	• Micro firm-level data for balance sheet and income statement (P&L) for 2013-2023 from Moody's Orbis. • PDs of listed firms for 2017-2023 from Moody's KMV. • Firm-level emissions from SEBI and ICE. • Individual banks' loan exposures and NPL by sector from RBI. • Data as of March 2023 (cut-off).

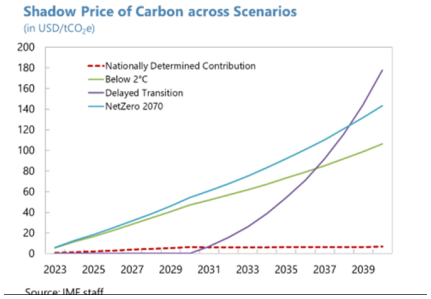
2. Channels of Risk Propagation	Methodology	• An integrated macro-micro approach will be used to assess transition risk, as described below: • Step 1: simulating climate scenarios in a computable general equilibrium (CGE) model IMF-ENV to derive sectoral impacts and emissions costs under different transition scenarios. • Step 2: applying scenario and sectoral dependent carbon prices and sectoral impacts to firms' P&L and balance sheets. • Step 3: Establishing a relationship between firm-specific default rates and three firm level balance sheet indicators reflecting viability, liquidity, and solvency conditions (interest coverage ratio, current ratio, and leverage ratio). • Step 4: Using elasticities from Step 3 to infer firms' stressed default rates. • Step 5: Producing scenario dependent, weighted sectoral PDs based on firm-level PDs and total outstanding debts. • Step 6: Producing bank-level, sectoral specific delta PDs and expected losses between Current Policies and transition scenarios. • Transition risk analysis horizon is up to 2040. *The shadow prices of carbon, representing underlying mitigation costs, increase with climate ambition, but are still much lower than those of global averages.*  Source: IMF staff
	Satellite models	• Bridge equation linking defaults rates to firm level vulnerability indicators: a fixed effects panel regression on historical firm level default rates.
4. Risks and Buffers	Risks	• Credit risk. • Stranded assets risk from coal power are considered. • Delta PDs and credit losses relative to the Current Policies scenario.
5. Output presentation		• Measures of credit risk at the sectoral level and system-wide level are assessed, focusing the comparison between Current Policies and mitigation scenarios.

Table 7. India: 2024 FSAP Risk Assessment Matrix		
Sources of risk	**Likelihood**	**Expected impact on financial stability when realized**
Abrupt global slowdown or recession. Global and idiosyncratic risk factors combine to cause a synchronized sharp growth slowdown, with recessions in some countries.	**Medium**	**Impact: Medium** Adverse spillovers weaken India's economic growth and financial markets with higher risk premia. Broad-based economic slowdown increases credit costs and market risks. The solvency of SCBs, UCBs, and NBFCs remain solid as a whole, and they can continue providing moderate credit amid distress. However, the government may need to recapitalize PSBs so that they continue to finance economic recovery. Weak tails comprise a few non-systemic NBFCs and UCBs that report below minimum or negative capital even in the baseline. Vulnerability to short-term liquidity stress is generally contained.
Deepening geoeconomic fragmentation and/or intensification of regional conflict(s)	**High**	
Monetary policy miscalibration. Amid high uncertainty and data surprises, major central banks' stances turn out to be too loose, hindering disinflation, or too tight for longer than warranted, which stifles growth and triggers increased capital-flow and exchange-rate volatility in EMDEs.	**Medium**	**Impact: Medium-High** Global central banks' miscalibration could trigger fragmentation of financial markets and increasing risk premia. India's weaker fiscal position leads to a sharp increase in domestic sovereign yield curve, and the effects could potentially be amplified by liquidity stress in government bond markets. Corporate bond market would be dislocated, too. Higher interest rates impact SCBs' capital through bond valuation losses, especially for PSBs if they were forced to liquidate HtM securities, and potentially lower net interest income, depending on relative pass-through rates to lending and funding rates (betas). Bond market dislocations could trigger large redemptions from mutual funds, and their asset liquidation could have significant second-round impact on fixed income assets. Central bank's liquidity facility for SCBs taking G-SEC as collaterals could prevent banks to realize bond valuation losses in the short-term. The asset purchase program by CDMDF could cushion the spillover impact from mutual funds' bond liquidation somewhat.
Domestic sovereign debt distress. Domino effects of higher global interest rates spillover to India.	**Medium**	
Cyberthreats. Cyberattacks on physical or digital infrastructure.	**Medium**	**Impact: Low-High** Payment and financial systems are disrupted, with potential risk to continued delivery of financial services and the health of financial institutions.
Extreme and chronic climate events: India is vulnerable to flooding and excessive heat, resulting in sectoral and macro-level losses, including output (e.g., crop losses from the monsoon-dependent agricultural sector), physical assets, and productivity.	**Medium**	**Impact: Low-Medium** Extreme weather events could impact local economy notably, causing credit, liquidity, and operational risks to financial institutions in the area. Some non-life insurers may face payout beyond technical reserves without adequate catastrophe risk management. Even without extreme events, increased monsoon volatility could hit poorer rural populations and the agricultural sector (20 percent of GDP), weighing on the credit quality of priority sector loans (12 percent of bank loans) more frequently. In a tail event with compounded climate shocks without additional adaptation measures could potentially lead to a systemic impact on financial stability.
Disorderly energy transition. Transition efforts increase costs to carbon-intensive industries, especially the coal-dependent energy sector**.**	**Medium**	**Impact: High** As in the past, financial distress of some large infrastructure companies could cause loan defaults even though most of them are state-owned and carry implicit or explicit guarantees. NBFCs—especially IFCs—have concentrated, large exposures to these sectors, partly because IFCs are exempted from large exposure limits. While SCBs reduced their concentration and direct power sector exposures since the last FSAP, their indirect lending through loans to NBFCs and co-lending rose. Since NBFCs are largely financed by market instruments and banks, their distress could result in systemic distress of the financial system through spillover effects on banks, corporate bond markets, and mutual funds.
Loan defaults of large corporate infrastructure projects. The power and some other infrastructure sectors face structural vulnerabilities, which could worsen with transition risks of climate change.	**Medium**	

[1/] The Risk Assessment Matrix (RAM) shows events that could materially alter the baseline path. The relative likelihood is the staff's subjective assessment of the risks surrounding the baseline (with respective probabilities as "low" = below 10, "medium" = 10 - 30, and "high" = 30-50 percent) in the next 1-3 years.

Table 8. India: Key Macroprudential Policy Measures for Selected Emerging Market Economies

	Brazil	China	India	Russia	South Africa
Broad-based tools					
Countercyclical capital buffer (above 0%) 1/	No	No	No	No	Yes (1%)
Capital conservation buffer	Yes	Yes	Yes	Yes	Yes
Limit on leverage ratio	Yes	Yes	Yes	Yes	Yes
Household sector tools					
Cap on household credit growth	No	No	No	No	No
Household sector capital requirement	Yes	No	Yes	Yes	No
Cap on loan-to-value ratio	Yes	Yes	Yes	No	No
Cap on debt-service to income ratio	No	Yes	Yes 3/	No	No
Limit on amortization periods	No	Yes	No	No	No
Fiscal measures to contain systemic risks	No	Yes	No	No	No
Corporate sector tools					
Corporate sector capital requirement	Yes	No	Yes	Yes	No
Cap on corporate credit growth	No	No	No	No	No
Loan/eligibility restrictions	N.A.	Yes	N.A.	No	N.A.
Exposure caps on corporate credit	No	Yes	Yes	No	No
Liquidity tools (banking sector)					
Liquidity buffer requirements	Yes	Yes	Yes	Yes	Yes
Stable funding requirements	Yes	Yes	Yes	Yes	Yes
Loan-to-deposit ratio	No	No	No	No	No
Reserve requirement 2/	Yes	Yes	Yes	Yes	Yes
Limits on foreign exchange positions	Yes	Yes	Yes	Yes	Yes
Tools for systemic liquidity risk and nonbank sector					
Asset management industry	Yes	Yes	Yes	Yes	No
Insurance companies	Yes	Yes	Yes	Yes	Yes
Pension funds	Yes	No	Yes	Yes	No
Central counterparty clearing	Yes	Yes	Yes	Yes	Yes
Securities lending market	Yes	Yes	Yes	No	No
Securitization	No	Yes	Yes	No	No
Tools for SIIs and interconnectedness					
Capital surcharges for SIIs	Yes	Yes	Yes	Yes	Yes
Liquidity surcharges for SIIs	No	No	No	Yes	No
Exposure limits between financial institutions	No	Yes	Yes	Yes	Yes
Additional risk weights on exposure between financial institutions	No	No	No	No	No

Source: IMF Macroprudential Policy Database. SII = systemically important institution.
1/ All countries have the CCyB framework in place but have not activated the measure, except for South Africa.
2/ This refers to reserve requirement for macroprudential purposes.
3/ The 50% DSTI cap only applies to microfinance loans, i.e., collateral-free loans given to a low-income household.

Appendix I. Report of the Observance of Standards and Codes—Insurance Core Principles[1]

A. Introduction and Scope

1. This assessment of insurance supervision and regulation in India was carried out as part of the 2024 Financial Sector Assessment Program (FSAP). The assessment has been made against the Insurance Core Principles (ICPs) issued by the International Association of Insurance Supervisors (IAIS) in November 2019. The assessment excludes the standards of the Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame) as India has not identify an International Active Insurance Group (IAIG). It was conducted by Charles Michael Grist, Financial Sector Consultant, Finance and Markets Global Practice, the World Bank Group, and Suzette Jeanne Vogelsang, Senior Financial Sector Expert, International Monetary Fund, in March 2024**.**

2. The 2017 FSAP conducted a focused review of the insurance sector oversight framework. A technical note was published, which contained several recommendations. Progress towards several of the recommendations (e.g., risk based-supervision, risk-based capital, and solvency reforms) has been slow and was impacted by the COVID 19 pandemic but is now progressing. Progress against those recommendations was considered in this assessment.

B. Information and Methodology Used for Assessment

3. The assessment is based solely on the laws, regulations, and supervisory practices[1] that are in place at the time of the assessment in March 2024. While this assessment does not reflect new and on-going regulatory initiatives, key proposals for reforms are summarized by way of additional comments in this report. The IRDAI provided a full and comprehensive self-assessment, supported by examples of actual supervisory practices and assessments, which enhanced the robustness of the ICP assessment.

4. The assessors are grateful to the IRDAI and insurance sector participants for their cooperation. The assessors benefitted greatly from the valuable inputs and insightful views from meetings with staff of the IRDAI, and representatives from the Minister of Finance (MoF), insurance companies, industry representatives and professional organizations.

C. Overview—Institutional and Macroprudential Setting

Institutional Framework and Arrangements

5. Financial sector regulation in India is dependent on five main supervisory authorities, each with its own sector specific responsibilities:

[1] This includes Guidelines and Directives issued by the IRDAI to guide and interpret insurers compliance with various provisions of the Insurance Act.

- **The Reserve Bank of India (RBI)** conducts the country's monetary policy and regulates and supervises banks, non-banking financial institutions, and other financial intermediaries. The Reserve Bank of India Act, 1934, provides the legal framework for the functioning of the RBI.
- **The Securities and Exchange Board of India (SEBI)** regulates capital markets including stock exchanges, brokers and other capital market intermediaries. SEBI operates under the Securities and Exchange Board of India Act, 1992, and has powers to regulate various market participants, including issuers, intermediaries, and investors.
- **The Insurance Regulatory and Development Authority of India (IRDAI)** is a statutory body tasked with regulating and promoting the insurance and reinsurance industries in India. It is established under the Insurance Regulatory and Development Authority Act 1999 (IRDAI Act).
- **The Pension Fund Regulatory And Development Authority (PFRDA)** is responsible for regulating and promoting pension-related activities in India. Established in 2013 under the Pension Fund Regulatory & Development Authority Act 2013 (PFRDA Act), the PFRDA regulates pension funds, custodians, and other entities involved in the National Pension System. Insured private pensions are governed under insurance law.
- **The International Financial Services Centres Authority (IFSCA)** is responsible for regulating offshore financial services that are provided within India's International Financial Services Center located in Gandhinder district, Gujarat, India. IFSCA was established in April 2020 under the International Financial Services Centres Authority Act, 2019.

6. The activities of these organizations are overseen and coordinated by the Financial Stability and Development Council (FSDC) which is intended to help ensure financial stability and promote financial sector development in the country. The Minister of Finance is the Chairman of the FSDC and its membership includes the heads of RBI, IRDAI, SEBI, and PFRDA. These authorities operate with considerable cooperation and support from government.

7. In addition to sector specific legislation, financial sector participants are impacted by several important laws of general application. The most important of these include:

- The Companies Act, 2013 (Companies Act).
- The Foreign Exchange Management Act, 1999.
- Prevention of Money Laundering Act, 2002.
- The Consumer Protection Act, 2019.
- Motor Vehicles Act, 1988.
- Workmen's Compensation Act, 1923.

8. The Insurance Act including amendments, is the principal Act governing the Insurance sector in India. This legislation is supplemented by the IRDA Act. It provides powers for IRDAI to establish regulations which lay down the regulatory framework for supervision of insurance entities. IRDAI's authority includes the ability to issue legally enforceable guidelines, regulations, and directives to insurance companies, intermediaries, and other stakeholders. There are also some other Acts relating to insurance which govern specific lines of business such as the Marine Insurance Act, 1963 and functions such as the Public Liability Insurance Act, 1991.

9. Section 4 of the IRDA Act, establishes the composition of the IRDAI. It is led by a ten-member body consisting of a chairperson, five full-time members and four part-time members appointed by the government of India. The objectives of the IRDAI are described in the preamble of the IRDA Act:

"To provide for the establishment of an Authority to protect the interests of holders of insurance policies, to regulate, promote and ensure orderly growth of the insurance industry and for matters connected therewith or incidental thereto."

10. Section 14 of the Act establishes the duties, powers, and functions of IRDAI. The duty of the authority is to regulate, promote and ensure orderly growth of the insurance business and re-insurance business. The powers and functions of IRDAI include:

- issuance to the applicant of certificates of registration, and renewal, modification, withdraw, suspension or cancellation such certificates;
- protection of the interests of the policy holders in matters concerning assigning of policy, nomination by policy holders, insurable interest, settlement of insurance claim, surrender value of policy and other terms and conditions of contracts of insurance;
- specifying requisite qualifications, code of conduct and practical training for intermediary or insurance intermediaries and agents;
- specifying the code of conduct for surveyors and loss assessors;
- promoting efficiency in the conduct of insurance business;
- promoting and regulating professional organizations connected with the insurance and re-insurance business;
- levying fees and other charges for carrying out the purposes of this Act;
- calling for information from, undertaking inspection of, conducting enquiries and investigations including audit of the insurers, intermediaries, insurance intermediaries and other organizations connected with the insurance business;
- control and regulation of the rates, advantages, terms and conditions that may be offered by insurers in respect of general insurance business not so controlled and regulated by the Tariff Advisory Committee under section 64U of the Insurance Act (4 of 1938);
- specifying the form and manner in which books of account shall be maintained and statement of accounts shall be rendered by insurers and other insurance intermediaries;
- regulating investment of funds by insurance companies;
- regulating maintenance of margin of solvency;
- adjudication of disputes between insurers and intermediaries or insurance intermediaries;
- supervising the functioning of the Tariff Advisory Committee;

- specifying the percentage of premium income of the insurer to finance schemes for promoting and regulating professional organizations referred to in clause (f);
- specifying the percentage of life insurance business and general insurance business to be undertaken by the insurer in the rural or social sector, and
- exercising other powers as may be prescribed in regulation.

13. IRDAI is headquartered in Hyderabad, in Telangana State and has regional offices in Mumbai and New Delhi. It has an authorized staff complement of approximately 336 staff but had approximately 201 actual staff in March 2023. Approximately 46 staff are female, constituting approximately 23 percent of the actual staff complement, and the average age of all staff is relatively young at approximately 42 years. Under the IRDA Act, the authority can be funded by Government grants, and industry fees and charges. In practice, the authority is funded solely by fees and charges on industry.

14. The IRDAI is working towards the implementation of a risk-based capital regime and supervisory approach. The IRDAI has formed a project team and performed its first quantitative impact study (QIS) on the adoption of risk-based capital late in 2023. The results from the QIS were in the process of being analyzed, at the time of the mission, to understand the impact on the insurance sector and to identify areas where further refinement or recalibration is required. The other significant initiative is the implementation of a risk-based supervisory approach. The IRDAI has also established a project team as well as appointing a consultant to support its project and development of its risk-based supervisory framework. In this regard, the IRDAI has made significant progress so far and is currently in the first phase of pilot examinations. For both these initiatives the anticipated implementation date is 2025.

15. The IRDAI in consultation with the Ministry of Finance is also proposing various amendments to the Insurance Act and the IRDA Act to increase confidence, competition, and efficiency in the system. The proposed amendments followed a comprehensive review of the legislative framework by the IRDAI in consultation with the insurance industry. The proposed amendments primarily focus on enhancing the financial security of the policyholders, promoting policyholders' interests, improving returns to the policyholders, facilitating entry of more players in the insurance market, enhancing efficiencies of the insurance industry (operational as well as financial) and enabling ease of doing business.

16. The Government of India has also established the International Financial Services Centre Authority (IFSCA), in 2020. The IFSCA was established in terms of the International Financial Services Center's Authority Act, 2019 and is headquartered at GIFT City, Gandhinagar in Gujarat. The IFSCA is a unified authority for the development and regulation of financial products, financial services, and financial institutions in the International Financial Services Centre (IFSC) in India. The IFSC takes a holistic view to promote ease of doing business in the IFSC. The main objective of the IFSCA is to develop a strong global connection and focus on the needs of the Indian economy as well as to serve as an international financial platform for the entire region. At present,

only a small percentage of Indian insurers' premiums are written within the IFSC and these are offshore business. As a result, this assessment is focused on the domestic market rather than the IFSC.

Industry Structure and Recent Trends

17. The Indian insurance industry is an important and growing part of the country's financial services sector. Insurance sector assets have grown from 17.8 percent of Gross Domestic Product (GDP) in 2017 to over 22 percent of GDP for the period ending March 31, 2023, constituting 12 percent of total financial sector assets. Gross premiums for the life sector grew by 13.0 percent from 2022 to 2023,[2] the non-life sector reflected growth in gross premiums of 16.4 percent per annum during the same period. Similarly, between 2017 and 2022, gross premiums written have grown at an average annual rate of approximately 11.7 percent, substantially above nominal GDP growth of 6.8 percent during the same period. Gross and Net Premiums showed the same level of growth due to a constant share of reinsurance over the time period.

18. India is one of the world's ten largest insurance markets and the second largest of the emerging markets and developing economies.[3] Insurance penetration (the ratio of insurance premiums to GDP) is in line with most of the BRICS[4] countries except for South Africa but much higher than neighboring countries like Pakistan. Insurance penetration is, however, lower than other advanced East Asia markets like Singapore, Malaysia, or Thailand**,** indicating significant potential for further growth.

Table 1. India: Insurance Penetration and Density in Selected Countries

	Life		Non-Life*		Total	
	Percent	Per Capita ($ US)	Percent	Per Capita ($ US)	Percent	Per Capita ($ US)
South Africa	2.7	614	8.6	149	11.3	764
Singapore	7.4	6,074	1.8	1,152	9.2	7563
Thailand	3.4	235	1.9	134	5.3	369
Malaysia	3.7	432	1.3	159	5.0	592
Brazil	2.1	184	1.9	168	4.0	352
India	**3.0**	**70**	**1.0**	**22**	**4.0**	**92**
China	2.0	255	1.9	234	3.9	489
Saudi Arabia	0.1	14	1.2	393	1.3	407
Iran	0.2	8	1.0	40	1.2	48
Russia	0.3	47	0.6	87	0.9	134
Pakistan	0.6	8	0.2	4	0.8	12
Egypt	0.3	15	0.3	14	0.6	29

*Includes Personal Accident and Health

Source: Sigma: Swiss Re institute

19. The Indian market is dominated by the life sector which accounts for approximately 75 percent of insurance premiums written. Approximately 63 percent of the life sector total is

[2] All 2023 figures are for the fiscal year April 1, 2022, to March 31, 2023.
[3] Sigma: Swiss Re Institute.
[4] Brazil, Russia, China, India, and South Africa.

made up of participating and non-participating life insurance products. Unit linked life insurance products make up approximately 13 percent of the market. Other components of the life sector include pension products provided by life insurers (19 percent of the sector total), and annuity products (approximately 4 percent of the sector total). All other products constitute less than 1 percent of premiums written. Approximately 61 percent of this business is written by the public sector insurer, Life Insurance Corporation of India (LIC), while 39 percent is written by private sector insurers. The five largest life insurers accounted for 85 percent of premiums written during 2023.

20. The non-life sector accounts for approximately 25 percent of direct premiums written in 2022–23. The largest portion of this business is healthcare and personal accident insurance written by non-life insurers and specialized health insurers, which accounts for 38 percent of the sector total. Motor insurance constitutes 32 percent of the sector total. Fire insurance makes up approximately 9 percent of sector premiums while all other classes constitute 21 percent of the sector total. More than 98 percent of premiums written by Indian non-life insurers are written within India. Approximately 39 percent of this business is written by public sector insurers while approximately 61 percent is written by private sector insurers.

21. The Indian market is characterized by a mix of state-owned and private sector insurers and reinsurers. The state-owned life insurance company has been established under its own dedicated legislation (The Life Insurance Corporation Act, 1956) whilst the state-owned non-life and reinsurance companies have been established under the General Insurance Business (Nationalization) Act, 1972. All private sector insurers are public limited liability companies registered under the Companies Act. All insurers are registered by IRDAI subject to requirements under the IRDAI (Registration of Insurance Companies) Regulations. Foreign reinsurers were permitted to establish branch operations, under amendments contained in the Insurance Laws in 2015. State-owned companies wrote approximately 56 percent of gross premiums written in 2023. In addition, the state-owned reinsurer wrote approximately 67 percent of Indian reinsurance business. Part of this business was derived from a compulsory requirement[5] for Indian non-life insurers to cede 4 percent of the sum assured of each policy (with some limitation and exclusion) of their business to the state-owned reinsurer in 2023.

22. The Indian market has seen an increase in foreign investment in the insurance sector. This was largely due to a gradual increase in the foreign participation limit from 26 percent to 49 percent in 2015, and subsequently from 49 percent to 74 percent in 2021. Recently the market has not seen many new insurers but rather an increase in existing investments as the foreign direct investment limits increased. The ability of foreign investors to find local Indian partners with sufficient capital and industry knowledge to take up the remaining percentage shareholding is said, by industry sources, to be a challenge.

23. There was a total of 69 registered insurers in the Indian market at the end of March 2023: 25 of these were life insurers and 32 were non-life insurers (see Table 3 below). Seven of these are state owned (six non-life insurers and one life insurer). There is also one state-owned

[5] The percentage is annually prescribed by the IRDAI in consultation with the Minister of Finance.

domestic reinsurer, ten branches of foreign non-life reinsurers, and Lloyds India, a registered branch of Lloyds UK that writes reinsurance business. Eight of the insurers are listed on the Indian Stock Exchanges including some of the state-owned insurers.

24. The largest life market participant is LIC which accounted for approximately 61 percent of premiums written by life insurers in 2023, down from 66 percent of premiums written in 2019. The insurer was classified as a Domestic Systematically Important Insurer (DSIIs) by IRDAI in September 2021, making it subject to enhanced supervision. This life insurer has also been ranked the fourth largest life insurer globally.[6] LIC is also the only life insurer that underwrites business outside of India though branches established outside of India. The 24 remaining market participants are privately held. The largest private sector life insurer accounted for approximately 9 percent of premiums underwritten in 2023. Most private life insurance companies are joint venture partnerships between a foreign life insurance group and a local partner. Cross-sectoral ownership links between banks and insurers for private sector insurers are common.

25. The largest non-life market participant is New India Insurance Company Limited, also state-owned, which wrote approximately 15 percent of gross direct premiums for the sector in 2023. Three other state-owned general insurers accounted for an additional 19 percent of Gross Direct Premiums written. A group of 21 private sector general insurers accounted for a further 51 percent of Gross Direct Premiums (up from 47 percent in 2019), while six stand-alone private sector health insurers wrote an additional 10 percent of Gross Direct Premiums (up from 7.5 percent in 2019). Finally, two specialized insurers (one for export credit insurance and one for agricultural insurance) which are also state-owned, accounted for approximately 6 percent of gross premiums written.

26. The interconnectedness of the insurance sector with the rest of the financial sector is limited due to regulatory restrictions. Ownership of insurance companies by banks is permitted, subject to a maximum shareholding of 30 perfect. The insurers were well within this limit. Furthermore, related party transactions are limited per type under the Companies Act.

27. There have been 11 financial conglomerates, with insurance operations, identified in the Indian financial sector. The IRDAI is the lead supervisor of four of these financial conglomerates as most of the business in these four financial conglomerates are insurance business. LIC, the state-owned life insurer and its subsidiaries are one of these financial conglomerates where the state directly owns the insurance company. Another financial conglomerate, state owned, is State Bank of India and its subsidiaries which includes two insurance companies directly owned by the bank. The IRDAI has not yet identified any other non-financial insurance groups. The shareholding of insurers is diverse and demonstrates the presence of non-financial insurance groups.

28. Reinsurance business, written by authorized reinsurers, totaled approximately 546,775.6 INR million in 2023. The state-owned reinsurer, accounted for approximately 67 percent

[6] The 20 largest life insurance companies worldwide in 2023 | Digital Insurance (dig-in.com).

of this total while private sector foreign branches accounted for 33 percent of the total. As mentioned above, the state-owned reinsurer receives an obligatory cession from all domestic general insurers.

29. The market concentration is high for the life industry and low for the non-life industry. The Herfindahl-Hirschman Index of market concentration is greater than 3,800 for the life industry indicating a highly concentrated industry and less than 600 for the non-life industry indicating a highly competitive market. The five largest life insurers accounted for 85 percent of premiums written in 2023, down from 88 percent in 2019. The five largest non-life insurers accounted for approximately 42 percent of premiums written in 2023, down from approximately 46 percent in 2019.

30. Since India's independence in 1947 there were no instances where insurers failed to meet their policyholder obligations. The IRDAI had a few instances where regulatory action was taken against insurers due to financial distress or governance issues. These were dealt with by either requiring a portfolio transfer to another insurer or by prohibiting the insurer to engage in new business.

31. Insurance is mainly distributed through direct sales and agents but bancassurance is also becoming a major distribution channel. In 2023, Bancassurance accounted for almost 33 percent of individual life premiums and almost 8 percent of group life premiums. Insurance brokers are largely focused on commercial business and have only a small share of the life insurance market. Internet based sales and tele-market insurance sales represent very small but growing distribution channels. Microinsurance, also a growing niche, sold by agents with special licenses.

32. The market is characterized by one major compulsory insurance product with onerous product requirements. The most significant compulsory product is compulsory third-party motor liability insurance. Until April 1, 2024, the premiums were prescribed, and insurers were required to underwrite their portion (also pre-determined) of the market. As of April 1, the prescribed tariff requirement was removed. Under the legislation, the sum assured is unlimited and currently there is no time barring limits for reporting of claims. Other compulsory insurances include professional indemnity insurance for several professions including insurance and reinsurance brokers, web aggregators, marketing firms, stockbrokers, and mutual fund managers as well as compulsory environmental cover for oil tankers and public liability insurance for hazardous chemicals.

33. In India there are 2 major voluntary special pooling mechanisms in place for managing catastrophic loss. The Indian Market Terrorism Risk Insurance Pool (IMTRIP) was formed in 2002 by the non-life insurance companies in India (current membership of 25 insurers) because of a lack of capacity available in the international markets. The other one is the India Nuclear Insurance Pool (INIP), formed in 2015, to provide insurance cover for nuclear risks. This initiative currently has 12 non-life insurance members.

34. Insurers are obligated to meet certain targets of business underwritten in rural and social sectors. IRDAI prescribes these targets under the Obligations of Insurers to Rural and Social

Sectors Regulations, 2015. The regulations require insurers on an annual basis to meet two goals: (i) percentage of social sector lives in total business (5 percent), and (ii) percentage of number of life insurance policies for life insurers, and percentage of gross premium written direct for general and standalone health insurers, that are from rural areas (20 percent). All life insurers and non-life insurers exceeded their targets in 2023, with one exception[7]. Overall, the insurance sector appears to be supportive of these targets as part of their long-term sustainability.

35. India has extensive and integrated complaint reporting and grievance systems. Each insurer is required to have a designated Grievance Redressal Officer, internal grievance systems, and regular reporting of complaints to the insurer's board. If policyholders are unhappy with the insurer's response, they may file their complaints with a regional insurance ombudsman. The 18 regional ombudsmen are part of a national council and are independent of industry (see paragraph 65 below).

36. The insurance sector in India also has a dedicated agency that collects and analyzes policyholder insurance information for underwriting, fraud prevention and other purposes. The Insurance Information Bureau (IIB) was promoted by IRDAI and is a joint initiative between the IRDAI and the insurance industries. All the insurers submit periodic reports of transaction level data on policies and claims for life, property, health, and motor business. The data is collected and processed using sophisticated metrics. The IIB publishes an annual report, as well as thematic reports, and provides insurers with customized information on request. In addition, the IIB maintains a "Black-List" of agents and intermediaries who have committed fraud or other contraventions of the intermediary codes of conduct. The information mainly helps insurers identify fraud in life, health, and motor claims areas.

37. InsureTech is not yet prominent in the insurance sector and to stimulate development the IRDAI has put in place a regulatory sandbox to facilitate insurers' testing of proposals as well as a platform to facilitate dialogue aiming at driving technological innovation. In relation to the regulatory sandbox, the IRDAI has developed regulatory requirements under the IRDAI (Regulatory Sandbox) Regulations, 2019 (as amended) and invites applications to be filled (either by the regulated entity or InsureTech companies in association with a regulated entity). The first round of applications received (2019: 67) mostly came from life insurance companies (26) followed by non-life insurance companies (23). The second round of applications received was dominated by non-life insurance companies (24) and health companies (14) with a total of 43 applications received during 2022. The last year only saw 2 applications being submitted. The platform called "Open house for InsureTech/FinTech entities" is a monthly dialogue where InsureTech/FinTech entities are invited to provide suggestions and solutions or ideas to enhance digitalization and innovation in the insurance sector. It also provides an opportunity to InsureTech/FinTech entities to demonstrate their technology solutions or innovations to IRDAI.

38. The RBI has in consultation with the FSDC developed what is referred to as the Account Aggregator Framework. An Account Aggregator (there are multiple ones) is a digital platform through which account holders (citizens) add their accounts (banking, insurance,

[7] Non-compliance is a contravention of regulatory requirements and regulatory action can be instituted.

investments, and pension fund) to have a single digital view. The account aggregators can be used (either sending or receiving information) by financial information providers (FIPs) or financial information users (FIUs). The FIPs and FIUs are entities registered and regulated by one of the four financial sector regulators (RBI, SEBI, IRDAI, and PFRDA). The IRDAI has issued a circular for the participation in the Account Aggregator framework by insurers. This will ensure the on-boarding of the insurance companies on the account Aggregator Framework.

39. The IRDAI also participate in numerous committees (locally and internationally) which focus on technology. This includes the Inter regulatory committee on Digital Payments, committee to review the progress of Account Aggregator Framework and the Global Financial Innovation Network (GFIN). Furthermore, the IRDAI has also adopted new technology for its supervision. A business analytics program which collates the data from the regulatory returns and generates standard and ad-hoc reports for offsite supervision is being used.

40. IRDAI has publicly announced its strategy "Insuring India by 2047—new landscape for insurance sector" (2047 strategy). The idea behind this strategy is to enable every citizen to have appropriate insurance solutions and to make the Indian insurance sector globally attractive. This means the IRDAI will aim to rationalize its regulatory framework to support ease of business and reduce the burden of compliance, implement "State Insurance Plans" and encourage and support digitalization. This strategy was developed in support of the Government of India's vision of financial inclusion and accelerating reforms.

Operating Performance, Assets and Liabilities, and Solvency Position

41. IRDAI issues regulations that prescribe the valuation bases and all other accounting related matters that must be applied by all registered insurers in their published annual financial statements, as well as for regulatory purposes. Indian accounting standards are based on, and largely converge with, International Financial Reporting Standards (IFRS). However, for the insurance industry, IRDAI has issued specific accounting regulations which requires insurers to value assets at historical cost instead of fair value. The adoption of IFRS 9-Financial Instruments and IFRS 17-Insurance Contracts have been postponed. IRDAI is currently considering a pilot project with certain private insurers to implement IFRS 17-Insurance contracts.

42. Life insurance profitability recovered substantially after the significant impact of Covid 19 related claims in 2021–2022. After tax profits of life insurers grew from 77,510 INR million in 2022 to 427,880 INR million in 2023. Only 15 of 24 insurers reported after tax profits in 2022, while 17 insurers reported after tax profits in 2023. The improvement was largely the result of positive underwriting due to fewer claims. Public sector insurers enjoyed the largest share of the increase, as after-tax profits increased by 800 percent, while private sector insurer profits increased by approximately 72 percent. [8]

43. The non-life industry continued to experience losses in 2023. They were, however, marginally smaller than in 2022. During 2023, the non-life insurance sector experienced a net loss of 25,660 INR million, while in 2022 the net loss was 28,570 INR million. The impact was greatest in

[8] Source IRDAI

public sector insurers who experienced losses of 106,070 INR million. These were partially offset by after tax profits of 46,650 INR million by private sector non-life insurers and 29,300 INR million by specialized insurers (Agriculture Insurance Co of India Ltd, and Export Credit Guarantee Corporation of India Ltd.), and 4,470 INR million in stand-alone private sector health insurers.

44. Public sector insurers' growth in investment income outweighs that of the private sector insurers. The public sector life insurer reported a 7.25 percent growth whilst the private sector life insurers experienced (39.86 percent) decline in investment income during 2023. This is mainly due to the large portion of unit linked policies issued by private sector insurers where assets are valued at market value and includes more riskier types of assets like equities. The investment income of non-life insurers grew by 19.34 percent from 2022 to 2023. The growth in investment income of public sector insurers was 34.54 percent, private sector insurers (6,35 percent), standalone health insurers 21.48 percent and specialized insurers 2.06 percent.

45. Insurance sector assets grew by 54.2 percent from 2019 to 2023 with an average growth of 11.4 percent per annum. The public sector insurer's assets grew by 9.5 percent over the same period whilst the private sector insurers' assets showed growth of 12.72 percent. The life insurance sector, which has the largest asset base, representing 91 percent of the total insurance sector assets showed a growth of 10.32 percent from 2022. This growth mainly reflects the growth in premium income and the significant profitability in the life sector for 2023 which increased retained earnings. In all sectors the asset base of the private sector insurers increased more than that of the public sector insurers.

46. Investment restrictions apply to insurers and investments made by insurers are predominantly in government and state-government securities[9]. For the general insurers (including the standalone health insurers, specialized insurers, and reinsurers) 75 percent of their total investments comprises of government (32.1 percent), state-government (20.9 percent) and housing and infrastructure (21.9 percent) securities. For the life insurers, 70 percent of their total investments are comprised of government securities (39.9 percent), state-government securities (21.2 percent) and housing and infrastructure (6.1 percent) securities.

47. Insurers must maintain a solvency margin of admitted assets in excess of liabilities of more than 150 percent of the Required Solvency Margin.[10] The valuation of assets and liabilities for calculation of the solvency margin is prescribed for life insurers under the IRDAI (Assets, Liabilities, and Solvency Margin of Life Insurance Business) Regulations 2016 and for non-life insurers under the IRDAI (Assets, Liabilities and Solvency Margin of General Insurance Business) Regulations, 2016.

48. The IRDAI has yet to transition to a risk-based capital regime. The current regulatory capital requirements are a two-factor[11] based calculation. The table below reflects the main components.

[9] State-government securities are securities issued by the 28 states in India as subnational governments.
[10] The Required Solvency Margin is determined based on a formula prescribed in the regulations subject to minimum absolute amounts prescribed by the Insurance Act.
[11] Factors are absolute terms varying between line of business.

Table 2. India: Capital Requirements for Life and Nonlife Insurers (Excluding Reinsurers)

	Life	Non-life
Minimum capital requirement (MCR)	~ USD 12 million	~ USD 12 million
Available solvency margin (ASM)	Excess of the value of the assets over the value of the life insurance liabilities and other liabilities	Excess of the value of the assets over the value of the life insurance liabilities and other liabilities
Required solvency margin (RSM)	Minimum of 50% of MCR Capital requirements determined using a factor-based method. RSM is the sum of two components: 1) Total gross[1] technical provisions[2] (best estimate including a provision for adverse deviation) multiply by (i) factor prescribed per line of business and (ii) factor representing recognition of reinsurance (restricted to not less than 85%). 2) Total gross sum at risk which is the excess of the sum assured payable (death/health) over the technical provisions held for each policy multiply by (i) factor prescribed per line of business and (ii) factor representing recognition of reinsurance (restricted to not less than 50%).	Minimum of 50% of MCR Capital requirements determined using a factor-based method. The method applies two-factors (RSM1 and RSM 2) to each line of non-life business and the capital requirements shall be the higher of RSM 1 and RSM 2. **RSM 1** is a factor based on written premiums and **RSM 2** is based on incurred claims subject to restriction on reinsurance recognition. **RSM1** = 20% of the higher of the gross premiums multiply by factors per line of business and net premiums multiply by factors per line of business. Both the gross and the net premiums are the 12 months preceding the calculation. **RSM 2** = 30% of the higher of the sum of the gross incurred claims multiplied by a factor per line of business and the sum of the net incurred claims multiplied by a factor per line of business. Both the gross and the net incurred claims are calculated as the greater of the incurred claims of the 12 months preceding the calculation and the average of the incurred claims for the 36 months preceding the calculation.
Minimum solvency ratio (ASM: RSM)	150 percent	150 percent

[1] Gross is before recognition of reinsurance.

[2]Also referred to as policyholder liabilities or mathematical reserves.

49. On average the insurance sector (including the sub-sectors) is well capitalized and exceeds the minimum solvency ratio. The reinsurers, on average, are maintaining a higher

solvency ratio than the direct life and non-life insurers. Three of the state-owned non-life insurers, accounting for approximately 19 percent of premiums written, are operating below the minimum solvency ratio. Although government has injected capital in the past and is expected to do so in future, allowing these insurers to operate in a financially unsound position can have unintended consequences such as underpricing of policies and a decay of confidence in the market.

50. Insurers in India are also required to submit supplementary information, annually, on an economic capital bases in the prescribed format. The prescribed economic capital calculation is primarily based on stresses/shocks on specified parameters. For the life sector the economic capital calculation reflects 65 percent comes from market risk, 13 percent for insurance risk and 8 percent from credit risk. The non-life sector is mainly exposed to insurance risk which contributed 72 percent to the economic capital followed by market risk of 22 percent and 6 percent from credit and operational risk.

Risks and Vulnerabilities

Interest rate risk

51. Increase in bond yields would not be directly visible as assets of insurers are mainly valued at historic cost and losses will only materialize if bonds are sold. The losses for life insurers will be more material than non-life insurers as life insurers are holders of longer-term bonds ranging from 10 to 50 years. Life insurers do take increasing bond yields into account in their business models from pricing of products to the valuation of policyholder liabilities including the assumptions for increases in surrenders or lapses. Asset liability management is also critical in the life sector and a continuous exercise to minimize the risk of a mismatch is important for the life insurers.

Inflation

52. India's inflation rate is volatile but has not shown as significant increases as many other countries globally. Non-life insurers are mostly affected by inflation through claims costs (mainly in the motor, property, liability, and health classes of policies) and operating expenses. Non-life insurers actively monitor and manage inflation risk through increases in premiums, changes to terms and conditions of policies (for example, deductibles or excess payments by policyholders), or risk sharing with the policyholder.

Climate

53. India is a peninsular country with exposure to natural catastrophe perils like earthquakes, rockslides, landslides, droughts, floods, and cyclones. In the last decade some of the major natural catastrophe events included cyclones, floods, and landslides. To mitigate the risk, non-life insurers, enter into reinsurance arrangements to offset their exposures. This includes reinsurance arrangements with locally registered reinsurers and, where there is not capacity within the market, insurers are allowed to approach cross border reinsurers. The overall net retention rate of the non-life insurers was at 72 percent for 2023 and in line with 2022. The reinsurance

arrangements in place so far appears to be adequate considering the underwriting performance. The Government of India does not provide any support.

54. The IRDAI has taken some steps in enhancing its supervision of climate risk as well as encouraging insurers to deliver insurance-based solutions. To increase awareness of climate risk the IRDAI carried out a climate risk survey of which the findings were presented to all Chief Risk Officers of insurers. The IRDAI has also established a Climate Risk Assessment, Governance and Disclosure Committee (2023), to propose a framework for climate related disclosures, governance requirements for identifying, managing, assessing, and reporting on climate risk throughout the governance structures of insurers.

Cyber

55. The IRDAI has issued several regulatory instructions dealing with cyber risk. This includes an updated "Information and Cyber security Guidelines". These updated guidelines are also applicable to insurance intermediaries. In summary, the guidelines cover the governance arrangements that must be established at an insurer or insurance intermediary and an annual audit requirement. The IRDAI also issued a circular to require insurers and insurance intermediaries to celebrate the "Cyber Jaagrookta (Awareness) Diwas (CJD)" on the first Wednesday of every month as well as preparing and annual plan for these celebrations.

56. The IRDAI is also cooperating and coordinating with external stakeholders to enhance its regulatory and supervisory frameworks dealing with cyber risk. The IRDAI is working with the other financial sector regulators in India to develop "Baseline Guidelines for Cyber Security" that will be applicable to all regulated financial services entities. A Standing Committee on Information and Cyber Security has also been constituted by the IRDAI to review threats inherent in the existing or emerging technologies and suggest appropriate regulatory responses.

Covid-19

57. India was severely impacted by the Covid-19 pandemic. It saw one of the highest infectious rates, strictest lockdown rules and a significant impact on its economy. The life insurance sector saw a material increase in COVID related death claims during the pandemic (2022 saw an increase of 957 percent from 2021). This resulted in life insurers increasing premiums and provisions, which they now are beginning to release. The increase in premiums were mainly because of the increase in the cost of reinsurance. The health insurance class of business also saw a surge in claims, but in the latter part of the pandemic experienced an increase in health insurance business. The health business reported a growth of 26.27 percent in 2021–22 making it the largest non-life insurance class of business in the market, with a share of about 36 per cent of non-life premiums written.

58. The IRDAI also took various measures to help streamline business process. The IRDAI encouraged and permitted insurers to digitalize. This included electronic policy documentation, digitalization of business models to support ease of claim settlements. The IRDAI also issued several instructions to insurers covering areas like safety measures, communication with key stakeholders, business continuity planning and product development and servicing of policies (collection of

premiums and simplification of claims reporting). It has also instituted use and file requirements for policy documents for many types of insurance products.

Corporate Social Responsibility

59. The Companies Act and the IRDA Act require insurers to engage in Corporate Social Responsibility activities (CSR). The legislation requires insurers to spend at least 2 percent of their average net profits over the previous three years on CSR activities. The activities undertaken appear to be quite broad ranging from scholarships and educational initiatives to environmental initiatives.

D. Preconditions for Effective Insurance Supervision

Sound and Sustainable Macroeconomic and Financial Sector Policies

60. India's macroeconomic and financial sector policies appear to be generally sound. India was the world's fifth largest economy by nominal GDP in 2023. The service sector made up approximately 53 percent of total GDP while the industrial sector and the agricultural sector make up 28 percent and 18 percent of the total respectively. Approximately 70 percent of the economy is driven by domestic consumption. India has a population of approximately 1.4 billion with a median age of 28 years.

61. Average real annual GDP growth rates have been among the highest in the world in recent years, ranging from 6–7.5 percent. The financial sector's performance has also been strong and was largely unaffected by global financial stress in early 2023. High growth rates are expected to continue for at least the next two years. Inflation was 4.38 percent in 2023 but is expected to further moderate as the governments' program of price stability measures is fully implemented. Unemployment Rates in India have averaged 8.22 percent from 2018 until 2023 and are expected to remain steady or further decline.

A Well-Developed Public Infrastructure

62. India is governed by a federal parliamentary system. In addition to the Central Government, the country has 28 state governments, each with the ability to make state laws. There are also eight Union Territories (UTs) administrated by federal government appointees. India's legal system is well developed. The legal system largely follows a common law system based on recorded judicial precedents. It is also influenced by customary laws and Muslim law. The main sources of law in India are its constitution, statutory laws, customary laws and case law.

63. The judicial system includes a Supreme Court at its peak, High Courts, and subordinate courts at district, municipal and village levels. The system deals with both federal and state law. Below the high court in each state there are several districts under the jurisdiction of district judges who preside over civil courts and are courts of session. Various other judicial authorities are subordinate to the district civil courts. For criminal cases, the high court supervises the work of a system of magistrates.

64. Many retail consumers find it difficult to take legal action through the court system because of high legal costs and the potential for lengthy delay. Lawyers do not work on a

contingency basis and there is no institutional legal aid system in the country. In addition, many consumers are not aware of their legal rights. To help address this concern, Ministry of Finance Notification of 11/11/98 established an Insurance Ombudsman system. The Insurance Ombuds deals with personal lines business disputes of less than INR 5 million. The Ombudsman system is administered by the Council for Insurance Ombudsmen. Among its responsibilities is the appointment of 17 ombudsmen who work in different parts of the country. The decisions of the Ombudsmen are binding on all insurance companies, who must honor them within three months. The Ombudsmen's decisions are not, however, binding on policy holders who may pursue their cases in other forums and the courts if they are not happy with the Ombudsmen's decisions.

65. The Institute of Chartered Accountants of India, which is established under the Chartered Accountants Act, regulates, and develops the profession of Chartered Accountancy in India. The Institute is managed by a 40-member Council and functions under the administrative control of the Ministry of Corporate Affairs. The Auditing and Assurance Standard Board (AASB) was established by the Council to develop and prepare auditing standards. Under the Companies Act, the AASB issues statements on standard auditing practices and auditing and assurance standards as Council recommendations. These may be prescribed by government after review by the National Financial Reporting Authority (another government body established under the Companies Act). Specific requirements for audit of insurance companies are prescribed in Insurance Act and further elaborated under the IRDA Act. Requirements are further detailed under the Guideline on Corporate Governance for Insurance Companies, 2009.

66. The actuarial profession appears to be well developed. India has approximately 569 registered actuaries, 231 Associate Actuaries and 7,409 actuarial students as at March 31, 2023. The Institute of Actuaries of India (IAI) is a statutory body established under The Actuaries Act, 2006, for regulation and development of the actuarial profession. The affairs of the IAI are managed by a Council. Consisting of 12 elected members and 3 people nominated by Central Government. Currently, two government nominees are from Department of Financial Services and one from the IRDAI.

67. The curriculum and examinations of the IAI are said to be comparable to those found in the United Kingdom and other developed markets. The IAI also has professional conduct standards which members must adhere to. The IAI has recognized that there is a shortage of actuaries in the market and is taking steps to grow its membership.

68. All insurers must have appointed actuaries. The procedure and requirements for appointment of the appointed actuary are set out in the IRDAI (Appointed Actuary) Regulations, 2022 and include approval of the Appointed Actuary by IRDAI.

Efficient Financial Markets

69. In December 2023, India's capital market was the world's fifth largest with a market capitalization of US$4.3 trillion. The market has been growing rapidly driven by general economic growth and capital inflows. The market was affected by the COVID 19 pandemic but has recovered significantly since 2021. India's main stock exchange is the Bombay Stock Exchange which is based in Mumbai and trades a wide range of equity and debt securities. India has a well-developed bond

market comprised of government (federal and state) and corporate securities.[12] The market includes long-term and very long-term (e.g., 40 year) bonds. India's insurance companies are major market participants and the biggest purchasers of government securities after India's commercial banks.

70. SEBI is the principal regulator of securities law in India. SEBI was established to regulate and promote the securities market and protect the interests of its investors. The powers and functions of SEBI include: the registration of intermediaries (such as stockbrokers, sub-brokers and share transfer agents); the imposition of penalties for requirement contravention; appellate tribunal requirements; and the power to make rules and regulations to achieve the objectives of the SEBI Act. Certain provisions of the Companies Act, are also administered by SEBI in relation to the issue and transfer of securities, share capital and debenture, and non-payment of dividends by listed companies are also enforced by SEBI. SEBI is a well-respected member of International Organization of Securities Commissions, the international standard setting body for securities, and a permanent member of its governing Board.

Policyholder Protection

71. India does not presently have a policyholder protection fund. Development of a fund for the life sector was publicly announced several years ago but has not yet come to fruition. In 2022, the government established a Motor Vehicles Accident Fund, which is used for providing compensation in case of hit-and-run accidents and treatment for accident victims.

[12] The government debt market is well developed (35 percent of GDP). The corporate bond market is growing but remains small (16 percent of GDP) and it is dominated by private placements and well-rated financial sector issuers.

Table 3. India: Summary of Compliance with the IAIS Insurance Core principles—ROSC	
Insurance Core Principle	**Overall Comments**
ICP 1: Objectives, Powers and Responsibilities of the Supervisor	There is a need to clarify and strengthen the stated objectives of insurance supervision in primary legislation, and to extend the powers of the supervisor to allow it to supervise LIC and other state-owned insurers.
ICP 2: Supervisor	The operational independence and accountability of IRDAI should be strengthened. This is particularly important as the authority makes its transition to risk-based supervision which requires a higher level of supervisory judgement.
ICP 3: Information Exchange and Confidentiality Requirements	IRDAI obtains information from, and shares information with, relevant supervisors and authorities subject to appropriate confidentiality, purpose and use requirements.
ICP 4: Licensing	Appropriate licensing requirements are in place for entities engaged in insurance business. The requirements and procedures for licensing are clear, objective, and public, and appear to be consistently applied.
ICP 5: Suitability of Persons	IRDAI requires Board Members, Senior Management, Key Persons in Control Functions and Significant Owners of an insurer to be and remain suitable to fulfil their respective roles.
ICP 6: Changes in Control and Portfolio Transfers	Changes of Control and Portfolio Transfers are appropriately assessed.
ICP 7: Corporate Governance	Governance requirements, although comprehensive, are written in such a way that it does not clearly separate the roles and responsibilities between the board, senior management, and control functions. In addition, the requirements allow the board of directors to be chaired by an executive director i.e. the CEO of an insurer. The requirements allow the board of directors to delegate functions to its subcommittees. In some cases, the mandatory subcommittees could have a majority executive members like the investment committee or in some cases like the risk committee there is no prescription on the membership of that subcommittee which leaves it open for executives to fulfill both the role of doing and overseeing. Lastly there are also no requirements to ensure the independence of the board of directors as there is no requirement that many of the board members should be independent non-executive directors. All the above can impede this board's ability to make decisions independently and objectively and it also impedes the accountability structures within an insurer. The IRDAI also has limited powers over the board appointments of state-owned insurers. The IRDAI's supervision approach is mainly compliance based and limited assessments are done on the effectiveness of the governance structures of insurer. As in the case with many of the other ICPs there are also no requirements in place for insurance groups.

Table 3. India: Summary of Compliance with the IAIS Insurance Core principles—ROSC (Continued)	
	To strengthen the Corporate Governance framework, IRDAI has issued the Corporate Governance Regulations. Regulation 4(7) of the Insurance Regulatory and Development Authority of India (Corporate Governance for Insurers) Regulations, 2024 that came into effect on 1 April 2024. These new regulations were not considered in this assessment as they were not in place during the time the assessment was conducted. In studying the new regulations, the majority of the above shortcomings were still present.
ICP 8: Risk Management and Internal Controls	The roles and responsibilities for the head of a control function and the control function itself (the internal audit, compliance and risk management functions) should be clearly articulated. This can impede the assessment of the effectiveness of the control functions and the head of the control functions. Detailed requirements are prescribed for the appointed Actuary in a dedicated Regulation.
ICP 9: Supervisory Review and Reporting	The existing supervisory framework is compliance based rather than risk based. Compliance based systems requires more uniform intensity of supervision across insurers and are largely focused on past practices rather than future challenges and the risk profile. IRDAI has recognized the limitations of the current framework and is developing a new risk-based approach. It is expected that this may be in place by the end of 2025.
ICP 10: Preventive Measures, Corrective Measures and Sanctions	IRDAI has a large range of preventative and corrective powers under the Insurance Act; however, LIC is not subject to some of the most important legislative provisions including the ability to remove directors and officers from the insurer (Sections 34A,34B and34C of the Insurance Act), the ability to appoint an administrator to manage the affairs of the insurer (Section 52A of the Insurance Act), the power to issue directions with respect to reinsurance (Section 34F of the Insurance Act), and the ability for IRDAI to apply for full or partial liquidation of an insurer (several sections). • Similarly, IRDAI does not have authority to apply for full or partial liquidation of the state-owned general insurers (several sections).
ICP 12: Exit from the Market and Resolution	• There is no legal framework for voluntary exit from the market (i.e, run-off), • and the Insurance Act requirements for involuntary liquidation of insurers does not appear to apply to state-owned insurers. • The requirements for insurers to engage in possible resolution scenarios and put in place procedures for use during resolution are absent,
	• There are no specific criteria requiring authorities to initiate resolution of an insurer or deal with resolution when an insurer is a member of an insurance group.
ICP 13: Reinsurance and Other Forms of Risk Transfer	At present and considering the current market dynamics all the requirements of the ICP appear to be adequately addressed.
ICP 14: Valuation	The valuation requirements do not provide a consistent approach in all areas. In addition, assets and liabilities are not valued on an economic basis for regulatory purpose.

Table 3. India: Summary of Compliance with the IAIS Insurance Core principles—ROSC (Continued)	
ICP 15: Investment	Detailed investment limitations and requirements are prescribed. Investment requirements related to minimum investments in infrastructure and the housing sector, should be reviewed for potential conflict with the objective of policyholder protection (this was also a recommendation of the 2017 FSAP). The rules-based requirements may inhibit innovation in investment strategies and may restrain insurers from holding assets most appropriate for meeting their financial objectives. Rules-based requirements may also discourage insurers from fully developing their own risk management.
ICP 16: Enterprise Risk Management for Solvency Purposes	As the current regulatory capital regime is not a coherent total balance sheet approach, the Enterprise Risk Management requirements need enhancement to ensure the framework is dynamic and complete (e.g., Orsa requirements). IRDAI plans on addressing many of these weaknesses through its transition to a new risk-based capital framework.
ICP 17: Capital Adequacy	The current capital regime contains some risk-based elements but is not a coherent total balance sheet approach, nor is it appropriately calibrated. The implementation of the planned risk-based capital regime will be important.
ICP 18: Intermediaries	The supervisor sets and enforces requirements for the conduct of insurance intermediaries, in order that they conduct business in a professional and transparent manner.
ICP 19: Conduct of Business	• The supervision of IRDAI's extensive conduct of business requirements should involve a greater range of supervisory tools to assess whether, or not, intermediaries are meeting Code of Conduct and Conduct of Business requirements; and • IRDAI should make more information available to the public on conduct of business including cross-sectoral metrics on the handling of complaints such as a comparison of complaint ratios for retail lines of business.
ICP 20: Public Disclosure	A comprehensive set of granular information are publicly disclosed by either the IRDAI, the IIB or the insurers.
ICP 21: Countering Fraud in Insurance	Requirements for countering fraud in insurance appear to be strong.
ICP 22: Anti-Money Laundering and Combating the Financing of Terrorism	Requirements for countering money laundering and combating the financing of terrorism appear to be strong.
ICP 23: Group-wide Supervision	There is a lack of comprehensive legal requirements, supervisory mandates and powers and the resulting lack of a supervisory approach over insurance groups. Although the IRDAI, together with the other financial sector supervisors, have discussing and analyzing 11 financial conglomerates through the Financial Sector Development Committee, the insurance regulatory framework does not contain any insurance group requirements. The lack of insurance group supervision leaves a gap in supervisory oversight.

Table 3. India: Summary of Compliance with the IAIS Insurance Core principles—ROSC (Concluded)	
ICP 24: Macroprudential Supervision	The IRDAI collates, analyzes, and publishes extensive quantitative data. A process to assess the systemic risk within the insurance sector has also been established. There is however a lack of detailed qualitative information and the mainly compliance-based regime at play does hinder effective macroprudential supervision.
ICP 25: Supervisory Cooperation and Coordination	The IRDAI has put in place various mechanisms and arrangements to cooperate and coordinate with other supervisors. The lack of insurance group supervision impacted all the ICPs relating to the "group-wide supervisor. India does have one or more insurance groups operating on a cross-border basis where the IRDAI should be the group-wide supervisor.

E. Recommendations

Table 4. India: Recommendations to Improve Observance of the ICPs	
Insurance Core Principle	**Recommendations**
ICP 1: Objectives, Powers, and Responsibilities of the Supervisor	• It is recommended that the primary legislation be amended at the next opportunity to clarify and consolidate the objectives of the IRDAI and their priority. This should include recognizing the objective of financial stability in IRDAI's primary legislation and moving the objective of policyholder protection from the preamble of the law, where is has questionable legal force, to its main body.
	• It is also recommended that the primary legislation be reviewed to ensure that IRDAI has adequate powers to supervise LIC and other state-owned insurers.
ICP 2: Supervisor	It is recommended that the government explore options to improve IRDAI's independence, and accountability. Options should include: • Repealing or revising Section 18(2) and Section 19 of the IRDA Act, 1999; and • Instituting a strategic and operational planning process resulting in a publicly available, periodic, strategic and operational plan to complement IRDAI's Annual Report.
ICP 7: Corporate Governance	The IRDAI should review their corporate governance regulations to ensure a clear separation between the role and the functions of the board (to oversee) and those of management (to do). The absence of separate functions could seriously impede the effectiveness of IRDAI's approach to risk-based supervision. In addition, in developing its risk-based supervisory approach the IRDAI should also develop supervisory guidance to support the supervisors in assessing the corporate governance framework of the insurers and its effectiveness. The corporate governance guidelines/regulations should be extended to also cover insurance groups.

Table 4. India: Recommendations to Improve Observance of the ICPs (Continued)	
	IRDAI should engage with the Minister of Finance to extend its powers over state owned insurance companies.
ICP 8: Risk Management and Internal Controls	It is recommended that the IRDAI: • Extend its requirements to also cover insurance groups. • Transition to a systematic risk-based approach to assess the effectiveness of the control functions. • Develop more detailed guidance clearly setting out the roles and responsibilities of the head of the control functions (excluding the Appointed Actuary) and that of the control functions versus the oversight role of the board of directors in relation to the control functions.
ICP 9: Supervisory Review and Reporting	It is recommended that IRDAI continue with the development and implementation of the new risk-based supervisory framework as expeditiously as possible.
ICP 10: Preventive Measures, Corrective Measures and Sanctions	It is recommended that IRDAI consider expanding its preventative and corrective powers to include all insurers in the market, including LIC and other state-owned insurers.
ICP 12: Exit from the Market and Resolution	• It is recommended that IRDAI review the ICP 12 standards and revise existing requirements to: • confirm the claims priority of policyholders over other creditors in the event of an involuntary liquidation (e.g. establish a requirement in primary legislation);
	• establish a legal framework for voluntary exit of insurers from the market; • require insurers to engage in the review of resolution scenarios and put procedures in place for use during resolution; and • set specific criteria for the initiation of insurer wind-up and for the application of resolution powers when an insurer belongs to a group as per ICP12.12. • ensure that all insurers are subject to similar liquidation and resolution requirements.
ICP 13: Reinsurance and Other Forms of Risk Transfer	In implementing its risk-based supervision approach the IRDAI should develop dedicated liquidity criteria relating to reinsurance arrangements. The IRDAI should develop processes to assess the supervision of reinsurers where reinsurance arrangements are placed across border. We understand that IRDAI is developing regulatory requirements for the placement of collateral to mitigate the risk of reinsurers failing. The authority is encouraged to continue and complete that work. In developing the regulatory and supervisory frameworks for insurance groups the IRDAI should also consider these ICP standards.

Table 4. India: Recommendations to Improve Observance of the ICPs (Continued)	
ICP 14: Valuation	As part of its transition to RBC, the IRDAI review its accounting standards to ensure that all the requirements of ICP 14 are met. If IFRS 9 and 17 do not become part of Indian Accounting Standards, the IRDAI should then ensure that the regulatory basis for the valuation of assets and liabilities is aligned with IFRS 9 and 17 to an appropriate extent.
ICP 15: Investment	The IRDAI in its transition to a risk-based solvency regime should reconsider the investment limitations prescribed and consider moving towards creating investment buckets with maximum limits. The IRDAI should extend its investment requirements to also include requirements for insurance groups. The government of India and IRDAI should continuously review the requirements on minimum investments in infrastructure and the housing sector, to ensure that they do not conflict with IRDAI's obligation to policy holder protection. . This was also a finding of the previous FSAP.
ICP 16: Enterprise Risk Management for Solvency Purposes	The IRDAI to develop and implement recovery planning requirements for insurers. This will enable the IRDAI to identify potential risks and options in the case of a resolution. This is important to those insurers that has been identified as domestically systemically important insurers. The IRDAI to develop and implement a full set of ORSA requirements that demonstrates how the insurer's ERM framework reflect the relationship between the insurer's risk appetite, risk limits, regulatory capital requirements, economic capital and the processes and methods for monitoring risk.
	The IRDAI should also develop regulatory and supervisory requirements aligned to ICP 16 at insurance group level.
ICP 17: Capital Adequacy	The current capital requirements are not fully risk-based and do not fully meet ICP standards 17.7-17.11. IRDAI should proceed with the development and implementation of their proposed risk-based capital standard as expeditiously as possible. Aligned with ICP 17.3 the IRDAI in its implementation of a risk-based supervisory approach should also develop a ladder of intervention. As part of this work, IRDA should also establish capital requirements for insurance groups.
ICP 18: Intermediaries	Consistent with guidance provided under ICP 18.5, IRDAI should consider requiring greater intermediary disclosure on fees and commissions to customers before an insurance contract is entered into, if the intermediary represents more than one insurer in the same class of insurance business (e.g., corporate agents including Bancassurance agents and insurance brokers).

Table 4. India: Recommendations to Improve Observance of the ICPs (Continued)	
ICP 19: Conduct of Business	IRDAI should consider increasing the range of supervisory tools it uses to assess whether intermediaries are adhering to Code of Conduct and Conduct of Business requirements. This might include more targeted examinations, thematic reviews, and the use of mystery shopping, particularly with respect to Bancassurance sales. IRDAI should also consider supplementing the information it makes available to the public by providing cross-sectoral metrics on the handling of complaints such as a comparison of insurer complaint ratios for retail lines of business.
ICP 20: Public Disclosure	The IRDAI should reconsider their public disclosure requirements with the implementation of their risk-based capital regime and their risk-based supervisory approach.
ICP 23: Group-wide Supervision	It is recommended that the IRDAI in consultation with the MoF develop a comprehensive set of legal powers to identify all insurance groups in their market (insurers forming part of financial and non-financial groups of companies). The legal powers should enable the IRDAI to determine the manner in which an insurance group will be scoped, who the holding company (head) of an insurance group will be, and what information will be required on the insurance group from the head, or through the insurance company in that group, as per ICP 23 requirements. Once it has identified all the potential insurance groups in their market, the IRDAI should also determine whether any of those groups have legal insurance entities operating in another jurisdiction and engage with that host or home supervisor of those jurisdictions to coordinate on the scope of the insurance group, determining the head of the insurance group and agree on the group-wide supervisor for that group. The IRDAI should in parallel to developing the necessary legal framework develop its supervisory approach to insurance group supervision considering the transition to a risk-based supervision framework. The IRDAI should, also, regularly review whether any of its insurance groups meet the criteria of an Internationally Active Insurance Group as per the IAIS definition.
ICP 24: Macroprudential Supervision	IRDAI should consider redesigning the reporting structure for quantitative and qualitative information it needs to assess macroprudential risks of the insurance sector once it transitions to its risk-based capital regime. In addition, IRDAI should consider, on at least a quarterly basis, the range of macroprudential risks facing the insurance sector. This work should be in addition to the work it currently does for FSDC reporting,
ICP 25: Supervisory Cooperation and Coordination	The IRDAI should, once it has identified an insurance group that have legal insurance entities or branches operating in another jurisdiction, establish processes and arrangements for supervisory cooperation with relevant foreign supervisors as required by the ICP for a group-wide supervisor.

F. Authorities' Responses to the Assessment

72. The Corporate Governance Regulations 2024, which came into effect on April 1, 2024, mandate that only Independent Directors chair critical committees such as the Audit Committee, Risk Management Committee, Nomination and Remuneration Committee, and the Policyholder Protection Grievance Redressal & Claims Monitoring Committee, and the requirement that the Chairman of the Board not be a member of the Audit Committee, represent a substantial strengthening of governance and internal control requirements.

73. It may not be justifiable to discount their impact solely because the assessment was conducted before their introduction. While we appreciate a comprehensive and meticulous review carried out by FSAP team, we also placed on record our deep sense of gratitude for positively acknowledging the reforms initiated and measures taken by leadership team of IRDAI to promote insurance penetration in the Indian market.