Assessing vulnerabilities in India's banking sector

A grim global macroeconomic outlook has brought the vulnerability of financial systems to the fore. **Kuntal Sur** and **Rounak Shah** examine the resilience of the domestic banking system, and outline a three-pronged strategy to help banks withstand global headwinds.

Since March 2023, three mid-size banks have collapsed in the US – Silicon Valley Bank (SVB), Signature Bank and First Republic Bank. Despite banking behemoths pumping in a USD 30 billion rescue fund, depositor panic saw First Republic shuttering in May.[20]

In Europe, the collapse of Credit Suisse – fuelled by negative sentiment, following years of mismanagement and frequent changes in top leadership – has sparked fears of a ripple effect, heightening concerns around the stability of banking systems globally.

Interest rate hikes were among the driving forces behind the collapse of mid-size banks in the US, but such a situation is unlikely to occur in India. Loans rather than investments – which are more sensitive to interest-rate risks – comprise the majority share of Indian banks' assets, and relative increase in interest rates was much lower than that in the western world.

Banks are also permitted to hold investments up to 23% of net demand and time liabilities (NDTL) under the held-to-maturity (HTM) category. This regulatory provision provides banks with a secure investment option which can decrease their susceptibility to a fluctuating interest rate.[21] Notwithstanding the resilience, challenges remain in view of an unstable global economic climate, necessitating a reality check of the Indian banking system. Moreover, the relative rate of increase in interest rates in India is much lower than in the US and other developed countries to rein in inflation.

20 https://www.bloomberg.com/news/articles/2023-03-16/first-republic-to-get-30-billion-of-bank-deposits-in-rescue

21 CRISIL (April 2023). Ratings round-up, second half, fiscal 2023: Positive bias amid cautious clouds

Macroeconomic factors driving global uncertainties

- **Synchronised monetary tightening:** Synchronised monetary tightening by central banks to control inflation has led to stricter financial conditions, presenting challenges to the banking system. In its latest annual report, the Reserve Bank of India (RBI) also underlines that recent turbulence in the financial sector in the US and Europe highlights the need for India to reassess risks to financial stability and resilience of its financial institutions in the context of monetary policy tightening.[22] During the pandemic, the RBI's focus was on supporting economic growth. However, currently, the monetary policy is concentrated on balancing inflation targets while withdrawing accommodation.
- **Interest rates at a decadal high:** The Federal Reserve's policy rate is the highest since August 2007. The European Central Bank and Bank of England have increased their policy rates by 375 bps and 400 bps in the current cycle respectively, as on 10 May 2023, from near zero policy rate.[23] India has also witnessed policy repo rate hikes in 2022 after pandemic-induced rate cuts. In the period of May 2022 and February 2023, the RBI hiked the repo rate by 250 bps cumulatively, with an eye on financial stability. The repo rate, currently at 6.50%, is expected to remain stable now that inflation has eased. Several banks raised interest rates on their fixed deposits, with small finance banks (SFBs) offering interest as high as 9% to senior citizens.[24] High interest rates affect bank profitability and debt servicing.
- **Inflation – a cause for concern:** Commodity prices spiked due to geopolitical conflicts but have now moderated, while supply chain bottlenecks have eased. Subsequently, global headline inflation is projected to fall from 8.7% in 2022 to 7.0% in 2023. Core inflation, however, will decline more slowly.[25] India's consumer price index (CPI) inflation is already declining since it touched 7.8% in April 2022. The CPI-based inflation eased in April 2023 to 4.70%, down from 5.66% in March 2023.[26]
- **India exceeds expectations, despite stunted GDP growth:** While growth forecasts for economies have been reduced, India's GDP rose to 6.1% in the January–March 2023 quarter,[27] which was significantly higher than the estimated 5.1%. The GDP growth for October–December quarter in 2022 was recorded at 4.4%. For 2022–23, the GDP growth has been pegged at 7.2% – higher than the previous estimate of 7%.[28]

Foreign banks under the scanner

An uncertain macroeconomic environment has also prompted the scrutiny of foreign banks operating in India. For instance, the failure of Credit Suisse raised concerns on the future of its operations in India. However, whether UBS will surrender Credit Suisse's licence to the RBI or continue operations after the takeover is complete, remains to be seen. UBS had exited the Indian banking system after surrendering its licence in 2016.[29]

Like several other banks, UBS had also felt the impact of the 2008 financial crisis. In the years that followed, western banks re-evaluated their investments across emerging markets. Some curbed their operations and others sold off assets and cut down their exposures to countries increasingly perceived as non-core while some banks withdrew altogether.[30]

The strategy adopted by foreign banks post crisis confirmed the fears of regulators in emerging economies that foreign financial institutions can waver when

22 RBI. Annual Report 2022–23

23 CRISIL (May 2023). Safe zone vibes

24 https://economictimes.indiatimes.com/wealth/invest/highest-fd-interest-rate-of-9-these-banks-have-hiked-fd-rates-in-may-2023/articleshow/100270341.cms

25 IMF (April 2023). World Economic Outlook

26 https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1923709

27 https://www.mospi.gov.in/sites/default/files/press_release/PressNoteQ4_FY2022-23_31may23.pdf

28 Ibid.

29 https://www.businesstoday.in/industry/banks/story/will-ubs-shut-down-credit-suisses-india-unit-374077-2023-03-20

30 PwC analysis. Foreign banks in India at an inflection

confronted with a challenge or crisis.[31] In India, the withdrawal of foreign banks did not cause a major disruption due to the Foreign Exchange Management Act (FEMA) and banking regulations' restrictions on capital repatriation and liquidity management.[32] Since then, the RBI has stressed on local incorporation of foreign banks.

Under FEMA, it is mandatory for foreign entities to take permission for remittance of assets on closure, or remittance of winding up proceeds of branch offices. Thus, regulations under FEMA and the Banking Regulation Act restrict cross-border movement of liquidity. Banking regulations also limit the likelihood of free capital repatriation to parent by branches.[33] Banks must keep some of their profits in reserves, and profits can be repatriated to the head office only after the RBI's approval.

Market perception in these circumstances is also crucial, influenced as it is by the regulatory environment, market dynamics, macroeconomic trends and more recently – social media. The day before SVB's fall, venture capitalists had taken to Twitter to express concerns over the stability of the financial institution.[34] The situation was later described by the authorities as the first Twitter-fuelled bank run.[35]

As underlined by the RBI, when dealing with policies and actions associated with complex banking topics, managing public perception, regulation and supervision is a challenge.[36] Accordingly, in the wake of strong global headwinds, the RBI has, as part of its communication strategy, shifted its focus from conveying policy actions to releasing public awareness messages to manage perception, increase awareness and ensure alertness among its stakeholders.[37]

Bank runs driven by social media are also an emerging risk to a bank's financial stability. Financial institutions need to address this through media monitoring and engagement. Shaping public perception becomes especially important as geopolitical tensions and increase in interest rates subject financial markets to periods of uncertainty and instability.

Importance of timely regulatory intervention

Although credit ratings help determine the robustness of banks, it might not be the sole parameter. Most Indian banks are rated in the 'AA' (high safety) and 'AAA' (highest safety) category. However, ratings might not be the only important factor to determine a bank's stability since Credit Suisse (which crashed in March 2023) carried a credit rating of 'A' (adequate safety). Timely resolution by regulators prevented further panic in the market as the Swiss Central Bank quickly brokered the deal in which Credit Suisse was bought by rival UBS for CHF 3 billion in stock.[38] Both banks were also promised CHF 100 billion (USD 108 billion) in liquidity assistance by the Swiss Central Bank.

Another instance of swift regulatory action closer to home was when in 2020, the RBI intervened to support Lakshmi Vilas Bank (LVB) that was struggling with continuous losses and low liquidity. Soon after placing LVB under moratorium, the central bank announced that it would be merged with DBS Bank India Ltd (DBIL) – the subsidiary of Singapore's DBS Bank.[39]

A few months before LVB went under, the RBI had rescued Yes Bank with a restructuring plan. In March 2020, the RBI imposed a moratorium and replaced the bank's management. Under the restructuring, domestic banks led by the State Bank of India injected INR 10,000 crore in Yes Bank.[40]

Regulatory intervention, therefore, is key to protecting the interest of depositors and minimising a contagion effect. However, to restore market confidence, regulatory measures have to be implemented in a timely and decisive manner.

31 Ibid.

32 Ibid.

33 PwC analysis. Foreign banks in India at an inflection

34 SVB collapse

35 McHenry statement on regulator actions regarding SVB

36 RBI. Annual Report 2022–23

37 Ibid.

38 https://www.reuters.com/business/finance/ubs-take-over-credit-suisse-central-bank-2023-03-19/

39 https://theprint.in/economy/how-rbi-moved-quickly-to-save-lakshmi-vilas-bank-and-why-it-chose-singapores-dbs-for-merger/546608/

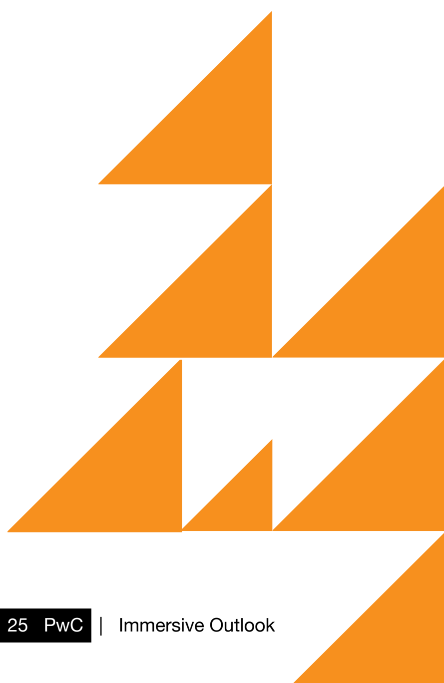
40 How central banks navigated bank collapse

Vulnerability indicators in the Indian banking system

Certain parameters that can help determine vulnerabilities in the Indian banking system indicate that banks in India maintain a higher-than-mandated capital to risk-weighted assets ratio (CRAR) with sufficient liquidity buffers in case of adverse events. It is to be noted that the minimum CRAR requirements for Indian banks is 100 bps higher than BASEL II mandated minimum CRAR. Banks have also succeeded in bringing down their non-performing assets in the last few years while generating consistent profits. However, robust risk management practices are a must to curb not only operational and business risks but also emerging risks around digital transformation strategy failures.

Parameters to determine vulnerabilities in the Indian banking system include:

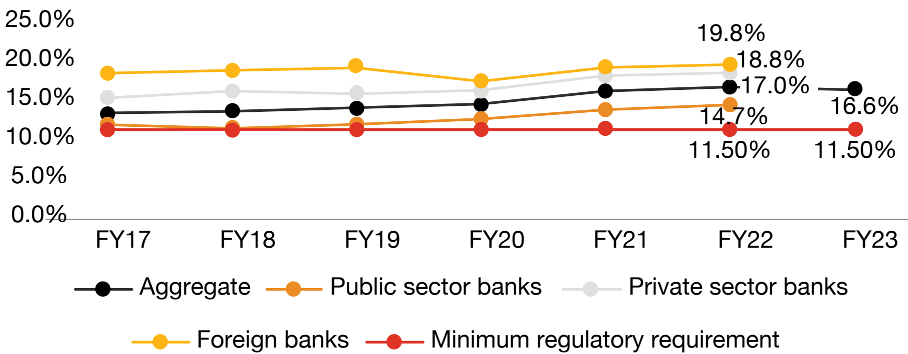
1. CRAR
2. asset quality
3. liquidity
4. profitability.



1. CRAR:

CRAR remains above norms

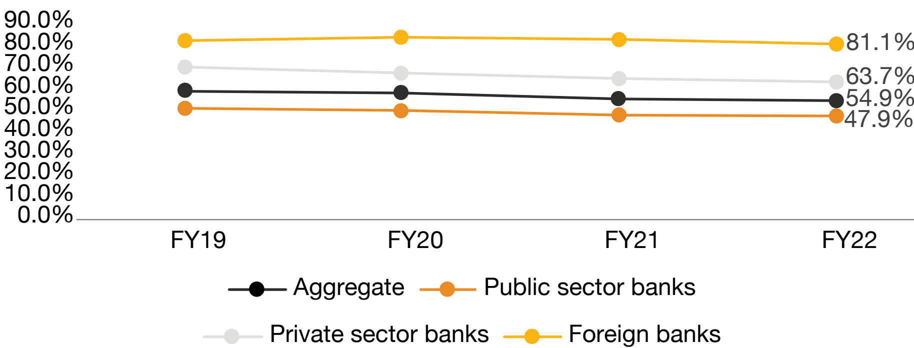
Capital to risk-weighted assets ratio



Note: For FY23, an aggregate CRAR of 16.6% is calculated for 17 SCBs.

Source: PwC analysis, RBI

Risk-weighted assets to total assets



Source: PwC analysis, RBI

Highlights: While CRAR for banks is above regulatory requirements, it is only marginally so. It is thus important that the CRAR is closely monitored, as a dip may pose challenges for the banks. In case of PSBs, an improvement in CRAR was mainly due to capital infusion. In terms of capital reserves, though the banking sector has a strong footing, it may need to adopt stronger risk management practices to counter market volatility and current macroeconomic conditions.

As indicated in the charts, banks have maintained a CRAR well above the minimum regulatory requirements of 9% (11.5%, including a capital conservation buffer of 2.5%). The CRAR and common equity tier 1 (CET1) ratio of scheduled commercial banks (SCBs) stands at 16.0% and 13.0% respectively.[41]

The RBI's macro-stress tests for credit risk found that SCBs are well-capitalised and can comply with the minimum capital requirements – even under adverse conditions. Under the baseline scenario, the aggregate CRAR of 46 major banks is projected to go down to 14.9% by September 2023. Moreover, it may slip to 14.0% in the medium-stress scenario and under a severe-stress scenario, it may fall to 13.1% by September 2023. In all three scenarios, the CRAR will remain well above the minimum capital requirements.[42]

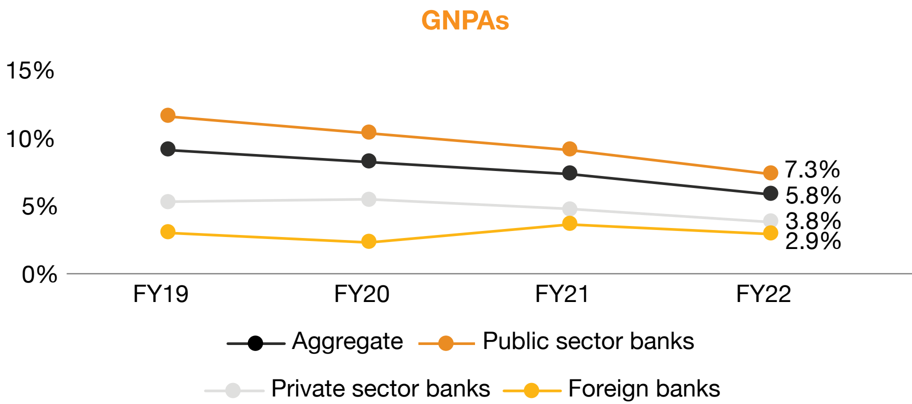
Foreign banks (FBs) have a stronger CRAR compared to public sector banks (PSBs) and private sector banks (PVBs). The asset quality of FBs has improved over the last five years in that they now have the lowest slippages in the industry, thus ensuring higher CRAR.

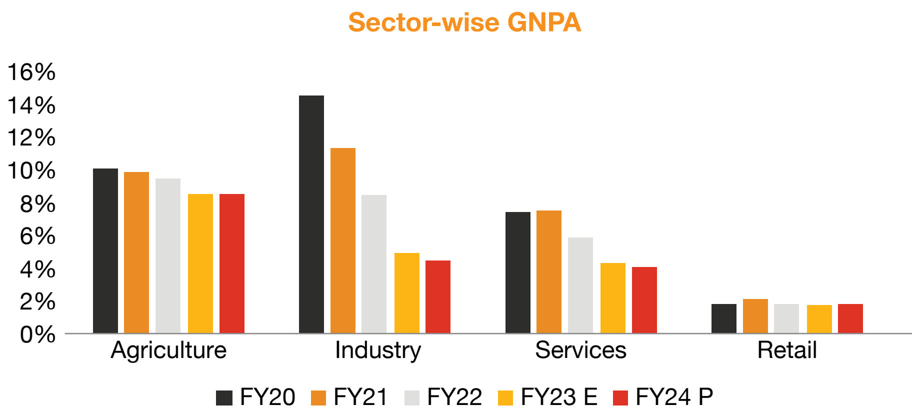
41 RBI. Financial Stability Report 2022

42 Ibid.

2. Asset quality:

Decreasing gross non-performing assets (GNPA) improves asset quality



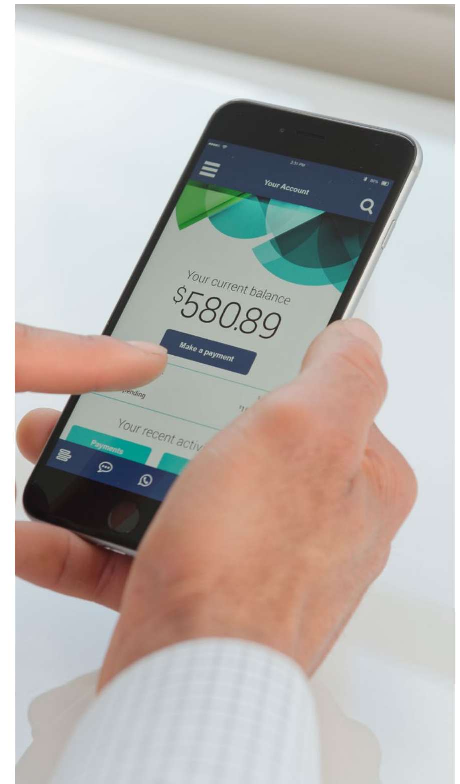


Source: PwC analysis, RBI

Highlights: PSBs and FBs saw a major dip in slippages in FY22, while PVBs saw an increase in the same. GNPAs show a declining trend overall, but PSBs may need to monitor the ratio more closely as GNPA for PSBs was 7.30% in March 2022 against the aggregate GNPA at 5.60% in the same period. Borrower concentration is another area banks should keep an eye on. Share of large borrowers in loans and NPAs stood at 47.7% and 62.3% respectively in March 2022. This could expose banks to risks in case of default.

GNPA, a major source of worry for lending institutions, has been decreasing, reflecting improved asset quality. The ratio of GNPA to gross advances fell from 5.9% in March 2022 to 5.7% in June 2022. The GNPA ratio stood at 5.0% in September 2022.[43]

The RBI expects the downward trajectory of the GNPA ratio to continue. Under the baseline scenario of stress tests, it is projected to fall to 4.9% in September 2023. According to CRISIL, GNPA will hit a decadal low of 3.8% to 4% in FY24 due to ongoing recoveries and upgrades for corporate accounts as well as expectation of recovery through the National Asset Reconstruction Company Ltd (NARCL).[44]

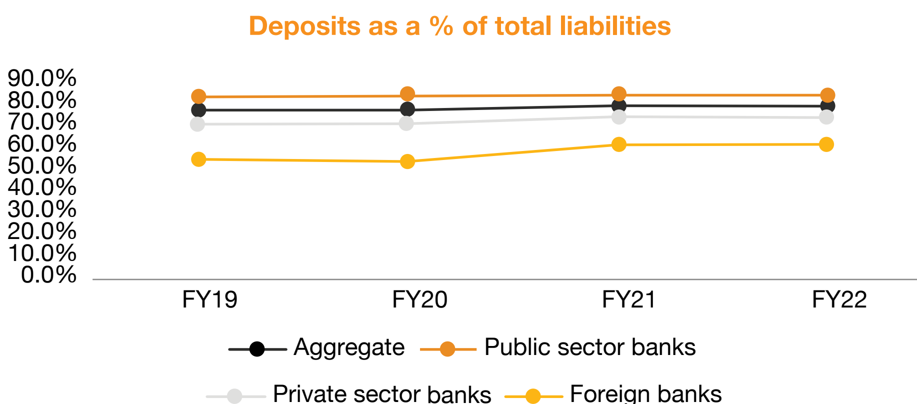


43 Ibid.

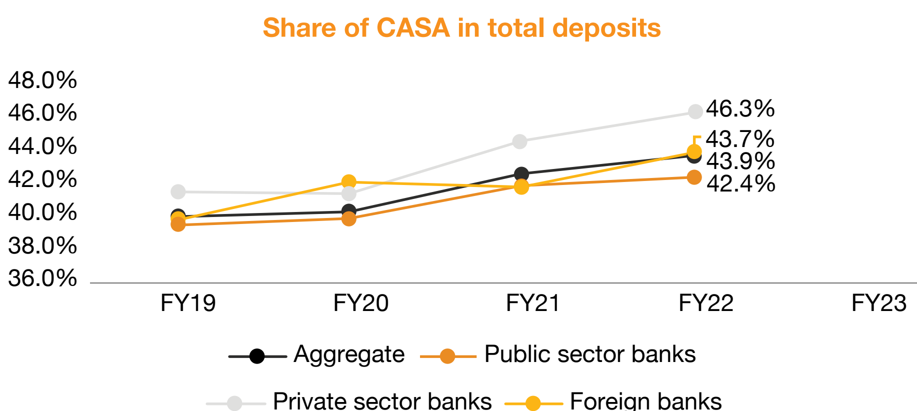
44 CRISIL. Cutting Edge

3. **Liquidity:**

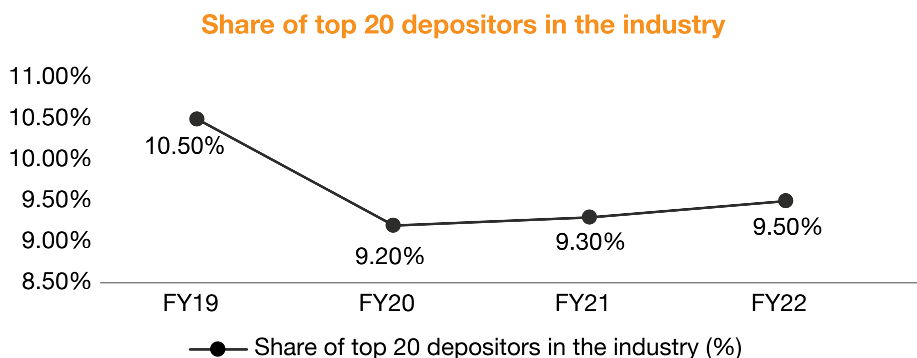
Banks maintain sufficient liquidity buffer



Source: PwC analysis, RBI



Source: PwC analysis, RBI



Note: Includes data from 17 SCBs

Source: PwC analysis, RBI, annual reports of banks

Average ticket sizes of deposits in India

India	FY22	FY23
Total deposits (INR crore)	1,71,82,709	1,78,54,724
No. of accounts (in '000s)	22,55,000	22,55,000
Average ticket size of deposits (INR)	76,198	79,178

Source: PwC analysis

As indicated by the charts and table above, banks had a liquidity coverage ratio (LCR) of 135.6% in September 2022, which is significantly more than the prescribed 100%. However, this number has dipped from the previous LCR of 173.0% in September 2020 as banks have been using high-quality liquid assets (HQLAs) to fund credit growth.[45]

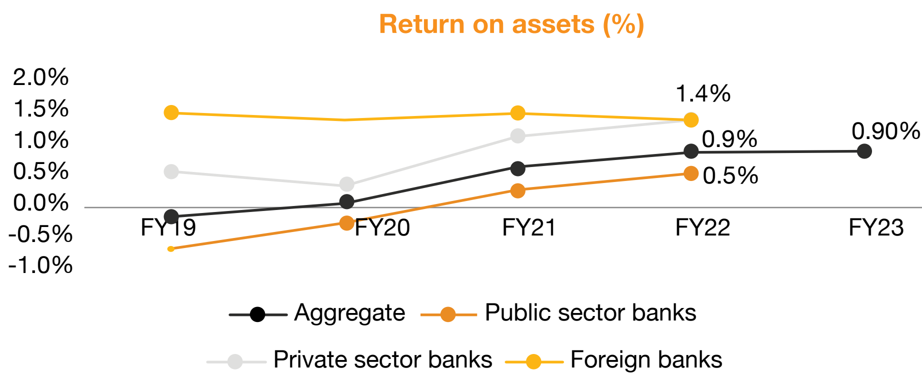
Our analysis showed that depositor concentration does not appear to be a risk factor. The top 20 depositors in SCBs only account for less than 10% of the total deposits, which indicates that a run on the bank – as in the case of US regional banks – is unlikely in India.

Highlights: Effective management of asset-liability mismatch should be a key focus area for banks. Banks that collapsed in the US were exposed to uninsured deposits due to asset-liability mismatch. Active management of the balance sheets with efficient tracking of assets and liabilities can help banks to avoid pitfalls in the future.

45 RBI. Financial Stability Report 2022

4. Profitability:

High credit demand and lower provisioning boost profitability



Source: PwC analysis, RBI

Highlights: While credit risk outlook for various sectors is positive, banks may need to factor in sector exposures for efficient risk management practices, as some sectors may be more at risk on account of macroeconomic uncertainty. A post-pandemic slump in the technology sector impacted a substantial portion of SVB's client base, which ultimately led to the bank's downfall.

This underlines the need for banks to examine their sector concentration. Currently, in terms of deployment of bank credit, retail loans account for 29.90%, while industry makes up for 24.40% and agriculture for 12.30%. Agriculture and industry sectors also have high GNPAs at 9.40% and 8.40% respectively. Banks need to adopt prudent credit risk management practices to regularly monitor financial health of sectors with both higher share of bank credit and high GNPA. To manage sector-specific risks, banks may need to further diversify credit exposures across sectors and sub-sectors.

In the US, expensive regulation, rising competition and new customer demands are putting pressure on profitability.[46] Indian banks, however, are experiencing considerable profitability due to:

- robust credit demand
- lower provisioning requirements
- improvement in asset quality.

The profit after tax of SCBs grew to 40.7% in September 2022, fuelled by an increase in the net interest income and a reduction in provisions. Return on equity (RoE) showed improvement, reaching 11.2% in September 2022. Return on assets (RoA) – negative until FY20 – climbed to 1.0% due to a decrease in provisions and contingencies.[47]

Bank credit growth, which was a single-digit value for three years, touched 17.5% in September 2022 – a figure last seen in December 2011. Moreover, PVBs recorded a higher credit growth than PSBs. Bank credit is expected to grow to 13–15% during 2023, with the retail segment driving a major chunk of this growth – mainly due to an increased demand for home and vehicle loans. Other growth drivers include recovery in the services segment, with a pent-up demand in non-banking financial companies (NBFCs) and trade segments.[48]

46 Strategy& European banking vulnerabilities analysis

47 RBI. Financial Stability Report 2022

48 https://www.crisilratings.com/en/home/newsroom/press-releases/2022/11/bank-credit-to-grow-15-percent-in-this-and-next-fiscals.html

Building investors' trust

Our analysis suggests that Indian banks remain largely shielded from global spillovers on account of prudential regulations, regulatory oversight coupled with improved asset quality and profitability. However, a worsening global macroeconomic outlook leaves no room for complacency. Therefore, capital buffers, liquidity position, and credit risk practices must be constantly reviewed and strengthened.[49] It is also important for banks to build resilience by enhancing risk management, embracing innovation and upskilling their resources, and focusing on transparency and vigilant governance to build investors' trust.

Key considerations

Higher deposit insurance can enhance trust in banks, but there's a catch

Uninsured depositor runs triggered the failures of Silicon Valley Bank (SVB) and Signature Bank in March 2023.[50] With digital banking, depositors can withdraw funds at an unprecedented rate, sparking fears of more costly bank runs. Just before it collapsed, SVB depositors withdrew USD 42 billion in a single day, leaving the bank with USD 1 billion in negative cash balance.[51]

This underscores the need for banks to secure depositors' trust and perception. Following the SVB and Signature Bank collapse, regulator shored up confidence in the banking system by announcing that the banks would get 'systemic risk exceptions', meaning all deposits at both the institutions would be fully covered.[52] SVB had deposits worth USD 175 billion when it shut down, with over 90% of the deposits uninsured.[53] At present, the Federal Deposit Insurance Corporation (FDIC) guarantees deposits of up to USD 250,000 per person, per bank. As of December 2022, more than 99% of deposit accounts in the US were under the deposit insurance limit.[54]

In the past two decades, Asia and Europe have witnessed significant increases in coverage, and so has the US which provided a coverage of USD 100,000 until 2008. Canada provides a coverage of CAD 100,000,[55] while in the UK, deposits up to GBP 85,000 are insured.[56]

Amongst BRIC countries, India has the lowest deposit insurance coverage amount. In February 2020, the Deposit Insurance and Credit Guarantee Corporation (DICGC) raised the insurance amount from INR 1,00,000 to INR 5,00,000 per bank account. The number of fully protected accounts in the country stood at 294.5 crore as on 31 March 2023. This constitutes 98.1% of the total number of accounts (300.1 crore). In terms of value, deposits worth INR 83,89,470 crore were insured as on 31 March 2023, constituting 46.3% of assessable deposits of INR 1,81,14,550 crore. This means that the insurance cover in India is 2.91 times of per capita income in 2022–23.[57]

49 RBI. Annual Report 2022–23

50 FDIC. (May 2023). Options for Deposit Insurance Reform

51 SVB Collapse.

52 https://www.fdic.gov/news/press-releases/2023/pr23017.html

53 https://www.business-standard.com/article/finance/deposit-insurance-how-do-countries-protect-bank-depositor-s-money-123031300528_1.html

54 IADI Annual Trends Report: Deposit insurance in 2023

55 Ibid.

56 https://www.theguardian.com/business/2023/apr/13/why-move-to-bolster-uk-savings-protection-harks-back-to-financial-crisis

57 RBI. Annual Report 2022–23

In comparison, insurance cover in countries like the US and Australia is three times of per capita income. In Malaysia, it is 5.39 times of per capita income, while in Brazil and China it is 5.98 and 6.17 times of per capita income respectively.

Country-wise deposit insurance (DI) cover

Countries	DI in local currency	DI in USD	Per capita income (USD)	DI/PCI cover
US	250,000	250,000	70,249	3.56
Australia	250,000	181,712	60,443	3.00
Switzerland	100,000	109,685	91,992	1.19
Japan	10,000,000	86,878	39,313	2.20
UK	85,000	116,935	46,510	2.51
Canada	100,000	79,780	51,988	1.54
Singapore	75,000	55,613	72,794	0.76
India	500,000	6,710	2,257	2.97
China	500,000	77,500	12,556	6.17
Mexico	155,000	7,562	10,046	0.75
Malaysia	250,000	59,861	11,109	5.39
Brazil	250,000	44,874	7,507	5.98
Bangladesh	100,000	1,166	2,458	0.47

Note: Data as of December 2021

Source: 2022 International Association of Deposit Insurers (IADI) Annual Survey, World Bank

The average ticket size of deposits in India stands at INR 79,178. As per the data available, in terms of the value of deposits covered, India covers 49% of the deposit value. The value of deposits covered in the US is 55.3%, while in Canada it is 26%. In Japan, 90% of the deposit value is covered.

Deposit insurance value covered

Country	Deposit value covered (%)	Deposit insurance fund (DIF) as a % of total deposit value	DIF reserve ratio (deposit insurance fund as a % of insured deposits value)
US	55.3%	0.70%	1.26%
Japan	90.2%	0.35%	0.39%
Canada	26.0%	0.19%	0.71%
India	49.0%	0.89%	1.81%

Source: PwC analysis based on secondary research

The turmoil in the US banking sector has forced the UK to revisit its insurance guarantee scheme, and the Bank of England is working towards increasing the insurance cover.[58] This gives rise to the question of whether countries like India – which have low deposit insurance rates – should follow suit.

Higher deposit insurance amounts have certain benefits such as

- enhanced depositor confidence and
- lower chances of bank runs.

But fully insuring all deposits can be counterproductive and lead to 'moral hazard'. Moral hazard refers to increased risk taking by banks as they do not have to bear any losses arising from this risk taking due to full coverage for deposits. Complacency and negligence could set in amongst the top management as they have less incentive to monitor the banks, its lending policies or asset-liability management. Since depositors are protected, they are also less likely to withdraw their funds from a bank with poor risk management, allowing risks to build up in the system.[59]

Changes to deposit insurance must consider both the financial stability benefits of higher coverage and the implications for risk taking in the banking system.[60] Regulation, such as mandating strict capital requirements, liquidity regulation and supervision of lending activities and balance sheets can combat moral hazard.

Countering headwinds

To ensure that banks in India remain resilient and stay on course to successfully manage the balance sheet, a three-pronged strategy is necessary:

- enhanced risk management practices
- vigilant governance
- artificial intelligence (AI)-driven innovation.

These measures can help banks to be future-ready and risk-resilient amidst a volatile economic environment.

Enhanced risk management practices

Banks in India follow prudential requirements drawn by the RBI to focus on credit market, liquidity and operational risks. Business leaders are increasing overall spending on risk management, including technology. Executives feel the need to actively seek external insights to assess and monitor risks in the increasingly disruptive business environment.[61] Operational risk has become a major concern over the past few years on account of cyber risk and the risk of transformation failures as banks undertake a multiyear digital transformation journey. Organisations globally are therefore upping their cyber budgets. India business executives, including those from the financial sector, list a major cyberattack among the top three risks affecting organisations. The other two are a resurgence of COVID-19 or a new health crisis and a new geopolitical conflict.[62]

58 https://www.theguardian.com/business/2023/apr/13/why-move-to-bolster-uk-savings-protection-harks-back-to-financial-crisis

59 FDIC (May 2023). Options for deposit insurance reform

60 Ibid.

61 PwC's 2022 Global Risk Survey

62 2022 PwC India Digital Trust Insights Survey

Another aspect of risk management which banks need to improve upon is climate change-associated financial risks. The RBI has already announced regulatory guidelines on climate risk and sustainable finance which will be released in a phased manner.[63] But these mitigation plans are still largely at the discussion stage and yet to be widely implemented,[64] although key stakeholders have started taking action. State Bank of India (SBI) has already developed a Climate Change Risk Management Policy which aims to integrate climate-related risk (and opportunity) considerations within day-to-day operations, lending portfolios and overall decision making.[65]

Climate events can pose both physical and transition risks – risks that arise from moving towards a low-carbon economy. For instance, banks with more exposure to industries reliant on fossil fuels could be at risk. A climate stress test conducted for India suggests that PSBs are more prone to climate risks than their private sector counterparts and may face capital shortfalls in case of adverse climate shocks, particularly in the rarest event of banks being necessitated to repay their borrowings and deposit liabilities simultaneously.[66] Banks recognise the urgency of the issue, and most of them consider climate-related financial risks a threat to their business. But only a few banks have included climate risk and environmental, social and governance (ESG) related key performance indicators (KPIs) in the performance evaluation of their top management.[67] To factor climate risks into a bank's business strategy and risk management, it is necessary to review the current status of sustainability activities and map them to climate-related and environmental (C&E) risks and opportunities.[68]

Lending institutions can also harness bond investors' preference for green and sustainable investment opportunities. Green issuance can also strengthen the sustainability strategy of banks in the eyes of investors and rating agencies.[69] India made its debut in the sovereign green bond market in January this year, with the government selling USD 1 billion of securities.[70]

Vigilant governance

Banks must regularly review and align their balance sheet strategies to the changing market dynamics or economic changes. Risk management professionals can help banks tap into more effective ways of interest rate risk management, liquidity risk management, capital management and management of investment portfolios – key areas of balance sheet management.

At present, Indian banks make loan loss provisions based on an incurred loss model where provisions are made after the occurrence of a default. The RBI has proposed the expected credit loss (ECL) framework which will allow banks to make provisions based on forward-looking scenarios of credit losses.[71]

Banks can remain solvent and absorb potential economic shocks better with a 'forward looking' approach for capital management. Setting capital targets, focusing on capital optimisation, performing stress tests and having solid contingency plans are key focus areas for banks. Strong governance structures can also help banks in regular monitoring of capital-related matters as well as overall complacency over control environment and culture of compliance.

For proactive and effective balance sheet management, investment portfolio is another primary point of emphasis. The central bank has been looking at providing banks more flexibility in the management of their investment portfolio while addressing transparency concerns through enhanced disclosures.[72]

63 https://economictimes.indiatimes.com/news/economy/policy/rbi-announces-regulatory-guidelines-on-climate-risk-and-sustainable-finance-for-res/articleshow/97718777.cms?from=mdr

64 RBI. (2022–2023). Report on Currency and Finance (RCF)

65 SBI. Annual Report (2021–2022)

66 RBI. (2022–2023). Report on Currency and Finance (RCF)

67 RBI. (2021–2022). Report on trends and progress of banking in India

68 https://www.pwc.com/cz/cs/assets/Risk-management-and-Modelling-eBook-A4.pdf

69 Ibid.

70 https://economictimes.indiatimes.com/markets/bonds/india-joins-sovereign-green-bond-club-with-1-billion-sale/articleshow/97305968.cms

71 RBI. (2021–2022). Report on trends and progress of banking in India

72 Ibid.

AI-driven innovation

Banks can use digital technologies powered by AI and machine learning (ML) to boost risk management, automate manually intensive processes and cut costs. AI applications are estimated to help banks make potential cost savings worth USD 447 billion by 2023.[73] Predictive models are being employed by banks in areas such as credit scoring, loan loss provisioning and internal stress testing.[74] Banks are applying AI/ML models to identify patterns in high-volume transactions and flag potential fraudulent scenarios such as trade spoofing and wash trading.[75]

Financial firms are already leveraging AI to assess the creditworthiness of customers and predict their future behaviour. In the underwriting process, loan providers aim to assess as efficiently as possible the applicants' ability to repay. Later in the loan lifecycle, information on customers' habits can help estimate their behavioural credit score.[76] Machine learning is also proving to be useful to improve security and transparency in systems for payments fraud detection and prevention, as well as for identity verification to meet regulatory requirements associated with anti-money laundering (AML) and know your customer (KYC).[77] Specialised algorithms for transaction monitoring and client risk rating can help banks not only with their AML efforts but also in fraud prevention.

Reputation management is another area where AI can be helpful for banks. AI-powered tools can be used to scan news and regulatory reports, social media posts, and customer feedback in real time to assess a bank's reputation. Sentiment-analysis algorithms can help AI to determine whether online mentions are positive or negative. Financial institutions can also use AI to receive real-time alerts and take proactive steps to avoid a potential adverse situation.

In the case of top depositors, banks may leverage AI to track depositor behaviour, feedback and account activity, and use these insights to address concerns and enhance trust. AI can also help assess depositor behaviour during events that impact a bank's reputation. For instance, AI can be used by banks to check if news about a cyberattack led to deposit withdrawals by the top depositors.

There are many success stories of AI use. A leading private Indian bank implemented predictive analytics to identify borrowers who were highly likely to default by studying patterns in historical data. A global company assisted another bank to leverage AI to curate unique personalised experiences through customer profiling and micro segmentation.[78]

In a bid to boost public confidence in the financial system, the RBI is currently embedding AI/ML and other technological tools in its online complaint management system.[79] The Reserve Bank's regulatory sandbox (RS) mechanism, launched in 2019, also enables institutions to test innovative products, services or business models, usually in a live but controlled environment with certain safeguards and oversight. Products related to retail payments, cross-border payments, micro, small and medium enterprises (MSME) lending, and prevention and mitigation of financial frauds have already been tested by previous cohorts.[80]

While AI can be a valuable tool for online reputation management, fraud detection and customer insights, human supervision is necessary for the ethical use of AI tools. Harnessing AI responsibly, and ensuring AI-driven systems are aligned with ethical and regulatory standards can pay rich dividends to banks for years to come.

Also contributing to this article were **Vishnupriya Sengupta, Ashutosh Satsangi, Ruchika Uniyal and Venkatesh Joshi.**

73 PwC, FICCI (February 2022). Uncovering the ground truth: AI in Indian financial services

74 https://www.pwc.com/cz/cs/assets/Risk-management-and-Modelling-eBook-A4.pdf.

75 PwC, Data and analytics (D&A)-driven risk transformation for banks

76 https://www.pwc.com/cz/cs/assets/Risk-management-and-Modelling-eBook-A4.pdf

77 Ibid.

78 PwC, FICCI (February 2022). Uncovering the ground truth: AI in Indian financial services

79 RBI. Annual Report 2022–23

80 RBI, (2021–2022). Trends and progress of banking in India

Kuntal Sur
Partner and Risk Consulting – Financial Services and Treasury Risk Management Leader

Rounak Shah
Partner, Financial Services – Risk and Regulatory