still unprepared

India's big banks move slowly in the face of climate crisis

climate risk horizons

Authors

Gauri Atre *Research Analyst–Energy & Sustainable Finance*

Contact *gauri.atre@climateriskhorizons.com*

Sagar Asapur *Head—Sustainable Finance*

Contact *sagar.asapur@climateriskhorizons.com*

Ashish Fernandes *CEO & Lead Analyst*

Contact *ashish.fernandes@climateriskhorizons.com*

Citation

Gauri Atre, Sagar Asapur and Ashish Fernandes. Still unprepared: India's big banks move slowly in the face of climate crisis. Climate Risk Horizons. August 2023.

—

Design Pallavi Baasri, *pallavibaasri@gmail.com*

Table *of* Contents

List *of* Figures

List *of* Tables

List *of* Abbreviations

ACPR	Autorité de Contrôle Prudentiel et de Régulation (French Prudential Supervision and Resolution Authority)
AUM	Assets Under Management
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BNEF	Bloomberg New Energy Finance
BOE	Bank of England
BRR	Business Responsibility Report
BRSR	Business Responsibility and Sustainability Report
BSE	Bombay Stock Exchange
CAMs	Credit Assessment Memoranda

CDP	Carbon Disclosure Project
CFCs	Chlorofluorocarbons
CNG	Compressed Natural Gas
COP	Conference of Parties
CRH	Climate Risk Horizons
CRST	Climate Risk Stress Test
CSO	Chief Sustainability Officer
CSR	Corporate Social Responsibility
DFIs	Development Finance Institutions
E&S	Environment & Social
EBA	European Banking Authority
ECB	European Central Bank
ERP	ESG Rating Provider
ESA	European Supervisory Authorities
ESG	Environment Social Governance
ESMS	Environment and Social Management System
FSB	Financial Stability Board
GBP	Green Bond Principles
GFANZ	Glasgow Financial Alliance for Net Zero
GRI	Global Reporting Initiative
ICAAP	Internal Capital Adequacy Assessment Process
ICMA	International Capital Markets Association
IEA	International Energy Agency
IFC	International Finance Corporation
IFRS	International Finance Reporting Standards
IMF	International Monetary Fund

IPCC	Intergovernmental Panel on Climate Change
ISSB	International Sustainability Standards Board
MDBs	Multilateral Development Banks
NBFCs	Non-banking Financial Companies
NGFS	Network for Greening the Financial System
NZBA	Net Zero Banking Alliance
PACTA	Paris Agreement Capital Transition Assessment
PCAF	Partnership for Carbon Accounting Financials
PSL	Priority Sector Lending
RBI	Reserve Bank of India
RCP	Representative Concentration Pathways
RES	Regulated Entities
RTS	Regulatory Technical Standards
SASB	Sustainability Accounting Standards Board
SBI	State Bank of India
SBTi	Science Based Targets Initiative
SEBI	Securities & Exchange Board of India
SEMS	Social & Environment Monitoring System
SFB	Small Finance Bank
SFDR	Sustainable Finance Disclosure Regulations
SFWG	Sustainable Finance Working Group
TCFD	Taskforce on Climate-related Financial Disclosures
TBTF	Too Big To Fail
TERI	The Energy and Resources Institute
UN SDGs	United Nations Sustainable Development Goals
UNEP FI	United Nations Environment Programme for Finance Initiative

01 Executive Summary

The climate crisis is wreaking havoc on South Asia as on the rest of the planet, unleashing more extreme heat waves and devastating floods. Events that were once hypothetical are now tangible risks affecting crop production and causing extensive economic damage, loss of life and social disruption. *The Global Risks Report 2023 ranks 'Extreme Weather' events as the top risk after 'The Cost of Living Crisis'.*

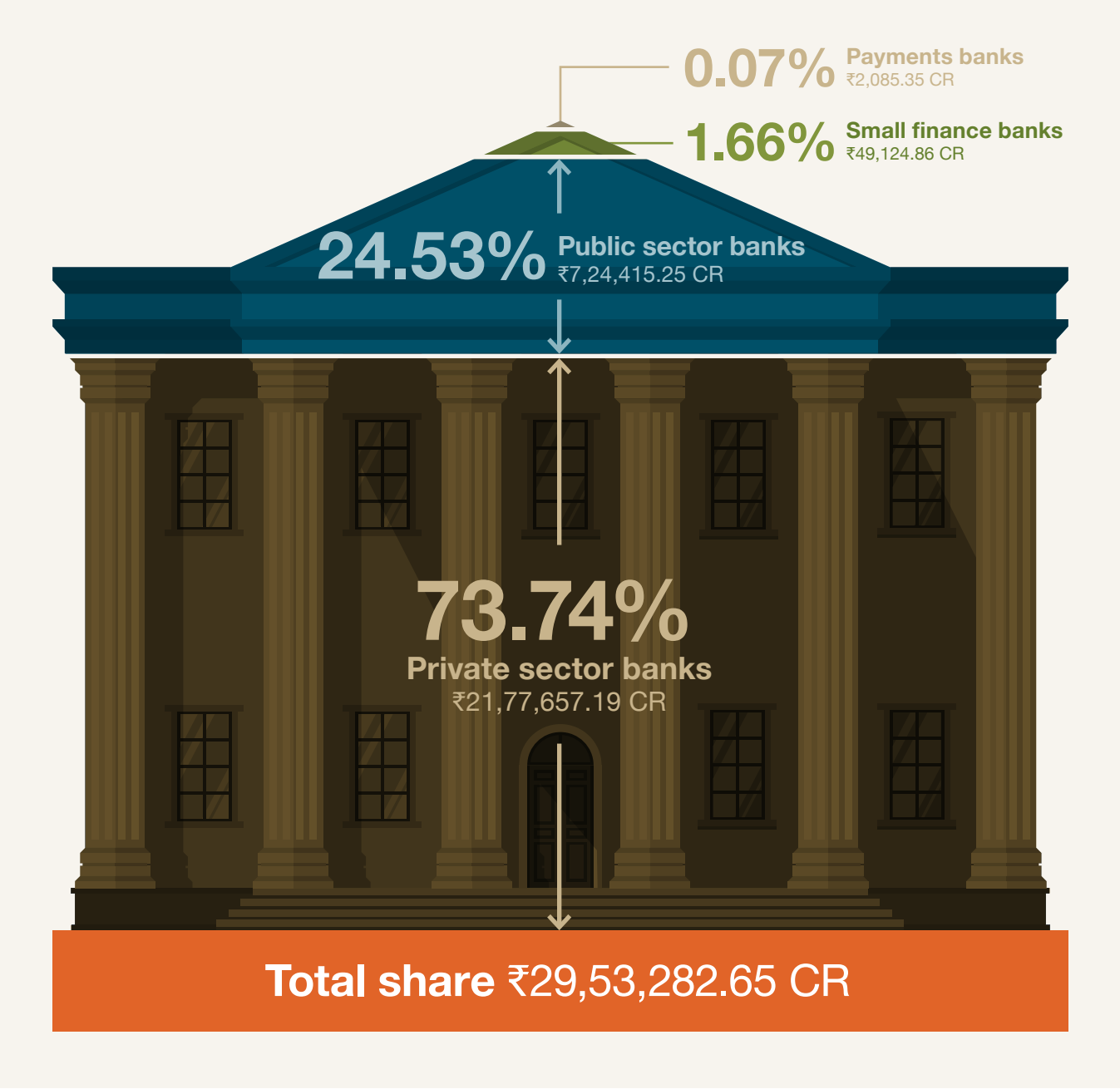
Extreme weather events pose significant challenges to human societies and systems, leading to substantial financial losses. These losses have implications for the stability and resilience of the Indian banking system. In 2022, extreme weather events battered India on 314 out of 365 days, claiming 3,026 human lives and affecting at least 1.96 million hectare of crop area.[1]

Ensuring the resilience of the Indian banking system requires monitoring developments within banks and assessing their preparedness in the face of climate risks. 2022 saw significant developments in measuring and managing climate risk in the international finance realm. In India, both the RBI and SEBI also released a number of consultation papers and guidelines of relevance, which are discussed in the ***Key highlights from FY 2021-22***. This report also looks at the sectoral exposure of the Indian banking system and the 10 largest Indian banks, in the section titled ***Mapping of Climate-related Risks to the Indian Banking System***.

CRH's March 2022 report ***Unprepared*** exposed significant gaps in the preparedness of the Indian banking sector as a whole to confront climate risks. This follow up assessment examines the progress of climate preparedness among 34 major banks in India for FY 2021–22.

These banks are the largest scheduled commercial banks in India by market capitalisation on the Bombay Stock Exchange (BSE), with a combined market cap of ₹29.5 trillion. 17 of these are private sector banks, 12 are public sector banks, 4 are small finance banks and one is a payments bank.

Figure 1 | Share of market cap by bank type



Key findings

While a few Indian banks have taken small steps forward, the overall progress has been far too little and far too slow. On some key parameters, there has been almost no meaningful change.

01

Fossil fuel exclusion policy

No change since 2022. Suryoday Small Finance Bank and Federal Bank continue to be the only banks which have a policy against financing new coal fired power projects; the latter also excludes new / expanding coal mines. Federal Bank is the only bank that excludes financing for oil and gas exploration activities. Federal Bank still has legacy exposure to fossil fuels on its books.

02

Scope 1, 2 and 3 emissions

Only 10 of 34 banks have started disclosing Scope 1 and 2 emissions. Eight of these have started disclosing some Scope 3 emissions as well.

03

Verified emissions

Seven of 34 banks have undertaken third-party assurance on their emission disclosures; only five have published the statement of assurance.

04

Financed emissions

No progress has been observed on this front by any bank; YES Bank's measurement of its financed emissions remains limited to its electricity generation portfolio.

05

Climate scenario analysis

None of the banks have calculated the impact on their portfolios under different climate scenarios. Seven banks have begun planning or considering different scenarios for calibration of risks. Four new banks—State Bank of India (SBI), Kotak Mahindra Bank, Federal Bank and RBL Bank have joined this cohort since last year.

06

Climate-risk management

10 banks have a dedicated climate-risk management committee at the board level with a strategic plan. Three banks have shown progress in this area since 2022: Axis Bank, Federal Bank and SBI.

07

Green finance

Only 10 banks have disclosed the quantum of green finance disbursed. Nine more banks have mentioned providing green finance, without disclosing the amount disbursed. The remaining 15 banks either have an in-principle commitment to green lending or have no such plans at all.

08

Associations

Only eight banks are now part of international associations related to climate initiatives such as UN Principles for Responsible Banking, Carbon Disclosure Project (CDP), Task Force on Climate-Related Financial Disclosures (TCFD), Equator Principles, Science-based Targets Initiative (SBTi), etc.

09

Exclusion policy

Only seven of the 34 banks have publicly disclosed their list of excluded activities.

10

Net zero target

No bank has yet set a net zero target which covers all three Scope emissions. HDFC, YES Bank, and most recently IndusInd have set targets covering Scope 1 and 2 emissions, while SBI has a carbon neutrality target by 2030, without any mention of emission targets.

Specifically, there has been progress by banks since 2022 in these areas:

- **Two banks started reporting their scope emissions in FY 2021–22**—Federal Bank and AU Small Finance Bank (only Scope 1 and 2).
- **Kotak Mahindra, YES Bank and RBL in particular have begun to institute tools and assessment frameworks** for climate risks in their portfolios and projects.
- **RBL Bank has introduced a tool to calculate risks of extreme weather events to the operationality of a project**, as part of its E&S Risk Assessment framework.
- **YES Bank is the only bank to have explicitly identified climate risk as a pillar 2 risk** under its Internal Capital Adequacy Assessment Process (ICAAP).
- 16 out of the 34 banks claim to have introduced schemes for the Electric Vehicle segment. However, only YES Bank has disclosed the quantum disbursed.
- Four banks—**IndusInd, Federal Bank, Union Bank of India and Central Bank of India—have put in place a green deposit facility**. Of these, only Federal Bank and Union Bank have disclosed the total quantum of deposits collected.
- At a systemic level, the RBI has undertaken exercises to assess climate-related financial risks to the banking sector, including a preliminary stress test. Based on energy intensity, and simple green/brown industry classification, Indian banks are highly exposed to the utilities (electricity generation, transmission and distribution) and metals sectors, with public sector banks most exposed to the conventional energy sector. The stress test used a stranded assets approach, i.e., measurement of climate risks based on the returns of a portfolio of underutilised fossil fuel reserves, with lower returns indicating higher transition risk. **Public sector banks were found to be at a greater risk of large capital shortfalls due to an adverse climate shock**.

Figure 2 | Ranking of Indian banks

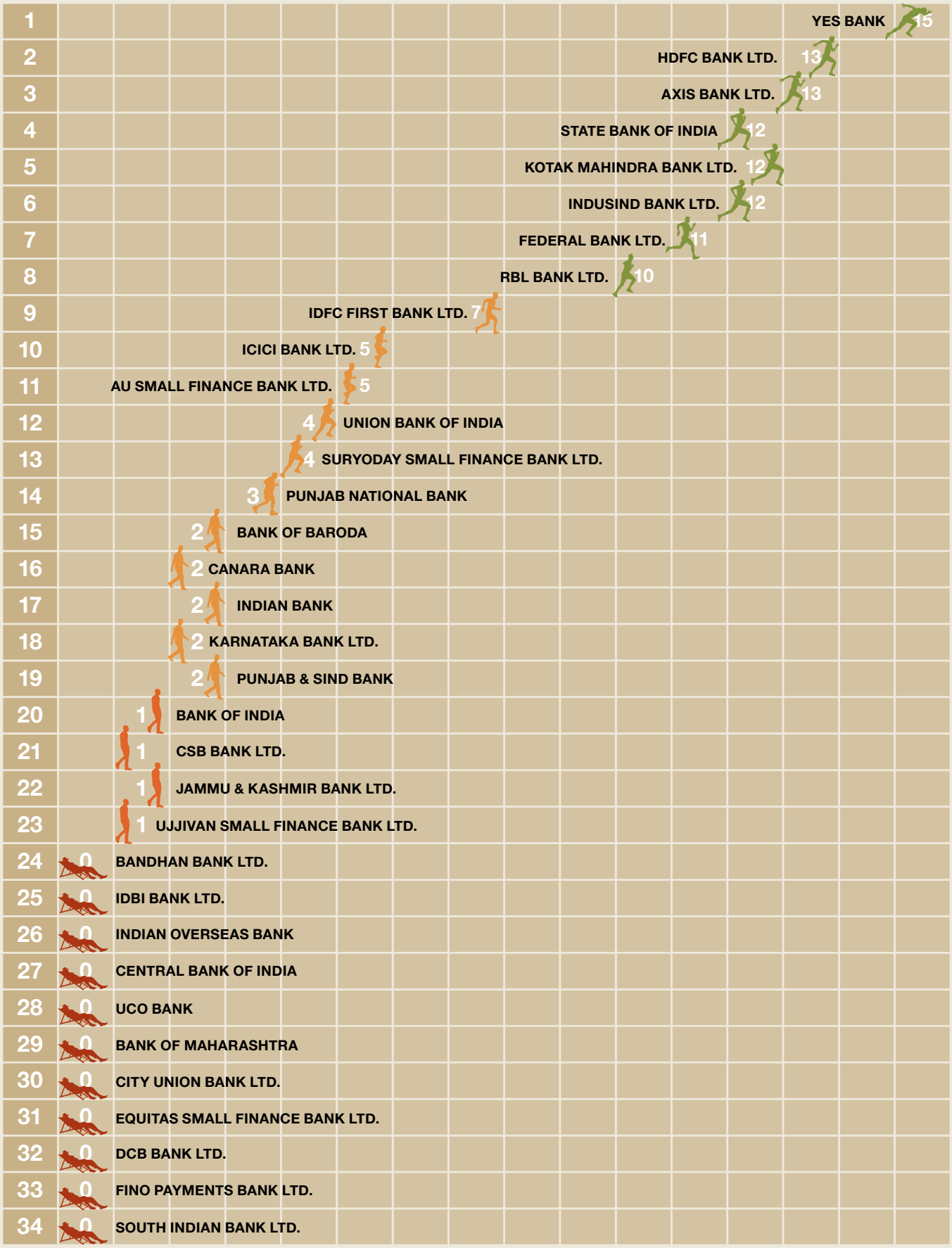


Table 1 | Score of top 10 banks

YES BANK				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 2	Category 15 | 2	Climate Scenario | 1
Climate-risk Management | 2	Green Finance | 2	Associations | 2	Exclusion Policy | 1	Net Zero Target | 1
TOTAL SCORE | 15				

HDFC BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 2	Category 15 | 0	Climate Scenario | 1
Climate-risk Management | 2	Green Finance | 2	Associations | 2	Exclusion Policy | 1	Net Zero Target | 1
TOTAL SCORE | 13				

AXIS BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 2	Category 15 | 0	Climate Scenario | 1
Climate-risk Management | 2	Green Finance | 2	Associations | 2	Exclusion Policy | 2	Net Zero Target | 0
TOTAL SCORE | 13				

STATE BANK OF INDIA				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 2	Category 15 | 0	Climate Scenario | 1
Climate-risk Management | 1	Green Finance | 2	Associations | 2	Exclusion Policy | 1	Net Zero Target | 1
TOTAL SCORE | 12				

KOTAK MAHINDRA BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 2	Category 15 | 0	Climate Scenario | 1
Climate-risk Management | 2	Green Finance | 1	Associations | 2	Exclusion Policy | 2	Net Zero Target | 0
TOTAL SCORE | 12				

INDUSIND BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 1	Category 15 | 0	Climate Scenario | 0
Climate-risk Management | 2	Green Finance | 2	Associations | 2	Exclusion Policy | 2	Net Zero Target | 1
TOTAL SCORE | 12				

FEDERAL BANK				
Coal Policy | 2	Scope 1, 2 and 3 | 2	Verified Emissions | 0	Category 15 | 0	Climate Scenario | 1
Climate-risk Management | 2	Green Finance | 2	Associations | 0	Exclusion Policy | 2	Net Zero Target | 0
TOTAL SCORE | 11				

RBL BANK				
Coal Policy | 0	Scope 1, 2 and 3 | 2	Verified Emissions | 0	Category 15 | 0	Climate Scenario | 1
Climate-risk Management | 2	Green Finance | 1	Associations | 2	Exclusion Policy | 2	Net Zero Target | 0
TOTAL SCORE | 10				

IDFC FIRST BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 0	Verified Emissions | 0	Category 15 | 0	Climate Scenario | 0
Climate-risk Management | 2	Green Finance | 1	Associations | 2	Exclusion Policy | 2	Net Zero Target | 0
TOTAL SCORE | 7				

ICICI BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 1	Verified Emissions | 1	Category 15 | 0	Climate Scenario | 0
Climate-risk Management | 2	Green Finance | 1	Associations | 0	Exclusion Policy | 0	Net Zero Target | 0
TOTAL SCORE | 5				

AU SMALL FINANCE BANK LTD.				
Coal Policy | 0	Scope 1, 2 and 3 | 1	Verified Emissions | 2	Category 15 | 0	Climate Scenario | 0
Climate-risk Management | 0	Green Finance | 2	Associations | 0	Exclusion Policy | 0	Net Zero Target | 0
TOTAL SCORE | 5				

Recommendations

Lending disclosure *for* green financing

Many banks claim to have engaged in green financing without disclosing the total funds disbursed, or the specific activities financed. Commitments of intent are largely meaningless without concrete action to advance India's climate change goals. The quantum of lending required to meet the country's energy transition targets necessitates that banks lend aggressively to this sector, and disclose figures for public scrutiny.

Need *for* clear transition plans

Banks need to ensure that the heavily fossil-fuel dependent industries financed by them are engaged in developing transition plans that are science-based. An active and continuous engagement with these industries will enable banks to transition away from high carbon assets.

Science-based exclusion list

Banks must incorporate and disclose a detailed exclusion list for their lending activities. The exclusion of only those industries engaged in production of ozone-depleting substances or chlorofluorocarbons (CFCs) is insufficient. A robust exclusion policy that incorporates science-based climate targets would be a clear signal of banks' climate commitments.

Common reporting format

Basel III quantitative disclosures which detail fund and non-fund exposure of banks must be streamlined for comparability and analysis of data. A common format and prescribed degree of detail is important. This will enable an understanding of the banking sector's credit concentration risks to carbon-intensive and green sectors alike. Designing a future pathway to manage climate risk requires a full understanding of current exposure, and this in turn requires consistent and comparable datasets. For example, only four banks currently report their specific RE lending under Basel III.

Climate scenario analysis

The status of climate scenario analysis is poor among Indian banks. Measurement of exposure to climate risk will receive impetus once the Reserve Bank of India (RBI) takes the lead. However, limited understanding of tools to assess these risks, and lack of capacity building among banks' risks undermine progress. While many tools for assessing bank exposure are available, banks need to invest in nurturing the capacities to employ these tools, while disclosing results publicly. This will further strengthen inter-bank knowledge sharing. Additionally, a forum to encourage inter-bank knowledge sharing and capacity building is required. Annual surveys to track development of climate scenario tools and policies across banks, undertaken by the RBI, may serve this purpose.

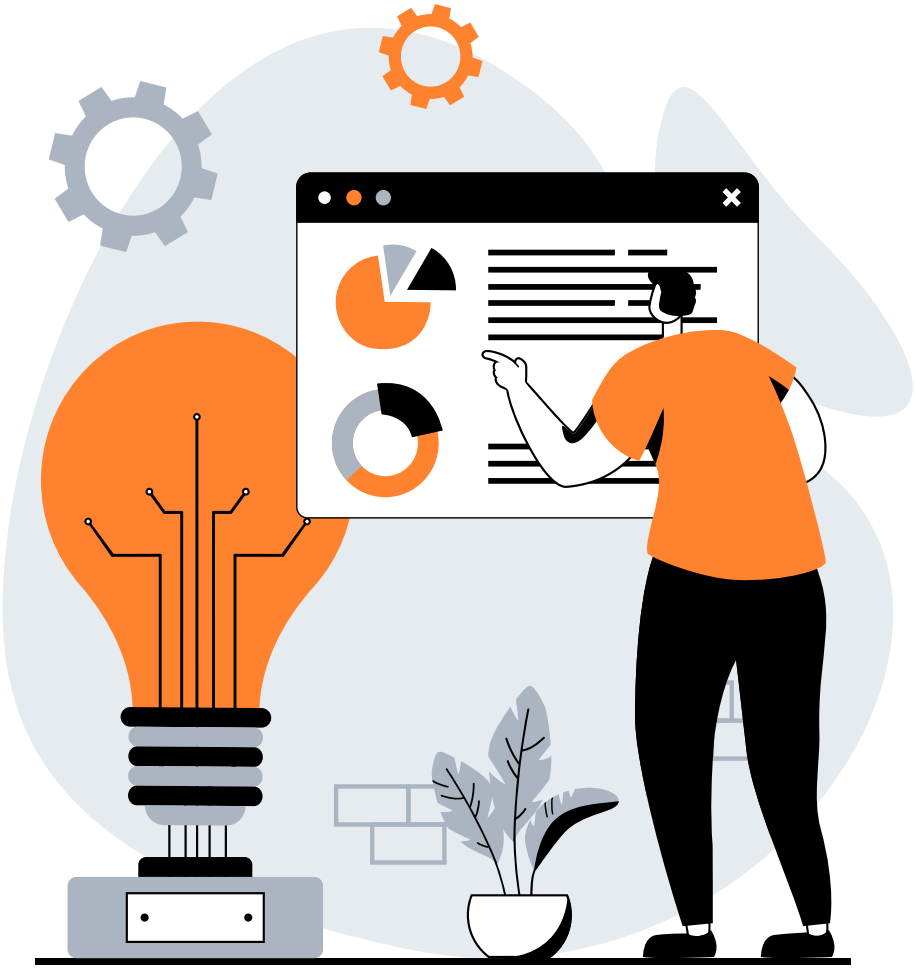
02 Background

The climate crisis is impacting South Asia in increasingly material ways. Within the last few years, unseasonal heat waves have impacted crop production and floods have drowned large parts of Northeast India, Bangladesh and one third of Pakistan—these are manifestations of climate risks that were once only hypothetical.

Against this background risk, geopolitical developments such as the Russian invasion of Ukraine have exacerbated economic upheaval globally. The energy inflation caused by the war came on top of post-pandemic supply chain constraints, resulting in the Global Risks Report 2023[2] ranking 'The Cost of Living Crisis' as the first risk, followed by the risk of 'Extreme Weather events'.

Climate change is disrupting the status quo of human societies and systems. Extreme weather events cause damages to life and property which have an enormous bearing on the financial system. Hurricane Ian, for instance, cost the re/insurance industry USD 50–65 billion[3] in the US, surpassing any other losses in the year 2022. In the short term, displacement among workers and halted operations of businesses impacted USD 328.96 billion worth of capped bank deposits.[4]

The World Bank has projected job losses to the tune of USD 34 million in India[5] owing to increased severity of heatwaves by 2030. Such events threaten to derail retail lending operations of banking institutions. When it comes to energy finance, the widening rift between Business-as-Usual (oil/gas/coal) and the need to finance the clean energy transition will create winners and losers.



Against this background, a consistent monitoring of developments within Indian banks is necessary to ensure the resilience of the financial system and the sector's preparedness. The glaring absence of such an assessment of the Indian banking sector motivated our first report, published in March 2022. While there has been some slow progress since then, the banking system remains unprepared to confront climate risk. This report analyses the progress of the 34 largest Indian banks on climate-related indicators. This study, like most studies of similar nature, is limited by the paucity of granular, publicly available data.

03 Data *and* Methodology

There are 34 banks[i] (12 public sector, 17 private sector, four small finance banks, and one payments bank) in the top 1000 entities by market capitalisation at the BSE[6], as of 31 March, 2022. The complete list of banks in this study can be found in the annexure to this report. According to the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, it is mandatory for these banks to file BRSR from FY 2022–23 onwards.

CRH assessed these banks based on their disclosures under ten specific criteria for FY 2021–22. The assessment was based on publicly available information in bank reports, exchange filings, media articles, annual reports, and other public documents. The detailed criteria and methodology for the assessment are available on CRH's dashboard.[ii]

Criteria principle

To conduct a robust and systematic analysis, CRH's methodology was guided by the following principles:

1. Data availability

Bank assessments should be from public reporting like bank publications, exchange filings, annual reports, sustainability reports, ESG reports, Integrated reports, and other public documents and recent updates from publicly available information like bank press notes, etc.

2. Objectivity

Banks shall be ranked with minimal space for subjective interpretation.

3. Transparency

Banks shall be asked for their feedback/suggestions/ comments if any, or additional documents that might have a bearing on the bank's ranking, before publishing the final ranking.

i *Refer Annexure for the list of banks.*

ii *https://climateriskhorizons.com/dashboards/banking-report/*

4. **Usability**

   The ranking should be useful to academia, policy makers, asset owners (including asset managers), and the media.

5. **Consistency**

   Criteria should link to, or build on existing initiatives and disclosure frameworks such as the FSB's TCFD to improve and increase reporting of climate-related financial information.

6. **Completeness**

   Criteria scores should be aggregated and must apply to the bank (as a whole).

7. **Coverage**

   Criteria score should pertain to the individual bank, and not to their subsidiary companies or foundation(s) or institution(s) or any other organisation(s).

8. **Decision relevance**

   The criteria should be in the context of India, i.e., pragmatic to India's current position on the world stage.

04 Summary *of* Results

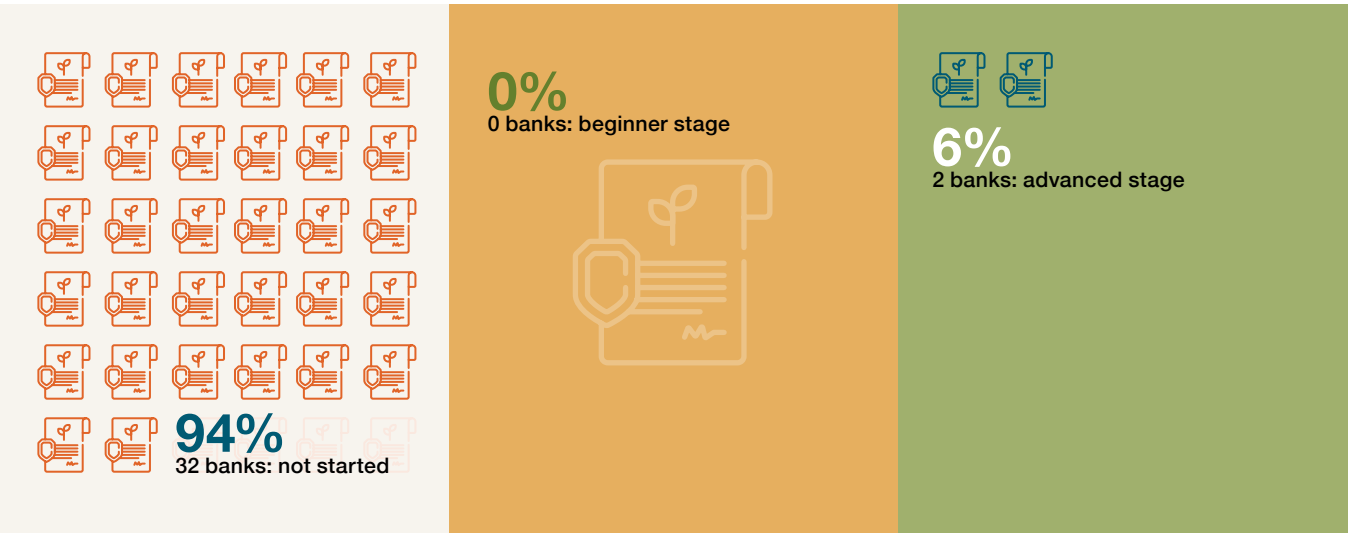
Coal policy

Coal has the highest concentration of carbon amongst all fossil fuels. Unabated coal alone is responsible for a fourth of GHG emissions. International Energy Agency (IEA)'s focused report Coal in Net Zero Transition[7] quantifies this share at 15 gigatonnes in 2021. Reinforcing the crucial role of lenders in charting a net zero future, IFC[8] recently updated its Green Equity Approach—now mandating a commitment from its financial institution clients to not 'originate and finance any new coal projects'.

NZBA's latest report[9] (2022) states that about 55 banks have a coal financing policy with/without an emissions target. Reclaim Finance's Coal Policy Tool,[10] flags the absence of a coal policy among 300 financial institutions. The State Bank of India is the only Indian bank in the list, having a nil score.

CRH's assessment shows that of the 34 top banks by market cap, only two—Suryoday and Federal Bank have a coal exclusion policy. No other bank has initiated or voiced a consideration over instituting such a policy.

Figure 3 | Coal policy



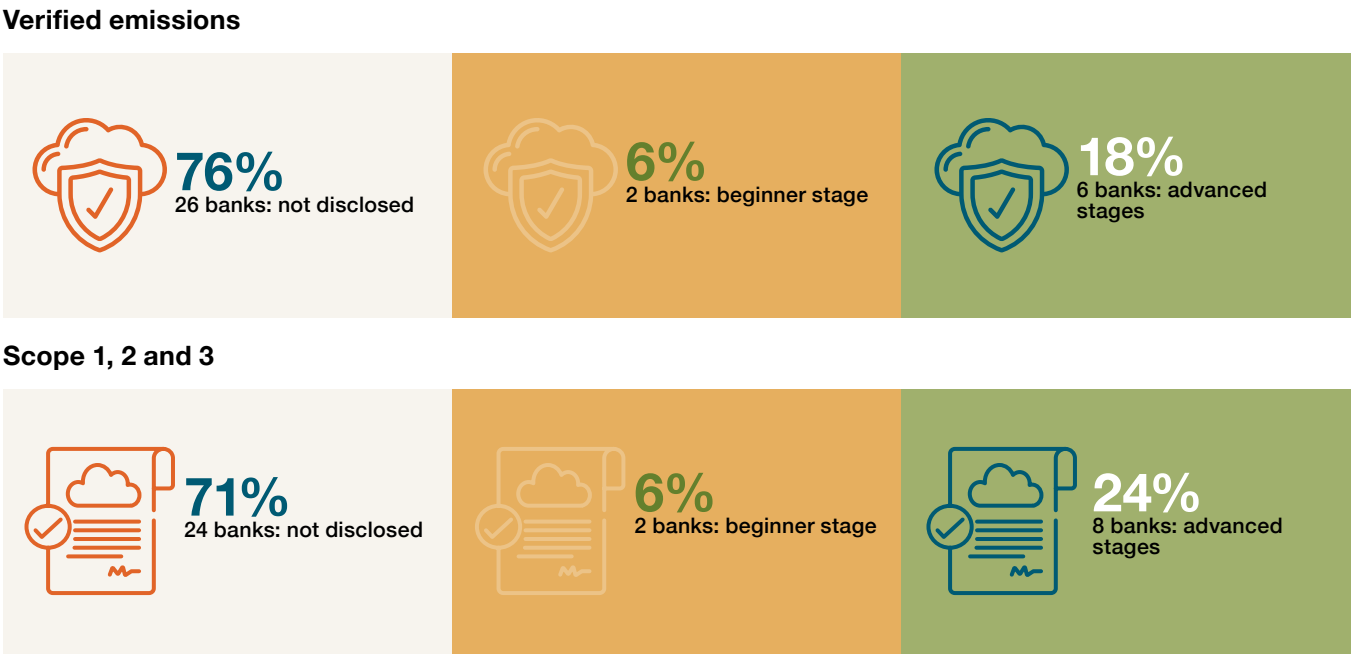
CRH's analysis of 34 biggest banks in India revealed only eight banks were at an advanced stage of scope emission disclosures. Out of these eight, only five have published a third-party verification statement attesting to the disclosures.

Scope 1, 2 and 3 emissions and their verification

The transition to a green economy requires accounting for GHG emissions by all entities, including banks, in order to plan for emission reductions. In March 2022, the ECB conducted an assessment[11] of climate-related financial disclosures for 109 banks under its jurisdiction. The results revealed that 74% of banks reported on their operational emissions. A larger assessment spanning the banking membership of TCFD, conducted annually by Accenture[12] reported a 10% increase in 2022 to 93% in scope emissions' disclosures. Generally, reporting on Scope 1, 2 and 3 emissions is most advanced in comparison to the other TCFD disclosures. Around 79% of the banks were categorised under 'intermediate' or 'advanced' stages. The report also cites an increase in the number of third-party verifications undertaken, adding credibility to these disclosures.

CRH's analysis of 34 biggest banks in India revealed only eight banks were at an advanced stage of scope emission disclosures. Out of these eight, only five have published a third-party verification statement attesting to the disclosures. Two banks, AU Small Finance Bank (only Scope 1 and 2) and Federal Bank, started reporting their scope emissions in FY 2021–22.

Figure 4 | Scope emissions and their verification



Financed emissions

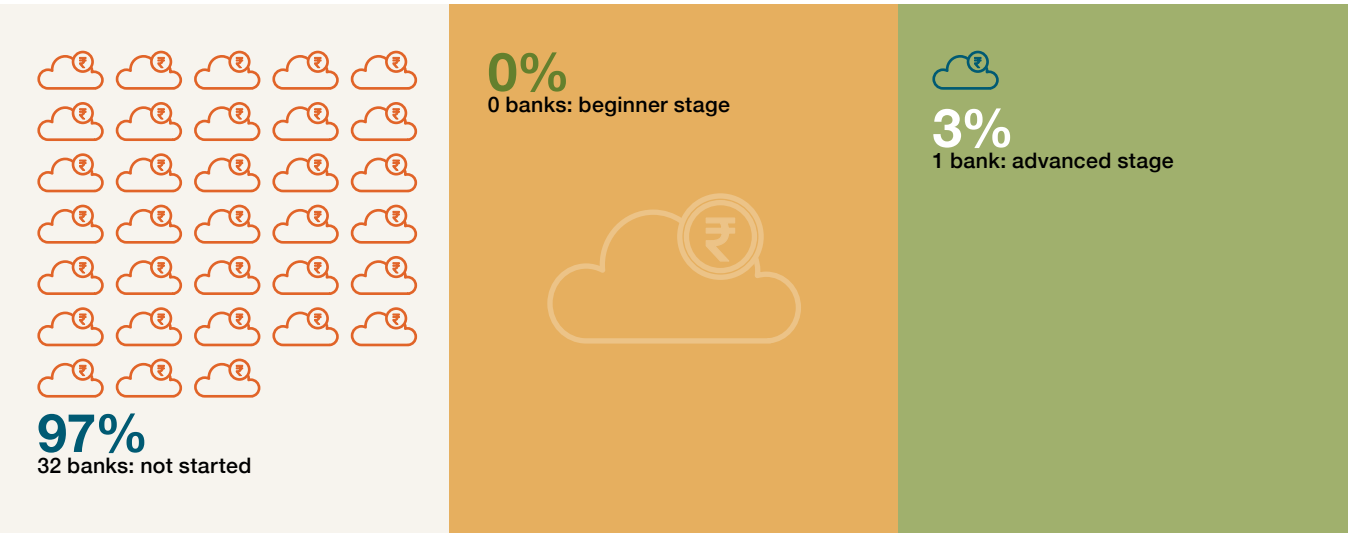
The ECB's publication in March 2022[10] showed that only 15% of the assessed banks have disclosed their financed emissions. The emissions accounted for 93% of these banks' scope emissions. The lack of granular data and comparable standards of reporting are the commonly cited reasons for non-disclosure of financed emissions.

In June 2022, Bain & Company analysed[13] 45 banks globally, 15 each in Asia-Pacific, Europe, and North America. All European banks committed to decreasing carbon emissions, followed by 11 in North America and only three in the Asia-Pacific region. Of the 45, about half have disclosed their financed emissions and/or set interim targets. These, however, cover only a part of their portfolio, with most banks accounting for less than 25%. A very small percentage of banks have interim targets spanning financed emissions across all sectors.

The study stated that financed emissions, or Category 15 under Scope 3, constitute 95% of banks' total carbon

footprint. This is significant given that a large number of Indian banks cite the financial nature of their services as a reason for non-disclosure of their emissions. YES Bank is the only Indian bank which has undertaken a measurement of its financed emissions over the last few years. However, even YES Bank's exercise remains limited to the electricity generation portfolio. No progress has been made on this front by any bank since CRH's last assessment.

Figure 5 | Financed emissions



Climate scenario analysis

Climate risks are unlike other threats to the financial system, such as credit or market, which can be predicted using past data. Given the uncertainty associated with the realisation of climate risks and their magnitude, scenario analyses are an important tool to facilitate forward-thinking to build resilient systems. Climate scenario analyses as a tool is still in its infancy. The TCFD hub provides a step by step guide to use scenario analysis in disclosure of climate related risks and opportunities.[14]

CRH's analysis found that none of the banks have calculated the impact of climate scenarios on their portfolio. However,

seven have begun planning for or considering different scenarios for calibration of risks. Of these seven, three banks stand out:

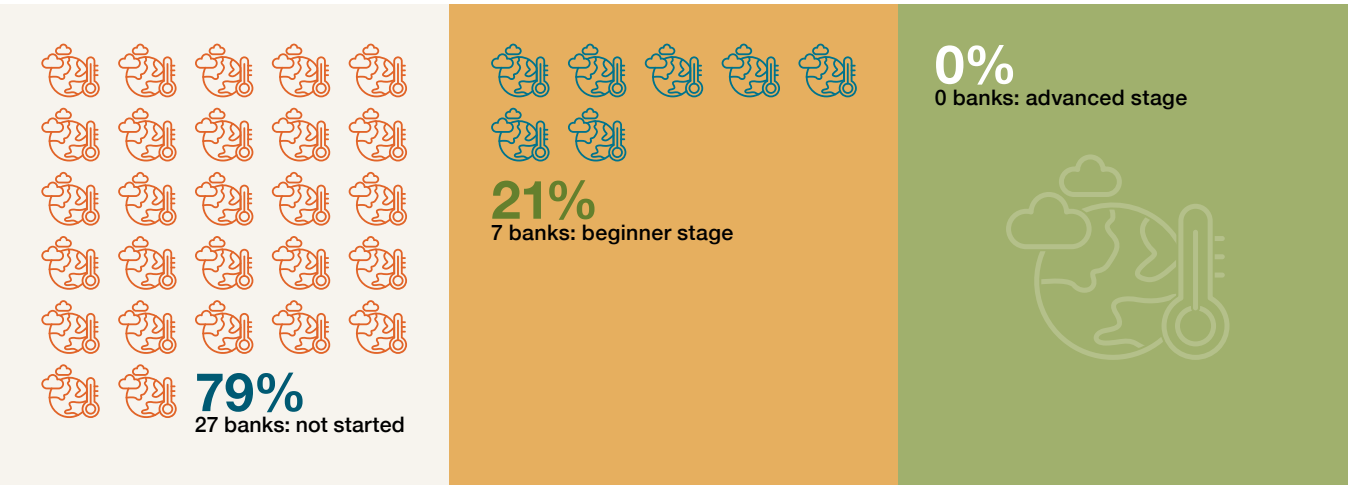
- **Kotak Mahindra**[15] has initiated a physical risk assessment based on the IPCC—Representative Concentration Pathways (RCP) scenarios 4.5 and 8.5. It also intends to calculate the impact of climate risk on its corporate lending portfolio using the Paris Agreement Capital Transition Assessment (PACTA) tool for Banks developed by 2° Investing Initiative. A phased analysis is being planned to ascertain risks which may arise from high emitting sectors like oil and gas.

CRH analysis found that none of the banks have calculated the impact of climate scenarios on their portfolios. However, seven have begun planning for or considering different scenarios for calibration of risks.

- **Yes Bank**[16] has undertaken and analysed data under four scenarios: (i) Business-as-Usual, (ii) 1.5 degrees scenario, (iii) well below 2 degrees scenario, and (iv) 2 degree scenario. However, the results are not yet publicly available. It says that it aims to use scenarios developed by Science-based Targets Initiative (SBTi) to align its climate intensive sectors with well under 2°C/1.5°C pathways.

- **RBL Bank's**[17] Environment & Social (E&S) risk assessment framework employs a probabilistic tool which scores projects based on their vulnerability to acute physical climate risks such as droughts, floods, and landslides.

Figure 6 | Cimate scenario analysis



Climate Risk Management

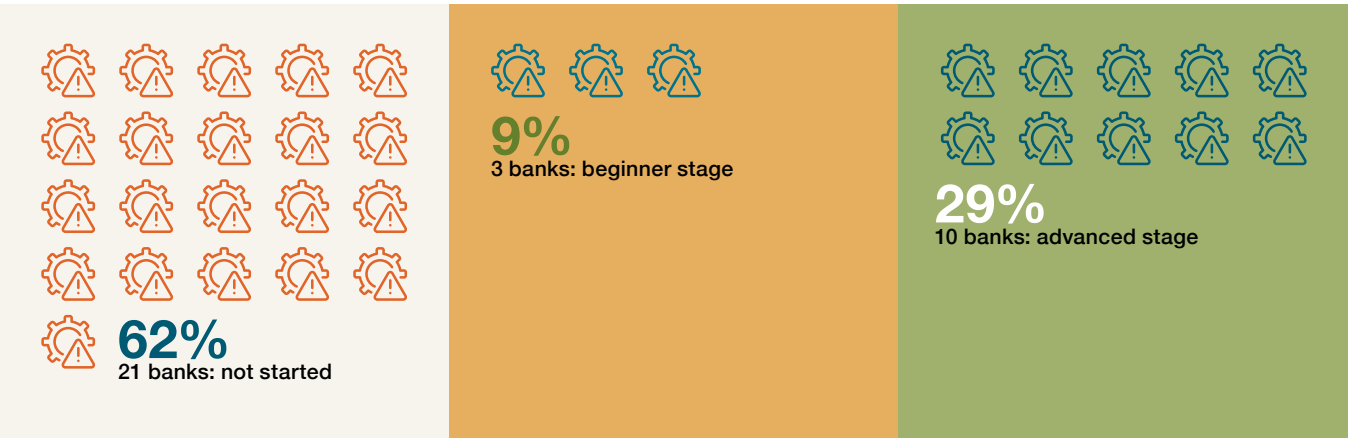
The ECB's thematic review[10] of 109 banks reported an increase in the disclosure of board oversight of climate-related risks from 53% in 2020 to 71% in 2021. The ECB's compendium of good practices[18] analysed more than 25 financial institutions. It underscored the presence of dedicated committees to execute climate-related strategies. Often, the CEO heads a management-level body overseeing this execution.

KPMG International's assessment in 2022[19] spanning 35 major banks across Europe, US, and Canada also discussed the issue of board oversight on climate-related risks. Some of these banks have instituted Chief Sustainability Officers (CSOs) and increased their sustainability teams between 2020–22. Remunerative practices are also being linked to sustainable financing and operational emissions targets.

CRH's analysis finds 10 of 34 Indian banks have reached an advanced stage of governance disclosure; that is, these banks have a dedicated climate-risk management committee at the board level with a strategic plan. This score has witnessed a considerable improvement since last year owing to the progress of three banks: Axis Bank, Federal Bank

and SBI. Axis Bank instituted a standalone board-level ESG Committee, a first amongst the analysed Indian banks. SBI and Federal Bank have ESG Committees as part of their governance frameworks starting from FY 2021–22. Most ESG Committees are headed by a board-member such as the Managing Director, CEO or the Executive Director of the respective bank.

Figure 7 | Climate risk management



Green finance

Bloomberg New Energy Finance's (BNEF) estimates a requirement of USD 223 billion to meet India's goal of installing 500 GW of non-fossil fuel energy by 2030,[20] translating into USD 27.9 billion of annual investments by 2030.

The Indian renewable energy sector is reliant mainly on debt for financing its projects. 92% of the financing is currently provided by foreign investors and the Indian private sector. India's public sector and Non-banking Financial Companies (NBFCs) combined extend merely 8% of total financing to the sector.

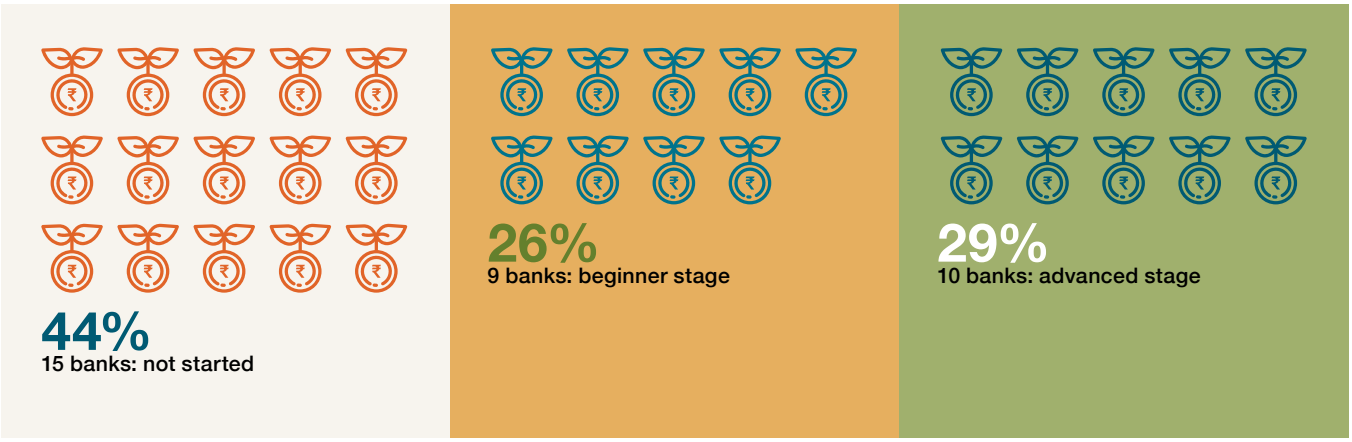
Green bonds have been touted as the preferred instrument to raise finances for the sector. Issuance of green bonds

clocked a new high in 2021 owing to increase in the funding from US and Europe. FY 2021–22 witnessed the introduction of sustainability linked AT1 loans by the Axis Bank[21] and green bonds issued by the SBI on India INX.[22] The bonds raised around USD 600 million and USD 650 million, respectively.

CRH's analysis scores banks based on their green financing activities. Only 10 of the top 34 banks have disclosed their finances directed towards renewable energy. The cumulative quantum of financing extended to renewables by these 10 banks stands at approximately ₹1,13,228 CR.

Nine out of the 34 banks have mentioned financing green activities without disclosing the amount disbursed. The remaining 15 banks have either a broad commitment to extend lending towards the sector with no further details provided or have no such plans at all.

Figure 8 | Green finance



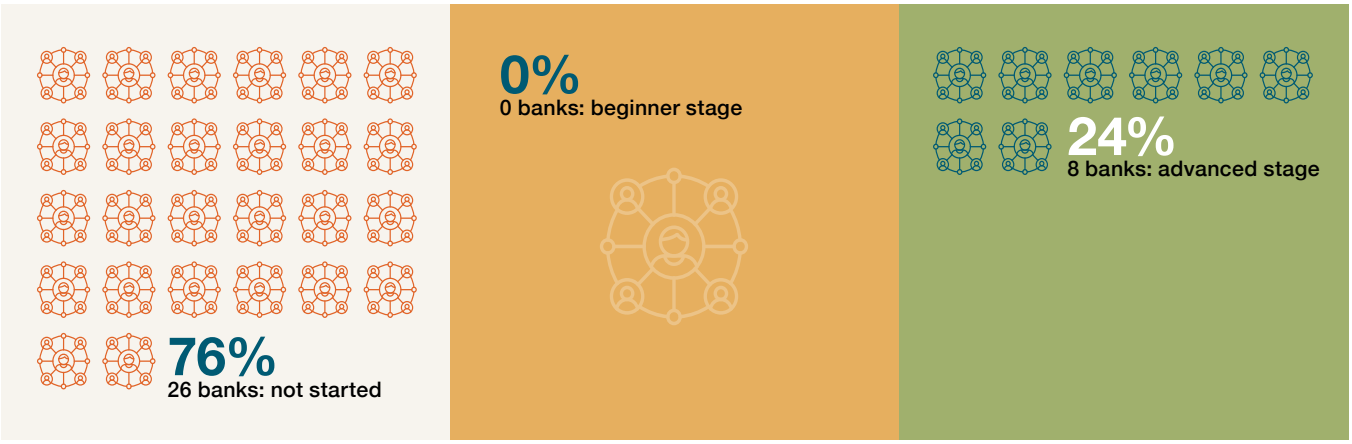
Associations

Learning from and/or partnering with international associations, and fostering collaborative efforts focused on global net zero transitions is a key signal of banks' commitment towards climate change.

Among the top 34 Indian banks, only eight are a part of international associations. YES Bank, SBI and IndusInd Bank have been the oldest collaborators with Carbon Disclosure Project (CDP),[23] submitting requisite information annually since 2010. HDFC has been somewhat consistent with a gap of 2 years in between; it additionally has adopted the SBTi. Kotak and Axis banks have been submitting information regularly to CDP since 2014 and 2015, respectively. IDBI Bank was consistently furnishing information between 2010–2016, however, post 2016, the bank has not provided the requisite information.

IDFC First claims alignment with the Equator Principles, while RBL Bank has adopted the TCFD Framework. RBL is one of only three Indian banks that are supporters of the TCFD framework.[24] Globally, the membership has more than doubled to reach 257 banks as reported by Accenture. The Asia Pacific region is a leading contributor to this increase, adding 100 new members between 2020–2022. YES Bank is the only Indian signatory to the UN Principles for Responsible Banking.[25]

Figure 9 | Associations



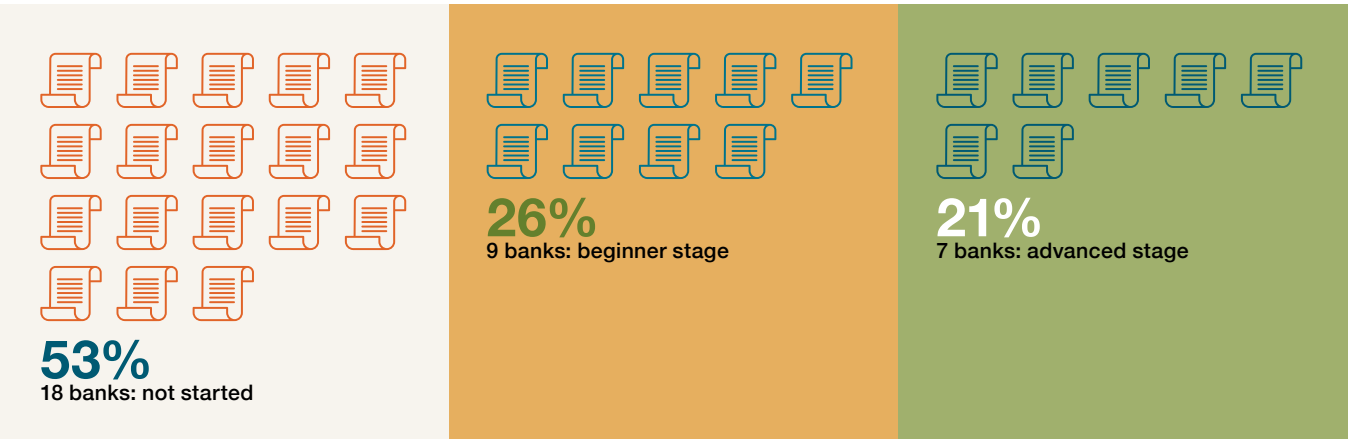
Exclusion Policy

An exclusion policy, a negative screening tool, is an important indicator of commitment to ESG/climate-related issues. At COP26, national governments vowed to facilitate a redirection of international public finance from fossil fuels to clean energy sources. At the institutional level, an exclusion policy is a crucial milestone to track this shift.

A report by the International Institute for Sustainable Development analysed commitments and policies of 30 Development Finance Institutions (DFIs), Export Credit Agencies and two key sources of international public finance.[26] It flagged the absence of a publicly available exclusion policy for one-third of these institutions. Almost all DFIs have a fossil fuel exclusion policy. However, these cover only direct finance mechanisms, leaving room for indirect financing to excluded sectors.

The scoring metric adopted in this analysis requires a publicly-available document with a list of excluded industries. By this criterion, only two Indian banks—Suryoday and Federal Bank have an active coal policy; the latter excludes oil and gas explorations as well. Five other banks have published their exclusion policy, but have no stance on fossil fuel lending. Nine banks exclude industries involved in production of ozone-depleting substances; putting them at the 'beginner' stage.

Figure 10 | Exclusion policy



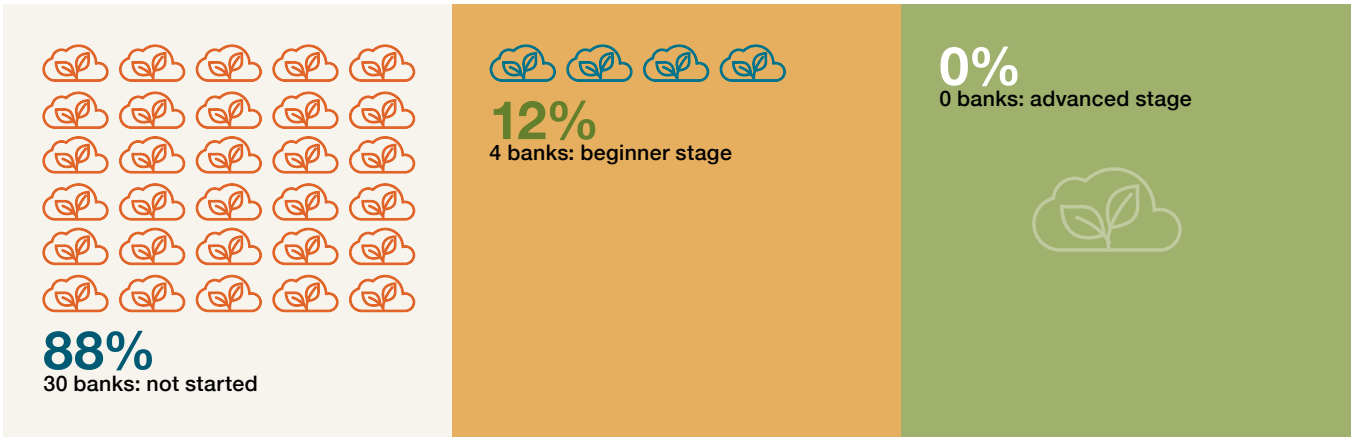
Net zero targets

At the global level, the NZBA operates to enhance banks transition to net zero. Membership requires setting targets to reduce Scope 1, 2 and 3 emissions in lending and investment portfolios by 2030 and 2050. Banks are required to specify targets for reduction across sectors. No Indian bank is party to this alliance yet.

In an analysis of 30 largest NZBA member banks in the U.S., Canada and Europe, S&P Global[27] reported that most had released 2030 targets covering oil and gas and power generation portfolios. Globally, target-setting and disclosures have gained considerable momentum and instil a degree of accountability.

Target setting is still at a nascent stage in India. Only 4 banks —HDFC, SBI, IndusInd Bank and YES Bank—have set a target of achieving carbon neutrality by 2030. Of these, only IndusInd Bank, YES Bank and HDFC's targets cover Scope 1 and 2 emissions; SBI does not specify any details in this regard.

Figure 11 | Net zero target



GHG Emissions

Only 10 out of the 34 banks have started the process of disclosing some of their GHG Scope emissions in FY 2021–22. This implies that close to 70% of the banks are still not disclosing/calculating their emissions. The limited CO_2 emissions disclosed stand at 23,71,371 tCO_2.

Among Scope 3 emissions, the most common categories reported were: employee-travel related expenses, electricity consumption and paper consumption.

Figure 12 | GHG emissions disclosure by the banks

Scope 1 and 2

Scope 3

BRSR Reporting

From FY 2022–23, it became mandatory for the top 1000 listed entities by market capitalisation to file a BRSR. Introduced in 2021, this format is in line with global reporting standards on environmental metrics. Of the 34 banks in CRH's analysis, only ten have voluntarily adopted the 2021 format for FY 2021–22.

22 of these banks have voluntarily published their BRSR as a part of their annual reports in FY 2021–22. Of these, 11 have

released their BRSR reports separately, while only SBI has adopted a mapping of BRSR principles in its sustainability report.

Figure 13 | BRSR reporting by the banks in FY 2021–22

Banks with climate-related risk policies

The conceptualisation and management of climate risks mandates creation of specific climate-related policies such as sustainability reports, ESG/sustainable financing frameworks, E&S policies and other such policies/ frameworks. In this assessment, around 12 of the 34 banks under this study have prepared such policies/frameworks.

Figure 14 | Banks reporting climate-related risks policies

Top 10 banks for FY 2021–22

YES BANK

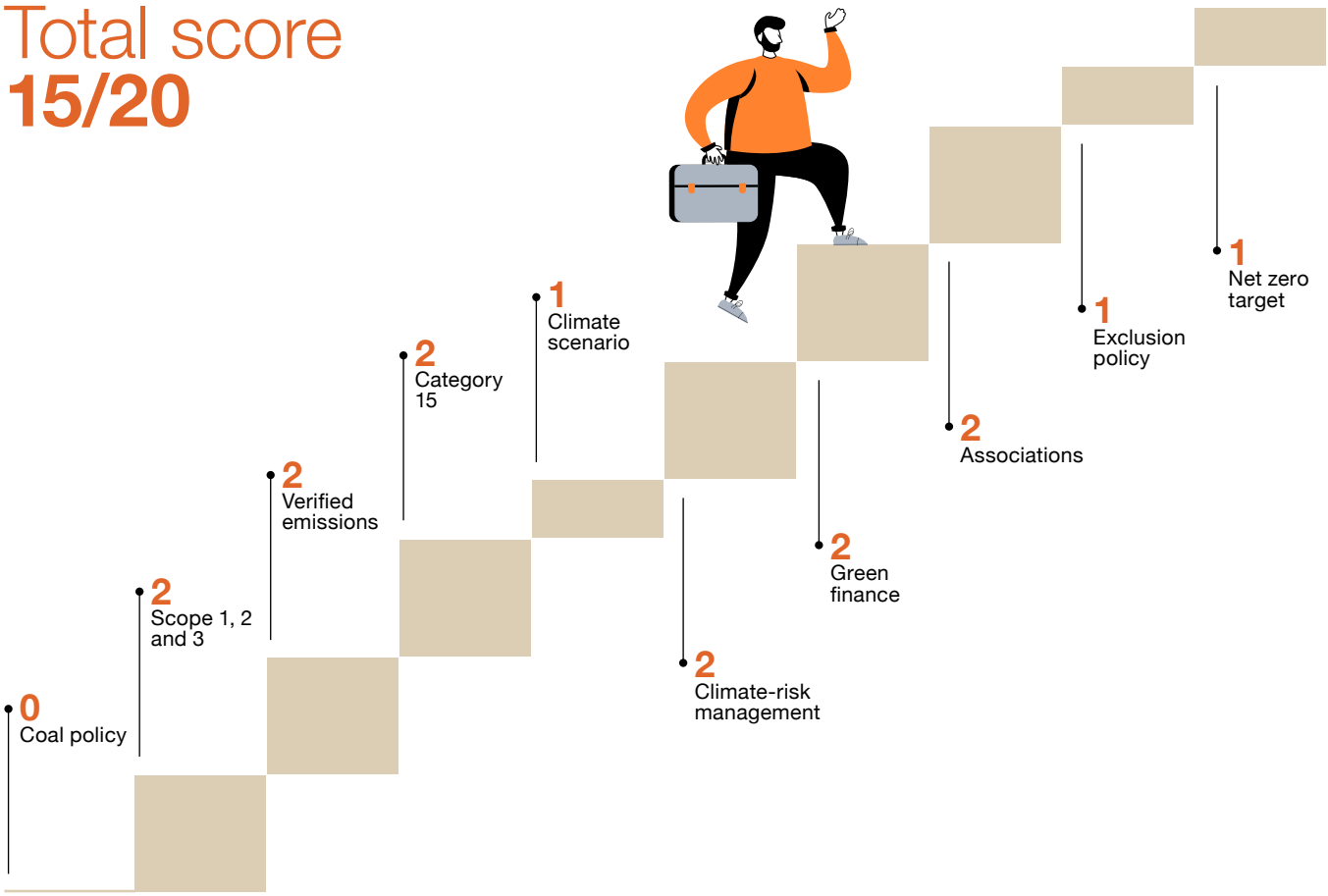
Yes Bank has retained the top position among the selected 34 banks for its climate-risk preparedness, based on information contained in its sustainability report.[28] However, the bank's score has not improved since last year's assessment.

YES Bank's calculation of its financed emissions, under category 15 of Scope 3, remains limited to its lending in the electricity generation sector. The promise to expand the ambit is yet to be met. The methodology is adopted from Partnership for Carbon Accounting Financials (PCAF)'s Global GHG Accounting and Reporting Standard for the Financial Industry.[29]

YES Bank is one of the few banks which has employed scenario analysis as a tool to calibrate risks. The scenarios explored are Business-as-Usual, 1.5 degree, well below 2- and 2-degree world. Climate risks have been recognised as a Pillar 2 risk by the bank. It has also prepared a climate-risk profile, identifying top 3 risks for itself: disclosures, environmental regulations and extreme weather events.
It has a defined governance structure to address ESG and climate risks. A dedicated Sustainable Finance unit is overseen by their Chief Financial Officer. There is also an executive-level Sustainability Council, headed by the MD and CEO, to govern the implementation of the bank's ESG agenda.
The bank has an Environment and Social Risk Management System[30] woven into its lending mechanism. Its Environment and Social Policy is the vehicle of mainstreaming these considerations into lending decisions. In 2022, it also published an Environmental Management Policy[31] which provides a summary of the bank's environmental goals. By 31 March, 2022, the bank extended green finance to the tune of ₹34,300 CR. These funds have enabled the installation of 7 GW of renewable energy.

However, the bank's net zero target of 2030 does not include Scope 3 emissions. Also, the bank did not participate in the voluntary BRSR disclosure as per the 2021 format. The bank's exclusion list continues to be inaccessible, rendering analysis impossible. The continued absence of a coal policy further remains a major failing for the bank.

Figure 15 | YES Bank score



HDFC BANK

The largest bank by market capitalisation, HDFC, retains its second place but with a higher score, due to the bank's explicit enumeration of its green finance corpus. As of 31 March, 2022, the bank's green finance totalled ₹14,389 CR—enabling an installation of 5,860 MW of renewable energy.

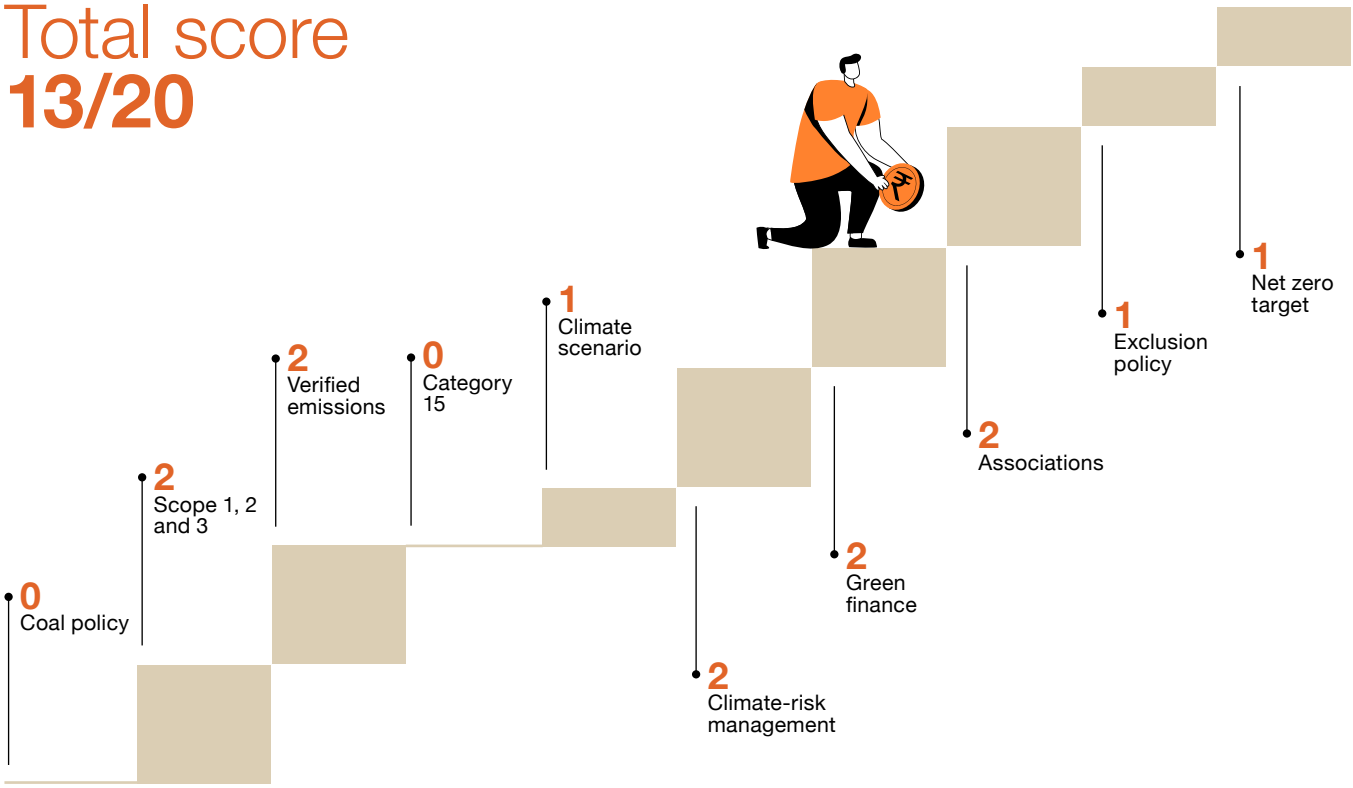
HDFC Bank's annual report (2022)[32] states that it has revised its definitions of Scope 1 and 2 emissions in FY 2022, which led to a marked increase over its emissions in FY 2021. HDFC Bank is one of the few banks to have adopted the latest BRSR disclosure format voluntarily.

Having adopted a Social & Environment Monitoring System (SEMS) framework for evaluation of infrastructure projects, the bank has screened 861 such loans in FY 2022. The bank mentions to have upgraded this framework with an emphasis on 'ESG & Climate Change Assessment'. The revised version is set to be incorporated in the Credit Assessment Memoranda (CAMs) to elevate engagement with these issues.

Learning from and/or partnering with international associations, and fostering collaborative efforts focused on global net zero transitions is a key signal of banks' commitment towards climate change.

The bank's exclusion list however continues to be limited, excluding new units producing/consuming ozone depleting substances. An exhaustive list of excluded activities remains unavailable. The bank has committed to becoming "32% carbon neutral by FY 2025, increasing this commitment to 50% by FY 2028." It aims to attain 100% carbon neutrality status by FY 2032. These targets are, however, restricted to Scope 1 and 2 emissions, with Scope 3 remaining a conspicuous omission. Moreover, the year used for baseline assessments of these targets has not been clearly stated.

Figure 16 | HDFC Bank score



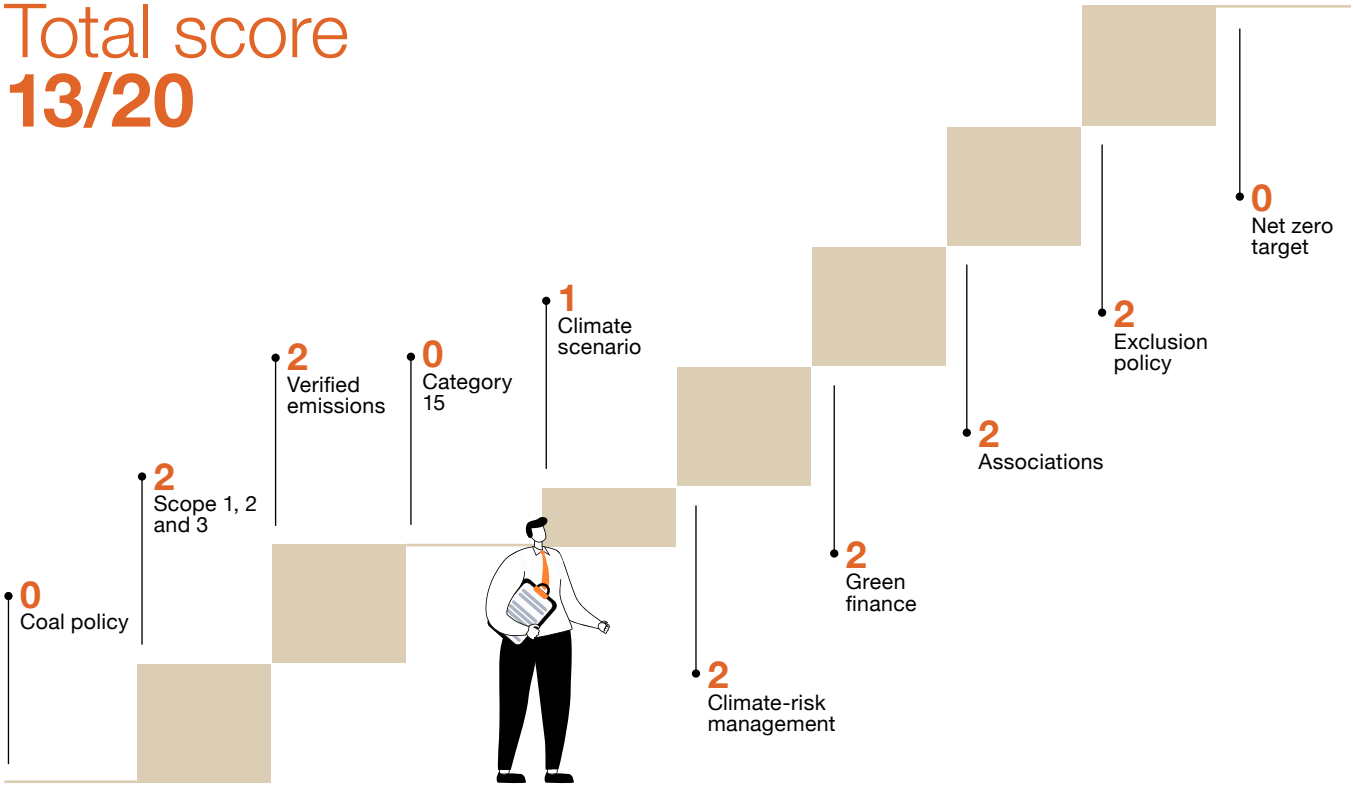
AXIS BANK

Axis Bank shares second place with HDFC Bank. It has instituted an ESG Committee at the board-level—the first Indian bank to do so, which helped it gain another point under the climate risk management criterion.

In September 2021, the bank issued Sustainable AT1 Notes worth USD 600 million in the overseas market.[33] These notes are a financial instrument used by banks to raise funds for their sustainability commitments. Its green corporate lending portfolio stood at ₹12,225 CR as on 31 March, 2022. The bank has made a series of ESG-related commitments, including, notably, a commitment to scale down exposure to carbon-intensive sectors: coal and thermal power.[34] While these sectors have been identified, the path and specific targets have not been prepared yet.

The bank has adopted a Sustainable Financing Framework.[35] It delineates specific activities eligible for funding under environmental and social categories. The financing mechanisms include bonds, loans and other debt instruments. The bank also has an exclusion list and an ESG policy for lending which was revised recently. The bank participated in the voluntary BRSR format released in 2021.

Figure 17 | Axis Bank score



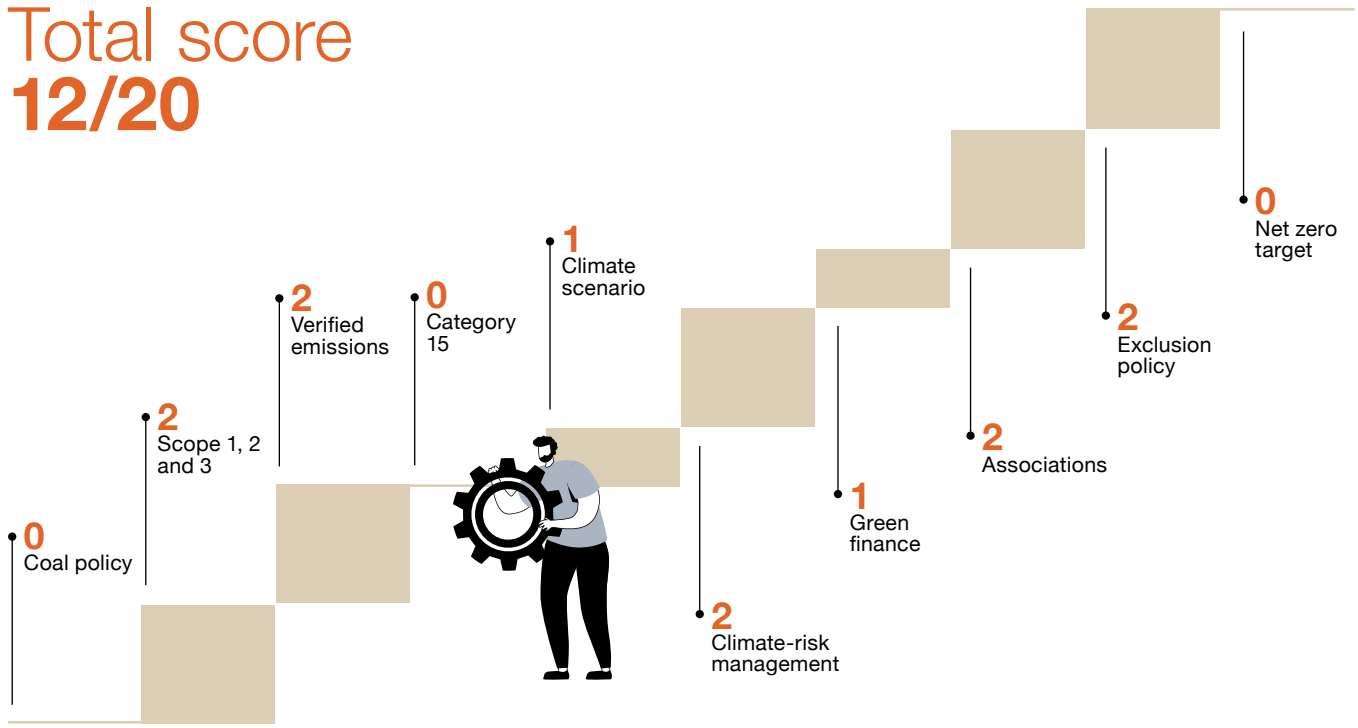
KOTAK MAHINDRA BANK

Though still in third position, Kotak Bank has gained a point by initiating a climate risk assessment exercise[36] under IPCC Representative Carbon Pathways 4.5 and 8.5 scenarios. The fourth largest bank by market cap, Kotak's quantum of green finances continues to be hidden from the public domain.

The bank has been reporting its verified GHG emissions under Scope 1, 2 and 3 emissions. Given its rank in market capitalisation, the lack of a net zero target is a glaring gap.

The bank introduced an ESG Framework[37] in 2022 detailing the various criteria covered by the bank: corporate governance, enhanced customer experience, empowered workforce and ESG Risk integration in risk management, managing climate risk, and community development. The document also describes the governance structure for ESG initiatives within the bank.

Figure 18 | Kotak Mahindra Bank score



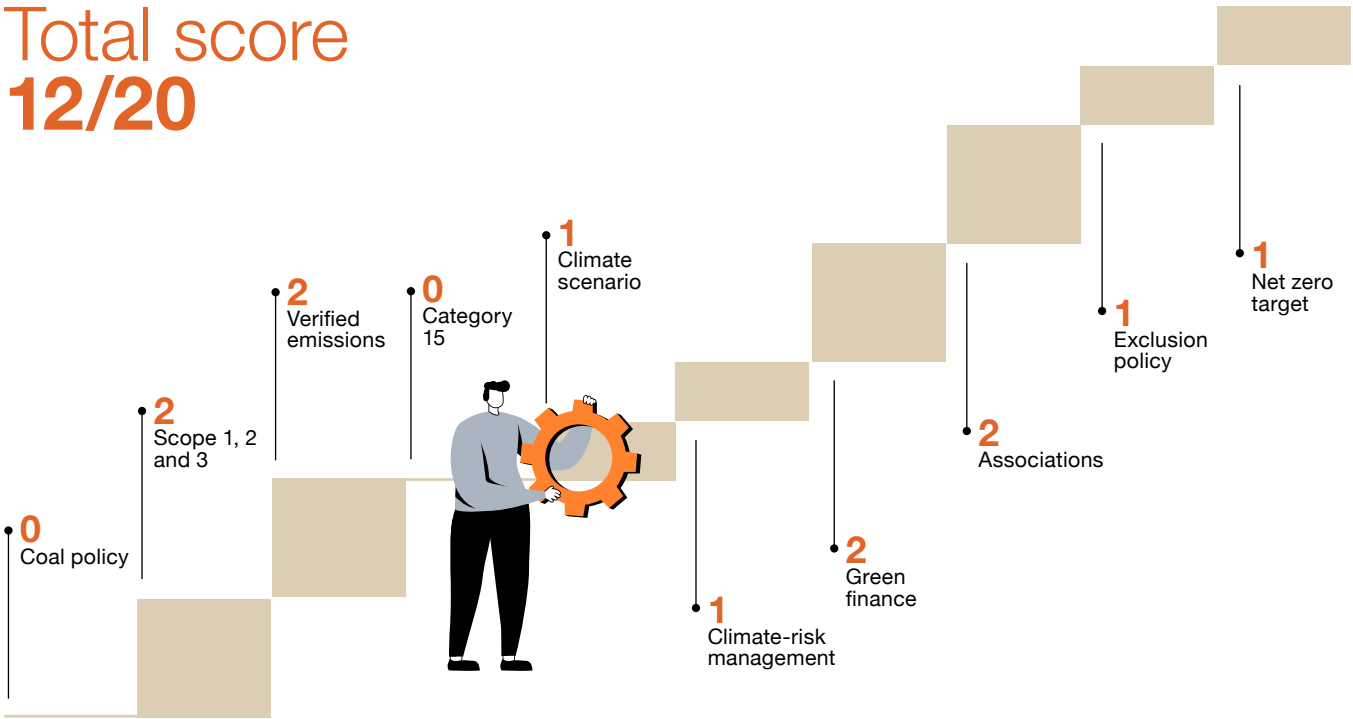
STATE BANK OF INDIA (SBI)

India's largest public sector bank, SBI gained three points over the last financial year to reach joint third position along with Kotak Mahindra Bank. Its incorporation of an ESG risk rating model[38] and a policy on climate change risk management received a point under this criterion. It has gained an additional

point under the criterion of climate scenario analyses (criterion 5) by expressing an intent to calibrate physical and transition risks arising from climate change. The bank does not lend to CFCs and ozone depleting substance industries, earning it a point under the criterion of exclusion policy (criterion 9). However, an exhaustive list of industries excluded from the lending policy continues to remain publicly unavailable, preventing any further scrutiny.

As of 31 March 2022, the bank's cumulative green financing stood at ~₹32,400 CR facilitating an installation of 6,900 MW of renewable energy. It is not clear over what time period this financing has been extended. The bank has also recently released an ESG Financing Framework[39] detailing its sustainability governance structure and list of projects eligible for financing.

Figure 19 | State Bank of India score



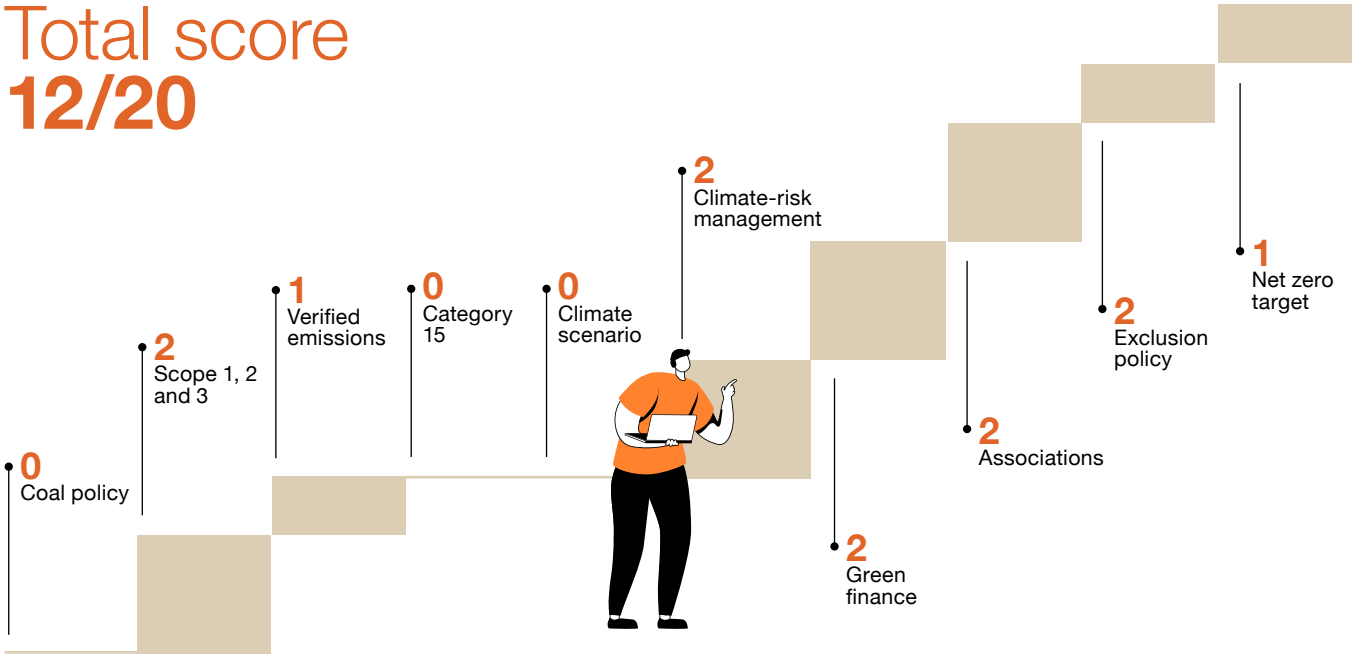
INDUSIND BANK

IndusInd Bank has lost two points over the last financial year, due to lack of information regarding financed emissions (which were mentioned in the previous FY) and the absence of an assurance letter verifying its emissions. This represents some regression for the bank which otherwise prides itself on its green credentials.

On the positive side, IndusInd Bank has adopted the latest BRSR disclosure format. In terms of green financing, ₹14,000 CR have been extended by the bank to install a cumulative capacity of 4500 MW of renewable energy.[40]

The bank introduced green fixed deposits[41] in FY 2021–22, which will finance projects aligned with the United Nations Sustainable Development Goals (UN SDGs). However, details of such projects have not been provided as the website link to more information takes the viewer to the usual fixed deposits offered by the bank.[42] While a comprehensive framework remains absent and the quantum of deposits received remains unknown, the bank has published a third-party assurance certificate for these deposits.[43]

Figure 20 | IndusInd Bank score



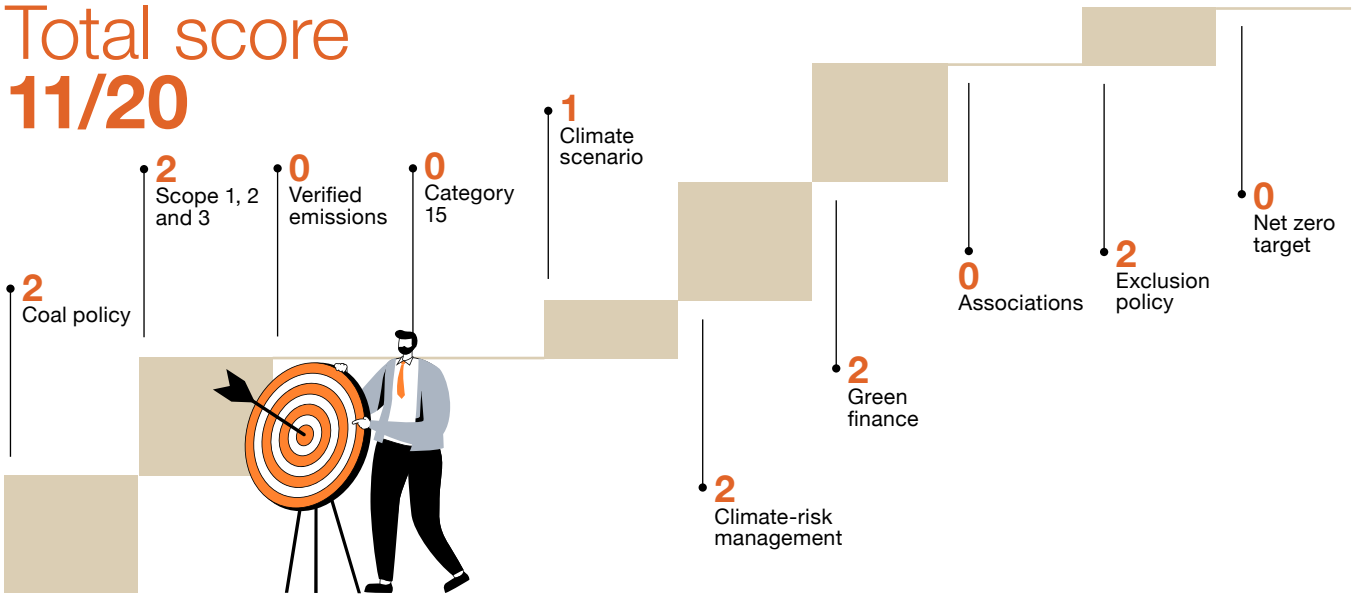
FEDERAL BANK

Federal Bank has climbed four points, making it the top gainer in this year's assessment. This improvement is due to the bank's disclosure[44] of its Scope emissions, its intent to undertake climate scenario analyses, and institution of an E&S committee at the board-level.

It continues to be one of the two banks having a clear stand on not financing any new coal powered projects, with a very comprehensive ESMS policy[45] in place. It defines terms such as 'green loans' and specifies an eligibility list. It goes a step further to enlist categorisation of risks used by the bank to screen various projects.

As on 31 March 2022, their green lending amounted to ₹2,502 CR which it aims to increase to ₹13,000 CR by 2025.

Figure 21 | Federal Bank score

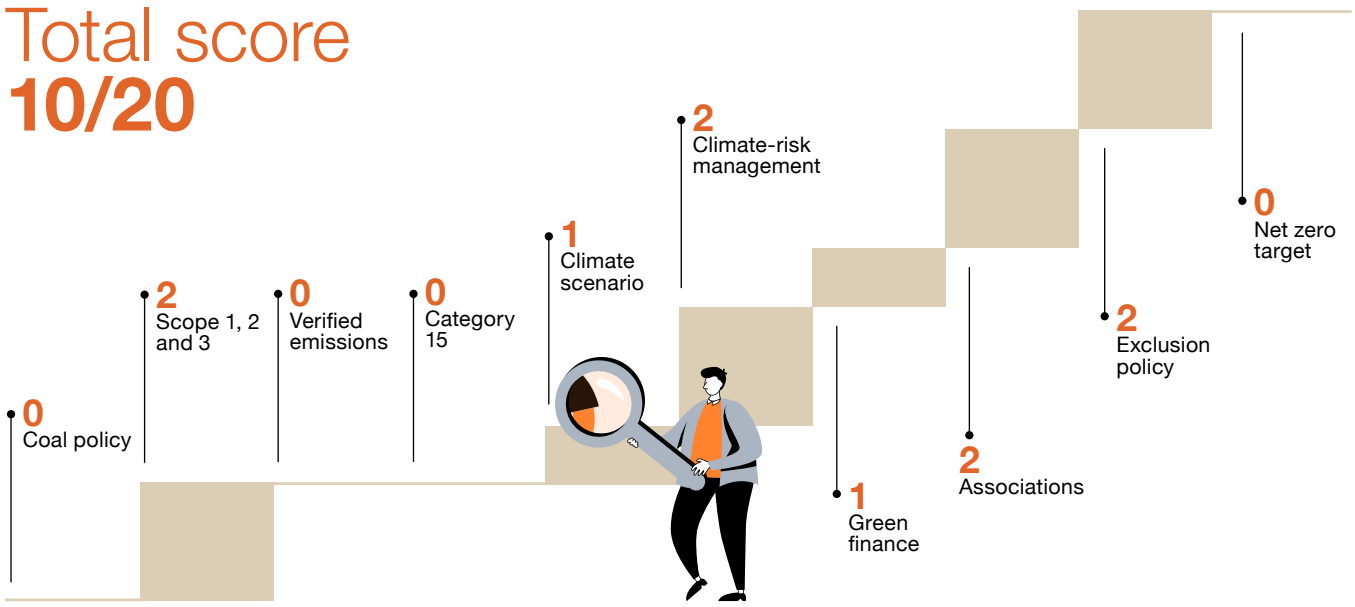


RBL Bank

RBL Bank has improved its position by one place. In August 2022, the bank became a supporter of the TCFD.[46] As a part of its E&S Risk Assessment framework, it also introduced a tool to calculate risks from extreme weather events to the operationality of any project.

The bank has an E&S team within the risk team to undertake due diligence. It also has an E&S policy[47] with a detailed exclusion list. While it made progress on these fronts, the verification of its reported emissions, the absence of an approach on financed emissions, and lack of a net zero target remain big omissions in CRH's assessment criterion.

Figure 22 | RBL Bank score

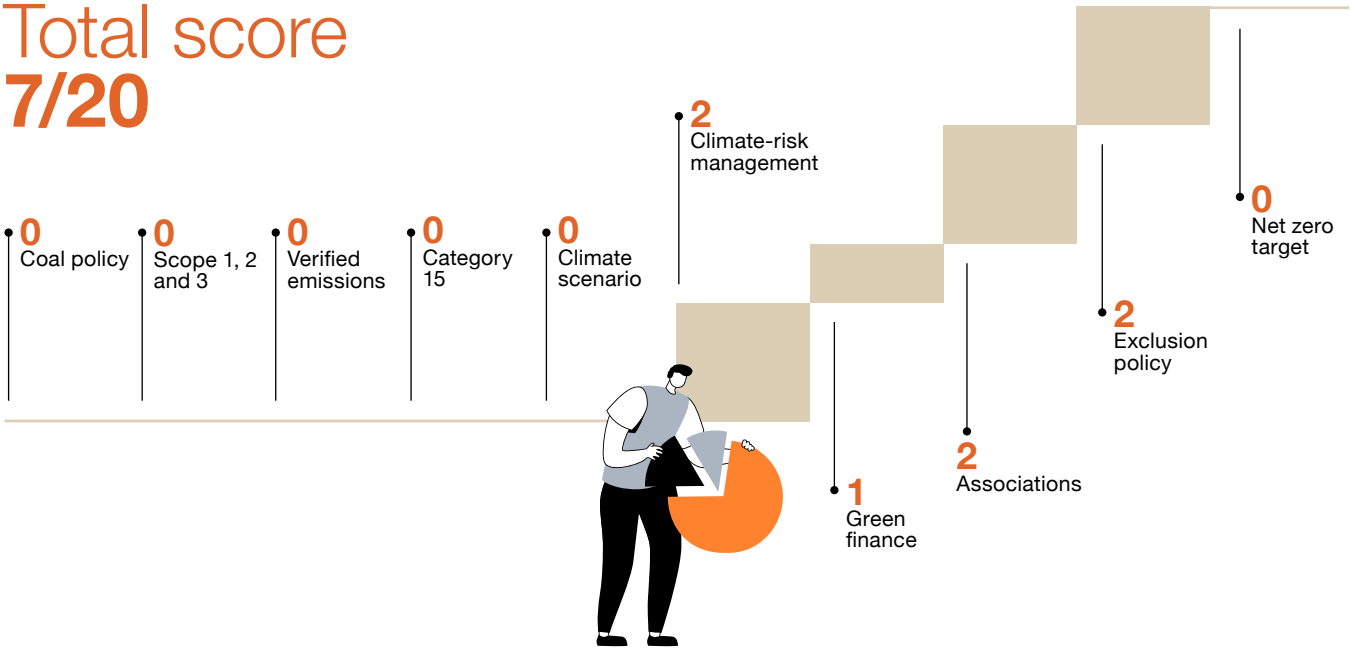


IDFC First Bank

IDFC First Bank slipped in its ranking owing to improvements undertaken by other banks. The bank's refusal to disclose[48] its Scope emissions and having them verified continued into FY 2022.

IDFC First Bank is the only one to have adopted the Equator Principles. A detailed exclusion policy and a dedicated ESG Committee add to the bank's merits. The bank employs an Environmental & Social Risk Management Framework and has an Environmental Risk group responsible for assessing E&S risks across financed projects.

Figure 23 | IDFC First Bank score



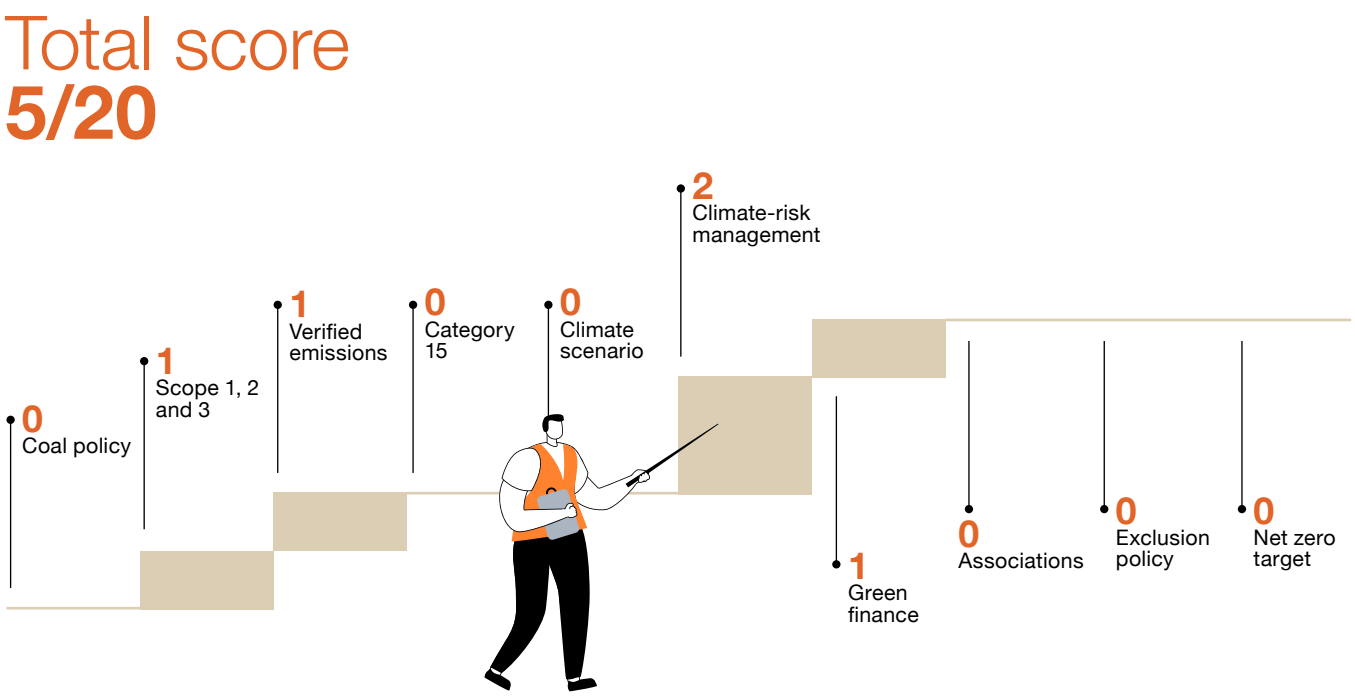
ICICI Bank

India's second largest bank by market capitalisation, ICICI Bank continues to perform poorly when it comes to its climate-risk preparedness. It retains a score of 5, and its tenth position for the second consecutive year.

The bank undertook its first materiality assessment to ascertain risks relevant for its stakeholders. Based on this assessment,[49] risks were classified under low, medium, and high-priority categories. Environment-related risks featured in the low and medium priority region. Carbon emissions and efficiency in operations and climate-risk in its loan portfolio were situated in the low priority. Given the growing evidence of the need to account for climate risks among financial institutions, the bank's assessment seems divorced from reality. The only two environmental issues accorded medium priority are green lending and sustainable sourcing/ procurement strategies.

The bank continues to disclose Scope 1 and 2 emissions only.[50] The bank disclosed having assigned a third party for verification but has not made the statement of verification available, and thus received a point under the third criterion of verified emissions. However, it lost a point under green financing since the amount has not been disclosed.

Figure 24 | ICICI Bank score



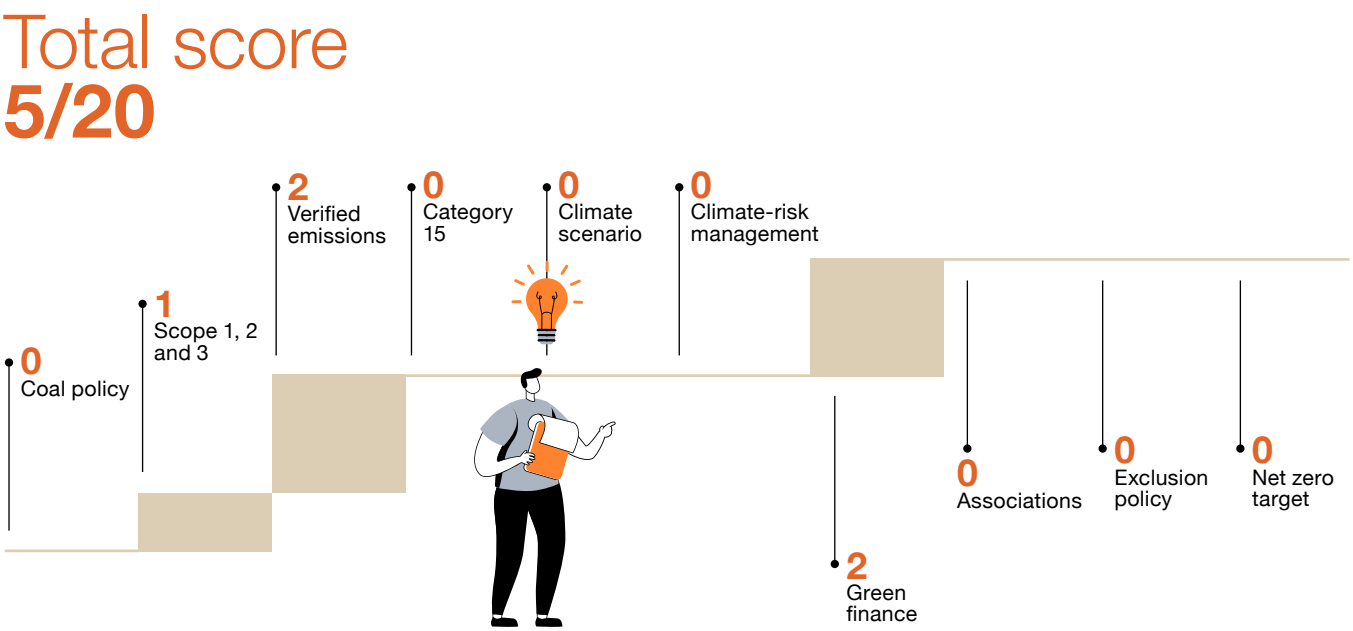
AU Small Finance Bank (AU SF Bank)

AU SF Bank's latest sustainability report[51] included an assurance statement for its Scope 1 and 2 emissions, taking the bank into the top 10 for FY 2021-22. This report is a first for the bank and complies with the Global Reporting Initiative framework. In the report, the bank voiced its commitment towards calculating its Scope 3 emissions beginning with the most common indicator: business travel by air. The bank undertook a materiality assessment which revealed the low priority accorded to environmental and climate factors. While 'climate risk' is an apparent medium-level priority for the bank, resource efficiency, social and climate product offerings are in the low priority quadrant.

The bank began calculating and disclosing its Scope 1 and 2 GHG emissions in FY 2022. It disbursed a total amount of ₹33.4 CR to seven renewable energy projects, giving it two points under the green finance criterion. While these initiatives are an indicator of progress, the bank still has much to work on other parameters. Climate resilience is quoted as one of the pillars of the bank's sustainability framework,

but most of their efforts are limited to digitisation, energy efficiency in operations, and in-situ waste management. Also, the intent to actively calibrate climate risk within its portfolio remains amiss.

Figure 25 | AU Small Finance Bank score

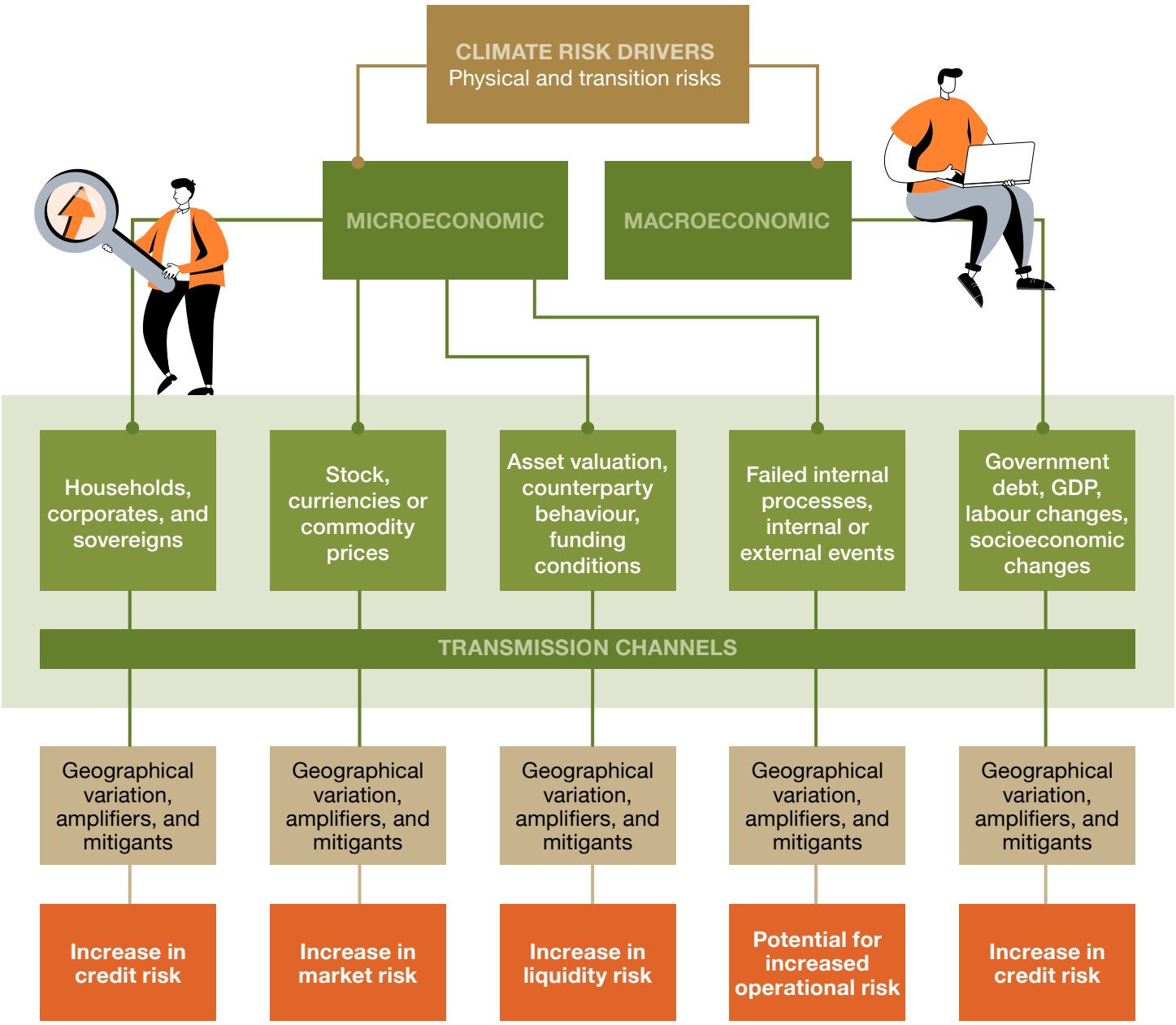


05 Mapping *of* climate-related risks to the Indian banking system

The Basel Committee on Banking Supervision (BCBS) has recognised that climate-related risks have a significant impact on the financial system, and that banks need to assess and manage these risks as part of their overall risk management framework. In its April 2021 report,[52] the BCBS explored how banks and the banking system are exposed to climate change through macro and micro-economic transmission channels that arise from climate-related risk drivers, viz. physical and transition risks as well as different factors such as geographical variation, amplifiers and mitigants which may determine the likelihood or size of impacts.

The report suggests that traditional risk categories such as credit risk, market risk, liquidity risk, operational risk, and reputational risk, etc., used by financial institutions and reflected in the Basel Framework can be used to capture climate-related financial risks.

Figure 26 | Climate risk drivers and transmission channels



Source | Compiled by CRH

The Basel Framework consists of three main pillars viz. **Pillar 1:** Minimum Capital Requirements; **Pillar 2:** Supervisory Review Process; **Pillar 3:** Market Discipline which are a set of international banking regulations developed by the BCBS. To promote effective management and supervision in climate-related financial risks in Basel Framework, the BCBS published 18 high-level principles in June 2022 for the effective management and supervision of climate-related financial risks.[53]

In line with these principles, it also published clarification on how climate-related financial risks may be captured in the existing Pillar 1 standards.[54] The BCBS is now examining the extent to which climate-related financial risks can be addressed within the Basel Framework by taking a holistic approach spanning the regulatory, supervisory and disclosure dimensions.

The RBI has instituted all three pillars of the Basel Framework in India, conducts regular stress tests on banks to assess their resilience to different scenarios, and has also recognised the importance of addressing climate-related financial risks. The Basel III standards require banks to assess their credit risk exposures and assign risk weights based on the nature of exposure, but does not explicitly refer to industry/sectoral distribution of exposures. Also, it does not prescribe specific risk weights for different industries or sectors.

RBI's guidelines on Basel III[55] require banks to use quantitative criteria to address credit concentration risk at the counterparty level (i.e., large exposures), at the portfolio level (i.e., sectoral and geographical concentrations) and at the asset class level (i.e., liability and asset concentrations). Banks are required to provide information on their gross and net exposure to each industry/sector (fund and non-fund),[iii] along with any concentration risk arising from these exposures. Banks are also required to disclose industries where their credit exposures exceed 5% of gross credit exposure. Such sectoral/industry exposure is a useful tool to gauge the credit risk exposure of the Indian banking system. However, in order to address potential systemic risks or vulnerabilities associated with particular industry/sector, RBI may choose to impose additional requirements or guidelines regarding industry/sectoral exposures. For example, carbon-intensive sectors.

CRH has synthesised potential climate change risks based on the sectoral exposure of Indian banks into a framework to understand material climate change risks and opportunities for Indian banks. See Figure 27.

iii Fund exposures refer to the direct exposure of banks via lending or investing in an industry, whereas non-fund exposures refer to the indirect exposure undertaken by banks via a commitment to lend in future such as issued letters of credit or financial guarantees.

Figure 27 | Climate risks to Indian industry sectors

Industry	Climate-related risks	Potential financial impacts
• Agriculture • Food manufacturing and processing • Insurance • Construction • Infrastructure • Tourism	**Directly exposed to physical risks** due to rising mean temperatures and precipitation, and increased severity of extreme weather events such as cyclones and floods: i. Damaged/low agriculture productivity and low food manufacturing and processing ii. Damaged infrastructure and facilities	i. Reduced revenue from decreased production/outputs and food inflation due to changes in food and vegetable prices ii. Reduced revenue and/or increased capital and operating costs, increased insurance costs, resilience/adaptation costs and/or early retirement of existing assets and write-offs Additionally, significant impact on some of key economic indicators like PMI, IIP, demand for electricity, supply chain interruptions, tourist arrivals, and tractor and automobile sales
Industry	**Climate-related risks**	**Potential financial impacts**
• Mining and quarrying • Cement and cement products • Basic metals and metal products • Paper and paper products and printing • Electricity, gas and water • Chemicals and chemical products • Petroleum, coal and nuclear fuels • Textiles • Woods and woods products Rubber and plastic products • Vehicles, vehicle parts and transport Additionally, these sectors are exposed to physical risks due to extreme weather events and rising temperature and sea levels depending on location of operations; hence also exposed to required adaptation activities.	Usually, industries associated with fossil fuels and other high carbon emitting firms are **highly exposed to transition risks** such as political and legal, technology, market, and reputation. These include: i. Increased carbon prices due to carbon/emission trading schemes and carbon taxes ii. Enhanced emissions-reporting obligations iii. Mandates on and regulation of existing products & services like energy efficiency standards in buildings and automobiles iv. Exposure to litigation v. Substitution of existing products and services with lower emissions options vi. Unsuccessful investment in new technologies vii. Cost to transition to lower emissions technology viii. Changing customer behavior ix. Uncertainty in market signals x. Increased cost of raw materials xi. Increased stakeholder concern or negative stakeholder feedback	i. Increased costs for high carbon emitters ii. Increased cost for data collection and disclosure requirements iii. Increased costs of meeting regulatory demand and/or reduced demand for such products and services iv. Cost of legal fines v. Reduced demand for existing products and services vi. Write-off and early retirement of existing assets. vii. R&D expenditure and capital investments in new and alternative technologies viii. Reduced demand for goods and services due to shift in consumer preferences ix. Abrupt and unexpected shifts in energy costs. x. Increased production costs and output requirements xi. Reduction in capital availability
Industry	**Climate-related risks**	**Potential financial impacts**
• IT and telecommunications • Financials • Healthcare	Generally, has low exposure to fossil fuels and are lower carbon emitters, however, are exposed to **both transition and physical risks** as above, including: i. Disruption in supply chain and operations due to physical damage to infrastructures such as data centers, power outages, etc. ii. Reduced or no access to customers to use services iii. Mandatory climate-related disclosure requirements, lending limits and policies to reduce carbon emissions iv. Default of investee companies v. Production and availability of medicines	i. Interruptions in production, delays in delivery and increased costs ii. Reduced revenues as well as negative customer feedback and retention iii. Increased costs of regulatory fines and/or legal fees, and cost of meeting disclosure demands iv. Increased NPAs and reduction in investment value v. Loss of sales and reduced revenues

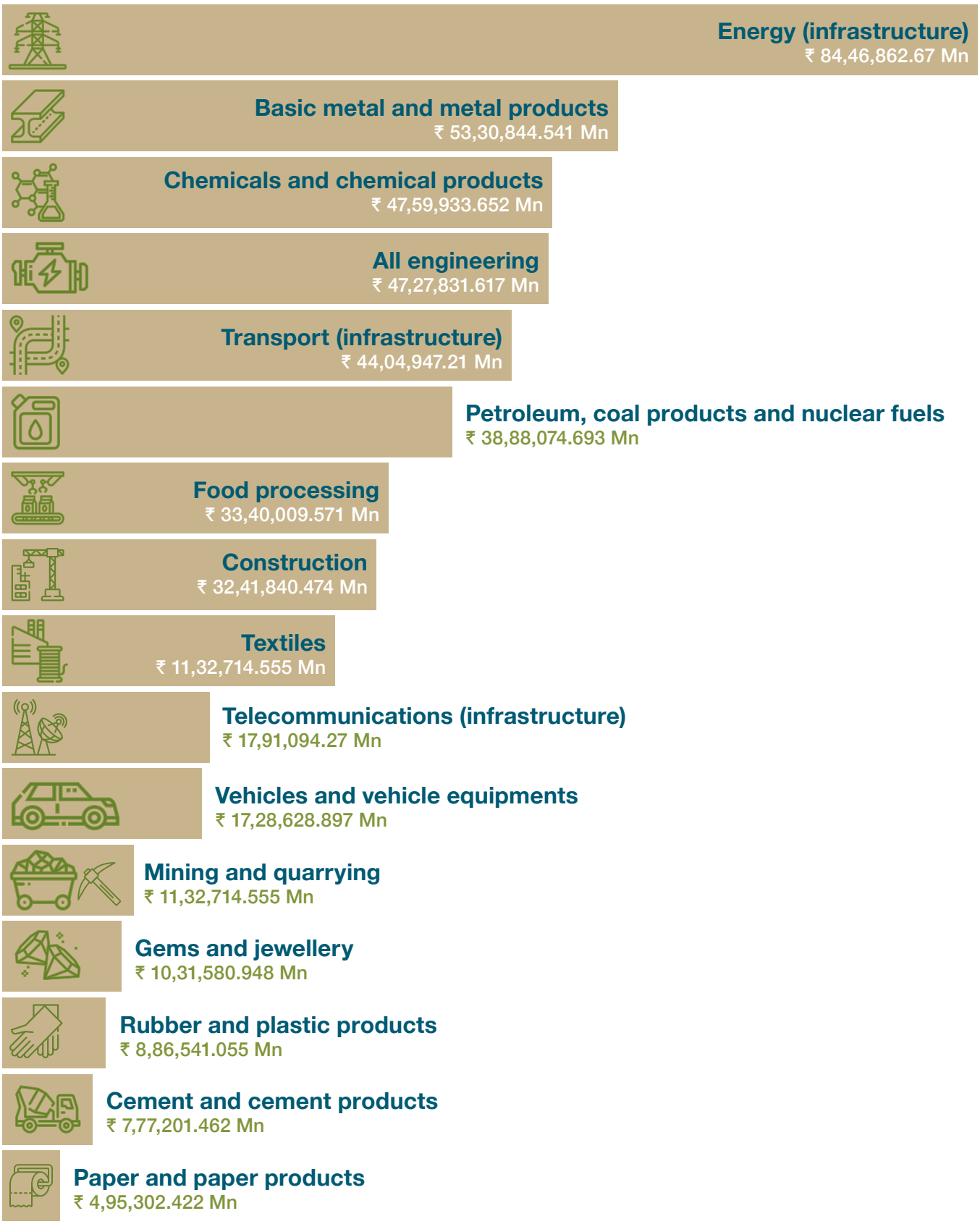
Source | CRH analysis

Based on the quantitative disclosures of India's 30 largest bank[iv] under Basel III standards during FY 2021–22, the major sectors in which banks have fund-based and non-fund-based exposures are infrastructure (sub-sectors: energy, transport and telecommunication), basic metal and metal products, engineering, chemicals and chemical products, petroleum, coal products and nuclear fuels, construction, food processing, textiles, vehicles and vehicle equipment, mining and quarrying, gems and jewellery, rubber and plastic products, cement and cement products, and paper and paper products.

These estimated exposures are in line with RBI's recent assessment[56] of climate risks, identifying the utility sector (energy in Figure 28) and metals as the sectors with most banking exposure. The energy sector includes electricity (conventional and non-conventional) and gas in this analysis. It is not clear how banks are differentiating, if at all, between energy/petroleum/coal/nuclear and the infrastructure (such as gas pipelines) for these industries.

iv *Remaining four banks (three small finance banks—Suryoday, Ujjivan and Equitas, and Fino Payments) have not been included owing to the small size of their exposures, solely in the financial industry.*

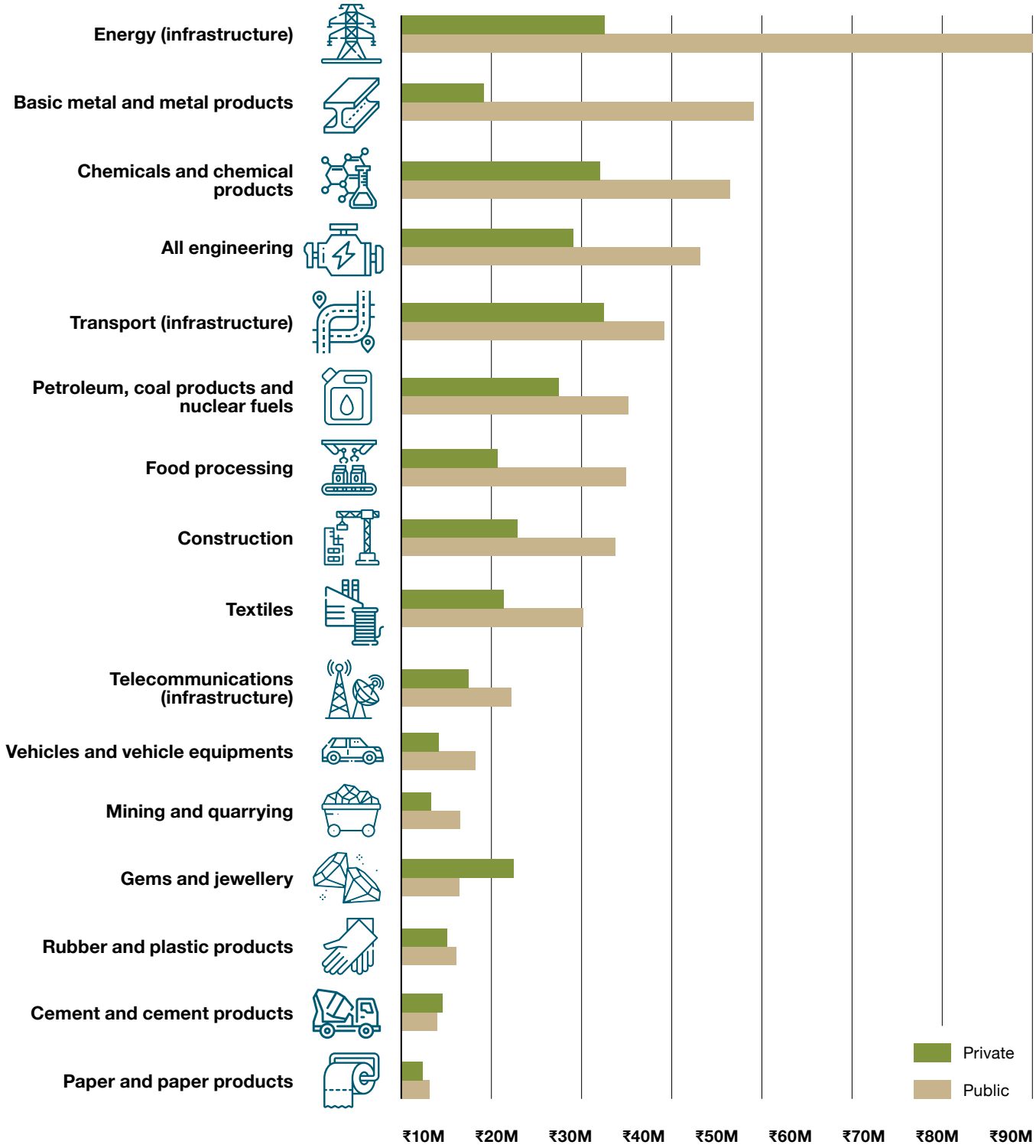
Figure 28 | Banks' exposures to industry sectors in FY 2021–22



Source | CRH analysis, Basel III disclosures by banks

A comparative analysis between private sector and public sector banks illustrates the following pattern in exposures:

Figure 29 | Public and private sector banks' exposures to industry sectors



Source | CRH analysis, Basel III disclosures by banks

Energy sector exposure is dominated by SBI overall, and by HDFC Bank among the private sector banks. SBI's energy sector exposure is, expectedly, dominated by coal. The 'mining and quarrying' sector is also dominated by SBI's exposures to coal mining.

This exercise of estimating banks' exposures is limited due to the many challenges in data availability and consistency in reporting. A key limitation is the variation in energy data disclosure formats adopted by banks. There are at least three levels of details for this sector. Some banks only provide 'Power' disclosures, used synonymously with 'Energy'. Others divide the 'Energy' sector into electricity generated, transmitted, and distributed separately. Only four out of the 30 banks enumerate their renewable/non-conventional energy exposures. The importance of the renewable energy segment for meeting India's decarbonisation goals warrants separate disclosures to track and quantify progress within the sector.

The exercise of estimating banks' exposures is limited due to the many challenges in data availability, consistency in reporting, and the variation in energy data disclosure formats adopted by banks.

Disclosing exposure to renewables as a separate sector will allow monitoring of banks' lending to clean power.[57] As Renewable Energy (RE) is under PSL scheme, this requires banks to loan up to ₹30 CR per annum; this goal is paltry considering the requirements and must be raised manifold to allow larger RE projects access priority financing.

UNEP FI has published a pivotal set of reports that elucidate climate risks in various sectors for financial institutions. Of relevance here is the UNEP FI's report published in April 2023

on the industrial sector[58] which lists and substantiates, with case studies, the transition and physical risks associated with the different industries FIs are exposed to. Each of the five transition and four physical risks listed are discussed in detail with reference to specific industries. For instance, a case study on Tata Steel India flags the introduction of carbon pricing as a downside risk to profitability, among other risks. Most industries in the industrial sector are carbon-intensive. With India's preparation for carbon markets,[59] pricing is set to impact the sector as a whole, which is evident in the framework provided by CRH in Figure 27. This is only one of the many risks that threaten business as usual in these segments.

The importance of the renewable energy segment for meeting India's decarbonisation goals warrants separate disclosures to track and quantify progress within the sector.

An example of other risks and opportunities that the report highlighted in case of India includes ban on polystyrene products such as plastic straws used for low-value beverage packs in July 2022, which increased costs between ₹0.25 to ₹1.25 as companies switched to imported paper straws. Similarly, a shift to green ammonia could help reduce the Indian Government's spending on fertiliser subsidies due to high and volatile fossil gas prices.

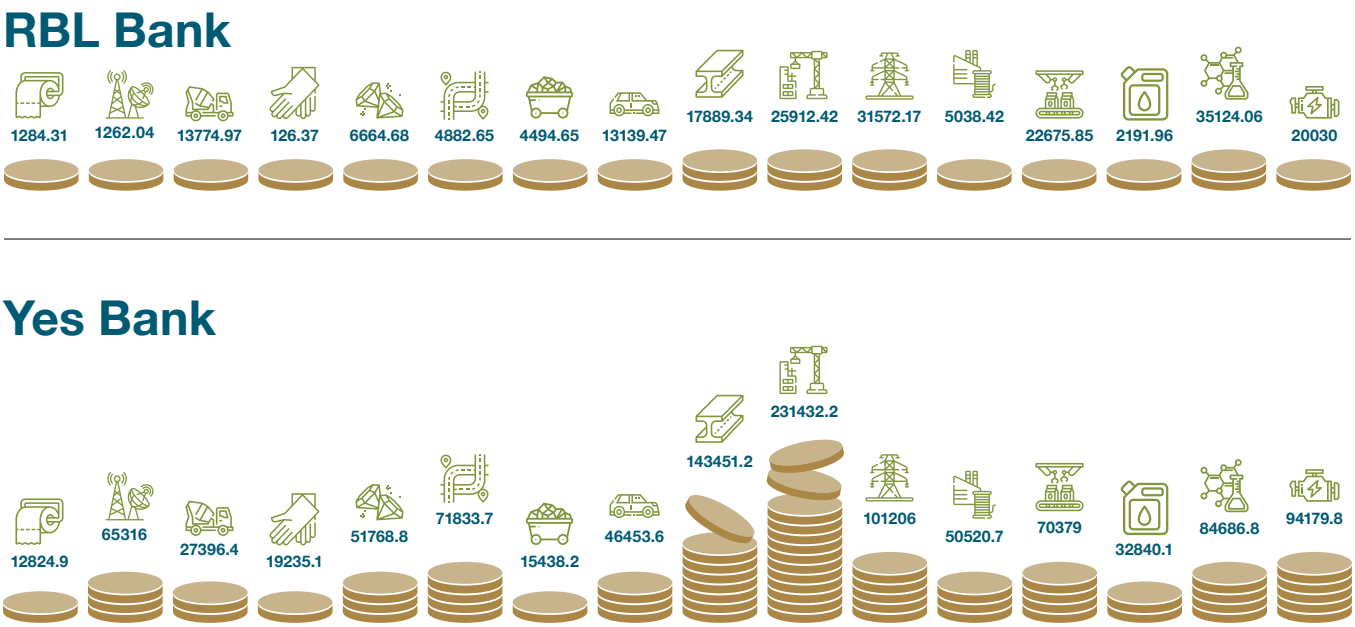
Similarly, regulatory and reputational risks arising from global movements against polluting industries will also increase the cost of capital. The most significant and directly applicable contribution of the report is the suggested set of questions FIs can use to assess risks as well as institute a prudential plan. This is a comprehensive guide for bankers to recognise and substantiate, at least in narratives, the risks to their portfolios and businesses.

Top 10 banks' exposure to industry sectors

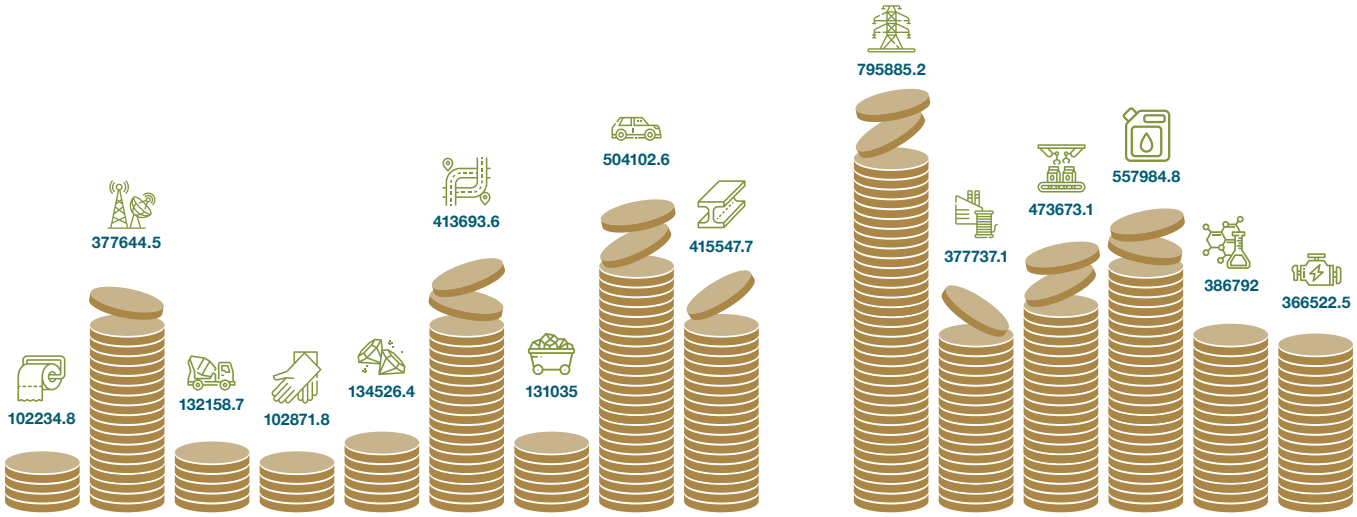
The top 10 banks are most exposed to energy (infra), chemicals and chemical products, basic metal and metal products, engineering, petroleum, coal products and nuclear fuels, food processing, construction, vehicles and vehicle equipment, and textiles sectors. Three banks stand out in their exposure levels: SBI, HDFC, and ICICI Bank. These banks have some of the largest exposures to carbon-intensive industries. Interestingly, the trio was also identified as domestic systemically important banks or D-SIBs by the RBI in January 2023.[60] This status effectively translates to these banks being 'Too Big To Fail (TBTF)', owing to their financial interconnectedness domestically. The size is a key indicator in identification; a bank larger than 2% of the GDP of India qualifies as a D-SIB.[61]

The trio's high carbon exposures are concerning for the economy at large. Moreover, none of the three have calculated their financed emissions or undertaken climate scenario analyses on their portfolios. Their status as D-SIB must warrant a sense of urgency in calibrating climate-related risks.

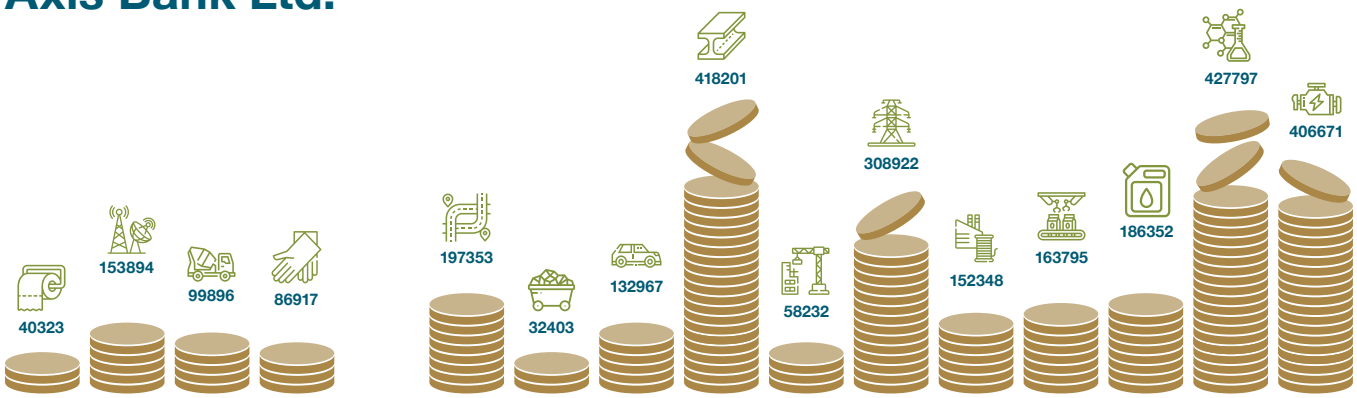
Figure 30 | Top 10 banks' exposure to industry sectors (₹ million)



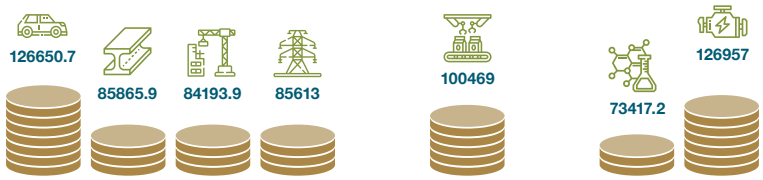
HDFC Bank Ltd.



Axis Bank Ltd.



Kotak Mahindra Bank Ltd.



Paper and paper products

Telecommunications (infrastructure)

Chemicals and chemical products

Rubber and plastic products

Gems and jewellery

Transport (infrastructure)

Mining and quarrying

Vehicles and vehicle equipments

Basic metal and metal products

Construction

Energy (infrastructure)

Textiles

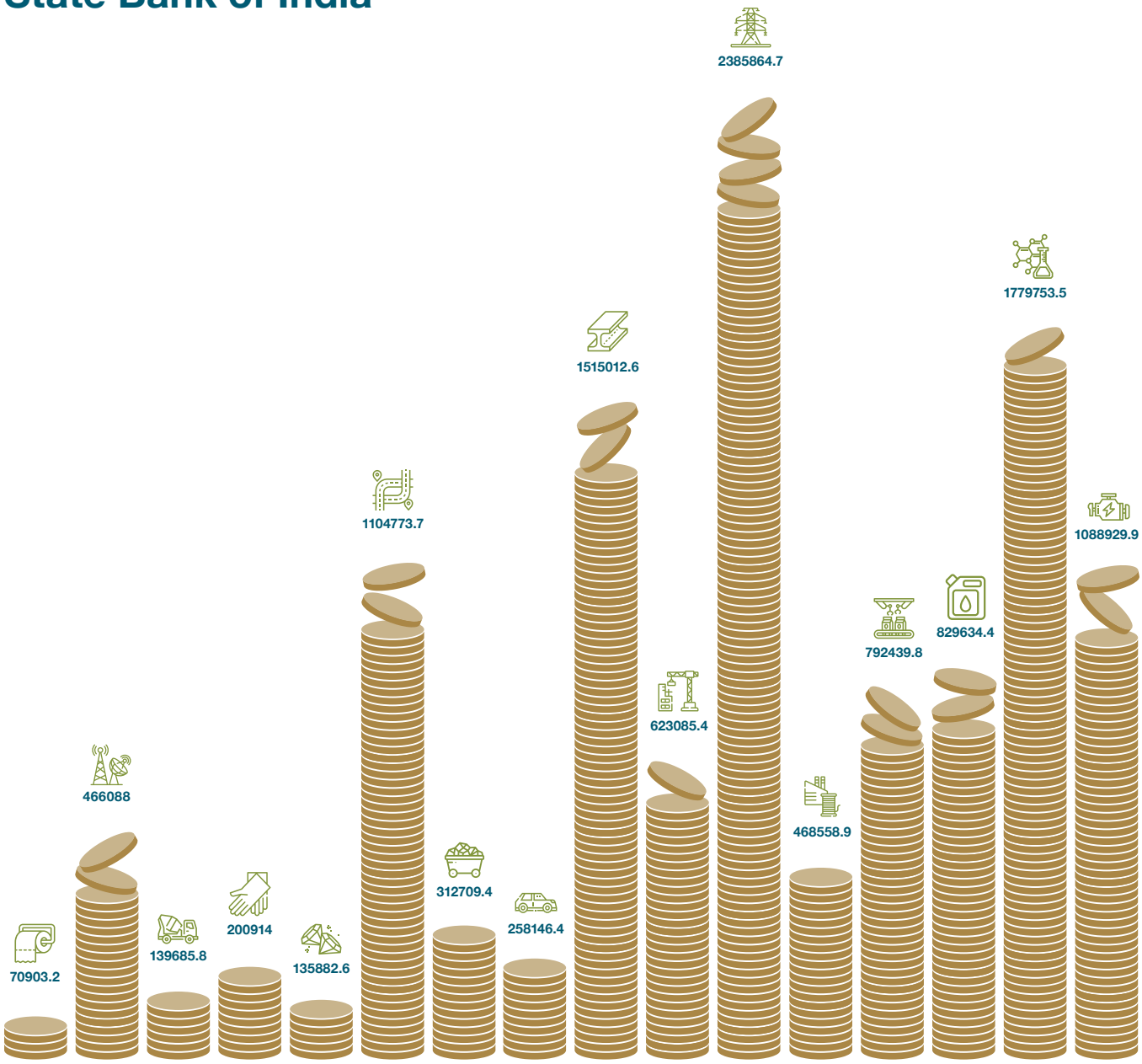
Food processing

Petroleum, coal products and nuclear fuels

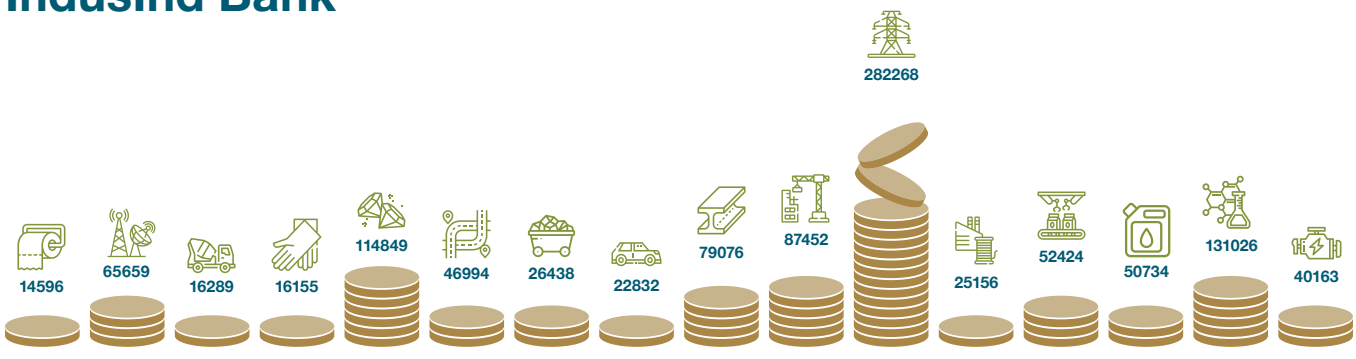
Chemicals and chemical products

All engineering

State Bank of India

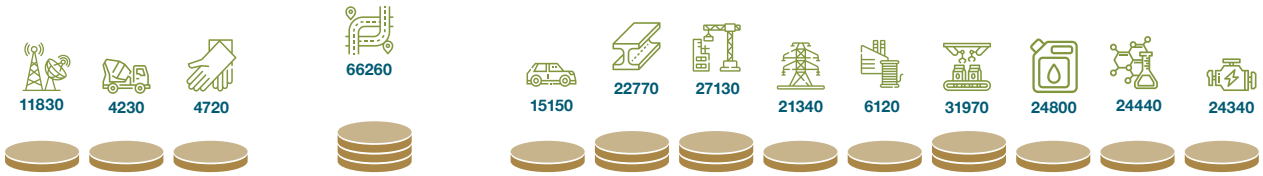


IndusInd Bank

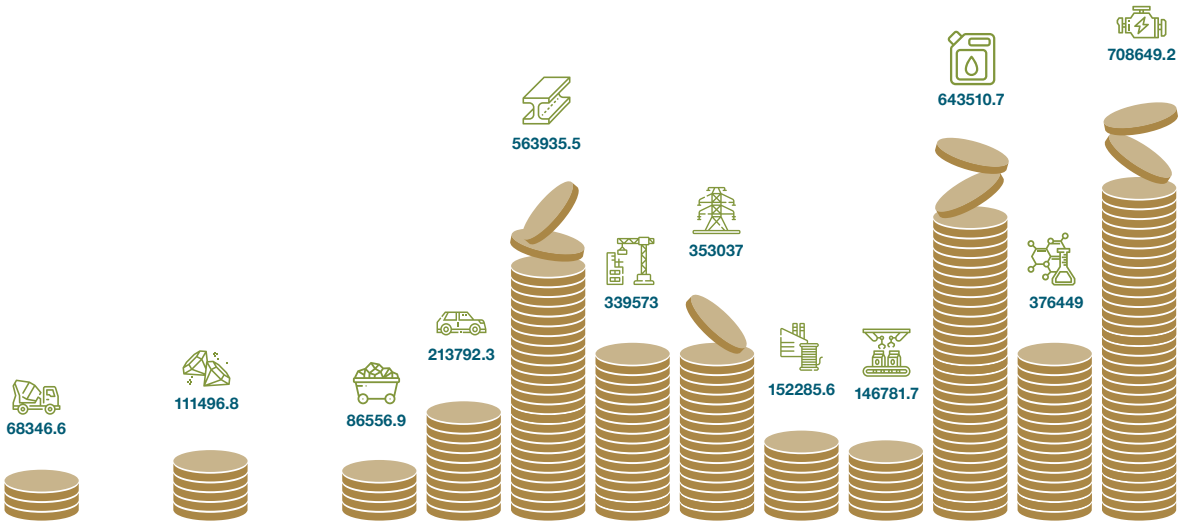


Federal Bank

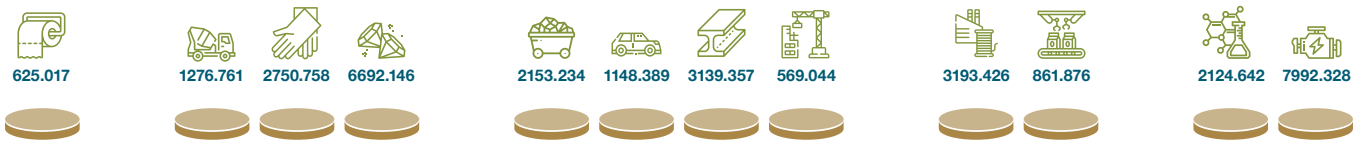
IDFC First Bank Ltd.



ICICI Bank Ltd.



AU Small Finance Bank



Paper and paper products
Telecommunications (infrastructure)
Chemicals and chemical products
Rubber and plastic products
Gems and jewellery
Transport (infrastructure)
Mining and quarrying
Vehicles and vehicle equipments
Basic metal and metal products
Construction
Energy (infrastructure)
Textiles
Food processing
Petroleum, coal products and nuclear fuels
Chemicals and chemical products
All engineering

Source | CRH analysis, Basel III disclosures by banks

Current Challenges in Industry Sector Data

The RBI requires banks to present their exposures by industry type as a part of quantitative Basel III disclosures. However, the format of these disclosures is not strictly prescribed. The sub-sectors listed by banks differ considerably. For instance, one bank may group and present its 'Food Processing and Beverages' sub-sector exposure under one heading. Another bank may mention its exposure to the 'Power Generation' sector separately, outside of Infrastructure. Few banks also list their 'Electricity' exposures as separate from 'Energy/Power'. Banks may also provide only broad sector totals such as 'Chemicals'. These variations leave room for confusion, misinterpretation, and double counting. For instance, the difference between 'Cement' and 'Construction' and what qualifies under each of these is not clear. Moreover, the absence of disaggregated data hinders the process of identifying the most risky exposures from a climate perspective. A uniform disclosure format, mandatorily filled by all banks, preferably in the same units, will enable a better understanding of climate risks across the banking sector. Identification of risky exposures is a crucial first step towards assessing risks for financial institutions. A transition plan can be instituted only once these basic data quality parameters are met.

To bring consistency in this assessment, this analysis converted all exposure values into "million ₹" for each bank. Given the focus on industrials' sector, the financial industry including NBFCs, Housing Finance Corporations and other similar entities, and the services industry (trade, shipping, tourism etc), were excluded from this analysis. A few banks also include Non-Performing Assets in the calculation of their exposures—no changes were made in such cases.

06 Key highlights *from* FY 2021–22

#01

A renewed focus on adaptation financing and physical climate risks

Many financial institutions have begun to incorporate climate risk considerations into their decision-making processes, and some have started developing new financial products and services supporting adaptation and resilience. As per the IPCC's latest assessment in 2022,[62] inadequate political frameworks and incentives, act as major barriers for both mitigation and adaptation finance. Although adaptation financing has grown faster than mitigation financing, it is severely underfunded as the methodology to assess adaptation finance is not as developed as that for mitigation.[63]

Efforts are being made at the global level to encourage calculation and assessment of physical risks. The latest Adaptation Gap report[64] (2022) presents an estimated need for adaptation finance among developing countries by 2030 based on their adaptation plans. The

range of finance required is between USD 160–340 billion, which is at least five times higher than the current levels. This glaring gap in financing was discussed at COP27.[65] However, COP27 pledged only ~USD 240 million[66] to the UN Adaptation Fund—about 30% lower[67] than the contributions announced at the previous COP summit.

The United Nations Environment Programme for Finance Initiative's (UNEP FI) latest reports, Adapting to a New Climate[68] and Physically Fit?[69] propose frameworks to aid adaptation finance and evaluate physical climate risks for financial institutions. The former provides a conceptual framework using a theory of change (ToC) to assess and address physical climate-risks for banks. The banks surveyed in the report identified agriculture, real estate, and land use and forestry as the sectors most at risk.

Adaptation financing has grown faster than mitigation financing, and is severely underfunded as the methodology to assess adaptation finance is not as developed as that for mitigation

Physically Fit? devises scopes for physical risks, viz. Scope 1 (risk of hazards that directly impact a financial institution's operations), Scope 2 (hazards that indirectly impact a financial institution's operations), and Scope 3 (climate-related hazards impacting beneficiaries of financial institution's products). Based on an assessment of financial institutions, including 109 banks, the limited use of scenario analysis for physical risks was flagged. Flooding and its impact on the real estate or mortgage portfolios were the most common physical risks among the few banks which undertook scenario analysis.

Thus, there is widespread acknowledgement of the problem at hand, and efforts are being made at the global level to encourage calculation and assessment of physical risks. This is a critical step to eventually ascertain accurate financing for climate adaptation, and close this gap.

#02

Net Zero—the gap between commitments and action

2022 saw a renewed focus on the commitments vs actions of financial institutions when it comes to net zero carbon emissions. Most banks are adopting the practice of paltering —using selective micro-truths to paint an overall misleading impression. In response to complaints, the UK advertising watchdog banned a series of misleading climate-related advertisements by HSBC.[70] Similarly, Canadian banks have been accused of failing to match their climate conduct to their commitments.[71]

Ongoing fossil fuel lending by banks that have made commitments to Net Zero have drawn scrutiny. The 43 banks which are part of NZBA (Net Zero Banking Alliance), together financed USD 111.6 billion in 2022 to the top 100 companies expanding fossil fuels.[72]

A 2023 report by Reclaim Finance flags the gap between commitments and action on net zero by leading global banks.[73] HSBC and Citibank are amongst the founding members of the NZBA.[74] These banks, amongst others, extended finance to the oil and gas industry soon after becoming NZBA members. Only 9 out of 161 members of the Glasgow Financial Alliance for Net Zero (GFANZ) have robust policies to exclude finance for new coal, with 52 more having some sort of policy that could exclude certain coal projects. The overwhelming majority lacks meaningful restrictions on any type of oil and gas financing.

Most banks are adopting the practice of paltering —using selective micro-truths to paint an overall misleading impression

In December 2022, HSBC announced an end of all direct finance for new oil and gas fields, while leaving the door open to indirect support for oil and gas companies involved in fossil fuel expansion.[75]

In January 2023, Danske Bank[76] committed to terminate its financing to oil and gas exploration and production companies with an exposure of over 5%. In June 2022, Danske bank was among the top 5 Nordic fossil fuel financiers, at USD 2.3 billion.[77]

While commitments are gaining momentum, 'backdoors' which slow down progress are a growing problem. Alliances such as NZBA focus on capturing on-balance sheet financing undertaken by the banks, leaving room for avenues such as underwriting[78,79] of bonds or shares. Stringency and transparency in disclosures is necessary to ensure meaningful commitments.

#03

Stress testing gets a boost

In November 2022, the Financial Stability Board (FSB) and Network of Central Banks and Supervisors for Greening the Financial System (NGFS) published[80] a comprehensive analysis of climate stress tests conducted by 53 institutions. Climate Risk Stress Testing (CRSTs) have seen more than an eight-fold increase, from four completed CRSTs in 2021 to 35 in 2022.

The FY 2021–22 was marked by the publication of results from some of the first CRST exercise: Autorité de Contrôle Prudentiel et de Régulation (ACPR)[81] with Banque de France,[82] European Banking Authority[83] (EBA) and European Central Bank[84] (ECB). These were subsequently followed by announcements and publications of many other CRSTs. Results of two latest and prominent CRSTs are summarised below:

- The Bank of England (BoE) published the results from its biennial exploratory scenario exercise conducted in 2021.[85] The results flagged a 10–15% dent in annual profits of banks and insurers upon failure to integrate climate risks. The projected losses under a late action scenario (climate action delayed by a decade) were 30% higher, costing an extra GBP

110 billion over a 30-year horizon. Carbon intensive industries such as mining and manufacturing were projected to cause the highest banking losses of around ~35%.

- The ECB published its results of an economy-wide climate risk stress effort in July 2022.[86] The losses incurred under an orderly transition scenario were significantly lesser than under the disorderly scenario for a 30-year time horizon. The three-year period for transition risks combined with two physical risk scenarios amounted to a loss of EUR 70 billion for the 41 banks in this study.

The US Federal Reserve is the latest central bank to announce a pilot for climate scenario analysis for six of the largest banks globally.[87]

In spite of these developments, there are many challenges regarding CRSTs. These are predominantly exploratory in nature and not quantitatively robust for strong conclusions. The granularity of data has improved, but is not yet truly robust. CRSTs also remain incomparable due to modelling differences. Lastly, the methodology for stress testing for climate risks is still under development.

#04

Progress on global climate disclosures

The climate-related disclosures space is evolving rapidly, both regionally and globally. This momentum in developing standardised disclosures is complemented by progress reports prepared by the FSB. A survey of 24 participating jurisdictions in July 2022 observed that 20 of these had promoted and instituted climate-related disclosures.[88] The Reserve Bank of India's (RBI) 2022 survey of the banking system and the Securities and Exchange Board of India's (SEBI) Business Responsibility and Sustainability Report (BRSR) filing regulation were mentioned as actions undertaken to institute climate-related disclosures.

Across the 20 jurisdictions, most guidelines and frameworks for the aforesaid disclosures referred to the TCFD recommendations. The challenge of interoperability of climate disclosures across jurisdictions was a common concern of respondents.

The RBI's 2022 survey of the banking system and the SEBI's BRSR filing regulation were mentioned as actions undertaken to institute climate-related disclosures in a survey by FSB.

The European Union's Sustainable Finance Disclosure Regulation (SFDR) warrants mandatory disclosures by financial firms which engage in creation of ESG related products. This effort to curb greenwashing within the sector was made stricter with the issuance of Regulatory Technical Standards (RTS) in 2022. These standards[89] defined the format and methodology of disclosure requirements more clearly. The RTS now mandates a disclosure on exposures to gas and nuclear power activities. These regulations have been in place since February 2023 onwards. The SFDR is being continuously refined with additional amendments[90] proposed in April 2023 that would include additional social indicators, better disclosure templates and technical adjustments. In June 2023, the European Supervisory Authorities (ESA) published[91] their common understanding of greenwashing alongside a progress report. The final report on greenwashing is set for release in May 2024, based on which changes will be incorporated in the EU regulatory framework.

The International Financial Reporting Standards (IFRS) is renowned for establishing global accounting standards. In November 2021, amidst the call for standardisation of climate-related and sustainability disclosures across countries, IFRS announced the establishment of the International Sustainability Standards Board (ISSB),[92] which draws upon the TCFD framework and the Sustainability Accounting Standards Board (SASB) amongst others.

In March 2022, the ISSB published two exposure drafts for public comment—one each for climate-related[93] and sustainability disclosures with illustrative guidance.[94] The board is expected to publish the finalised disclosure standards by the middle of FY 2023, which will be in effect from January 2024 onwards.[95] Climate-related disclosures will be the key focus when implementation begins, owing to the urgency expressed by investors—the ISSB Board announced[96] a one year 'transition relief' for companies opting not to disclose sustainability standards in 2024. The transition relief allows companies a year's time, after January 2024, to disclose Scope 3 emissions and adopt the Greenhouse Gas (GHG) protocol mechanism.

#05

Developments in the Indian Supervisory and Regulatory Space

Reserve Bank of India (RBI)

In the 2022 edition of the Green Central Banking Scorecard[97] of G20 central banks, the RBI's ranking has fallen by two places to 12. This may be attributed to inaction in devising a regulatory and supervisory framework on climate-related financial risks for the Indian banking system. However, the RBI is moving forward in this regard. In July 2022, the RBI released a draft discussion paper on climate risk and sustainable finance[98] for public comment. One of the essential contributions of this paper was to standardise the adoption of the TCFD framework amongst Regulated Entities (REs). A tabulated version of TCFD disclosures was annotated with examples to foster a degree of comparability across REs in India.

Underscoring the country's innate vulnerability to physical risks, the RBI deputy governor,[99] emphasised the importance of finance to support the net zero transition in December 2022. Some key points raised by the deputy governor were the need for a standard, comparable framework for disclosures, scarcity of granular data to calibrate risks, the long-termism of climate change inducing modelling hurdles, and modification of prudential policies to regulate climate risks.

The RBI, in its Financial Stability Report of December 2022,[100] discussed the risk of climate change at length. It also featured the results of the 23rd round of Systemic Risk Survey conducted by the RBI in November 2022, which revealed an increased concern over climate-related risks.

In January 2023, the RBI governor,[101] highlighted the importance of cooperation in climate financing for a greener economy in the vulnerable South Asia region, which according to the IFC would be over USD 410 billion, USD 670 billion and USD 1.5 trillion respectively for renewable energy, greening the vehicle fleet and making future building stock green and resilient to climate change risks. He has promised that the central bank will be publishing guidelines for regulated entities on green deposits, climate-related financial disclosures, and most importantly climate scenario analysis and stress testing.

One of the most significant developments over the last year was the introduction of India's Sovereign Green Bond framework[102] by the Ministry of Finance. The framework is aligned with the International Capital Market Association's (ICMA) green bond principles and covers four components. It lists 10 categories of projects eligible for financing via green bonds and specifies an exclusion list that includes most fossil-fuel based projects, other than Compressed Natural Gas (CNG) for transport.

As of June 1, 2023, the RBI's framework for green deposits[103] has gone into effect. This framework aims to regulate and streamline the market for green deposits and ensure that the funds collected are actually used to finance green projects. RBI's framework provides a list of eligible green financing activities, as the country currently lacks a green taxonomy. To use the proceeds from green deposits, regulated entities (REs) must have a board-approved policy and financing framework, as well as undergo third-party verification. However, there are no tax or interest rate incentives for depositors. Considering the urgent need to generate large financial flows to meet India's climate goals, there is a strong argument for either tax or interest rate incentives to drive the growth of green deposits. Compliance costs, such as providing third-party assurance of financed green activities, may act

as a deterrent for REs themselves. More effective policy measures should include an exhaustive taxonomy and/or making 'green' projects a priority-sector as well as expanding the existing Priority Sector Lending (PSL) scheme by including other green sectors (like EVs, battery storage, green hydrogen, etc.).

Considering the urgent need to generate large financial flows to meet India's climate goals, there is a strong argument for either tax or interest rate incentives to drive the growth of green deposits.

The RBI's Report on Currency and Finance[104] released in May 2023 focuses on climate change and its impact on the economy. The report features details on exercises undertaken to assess the climate-related financial risks that the banking sector is exposed to. Based on energy intensity and a green-brown industry classification, Indian banks are highly exposed to the utilities (electricity generation, transmission and distribution) and metals sector. Public sector banks are most exposed to the conventional energy sector while transport operators corner a high share of the private banks' exposures. This analysis has been decomposed spatially at the state-level. Growth rates of lending to green industries have outpaced the growth in lending to brown industries since the announcement of the former's PSL status, due primarily to the low base effect. However, gross non-performing assets in green industries have also grown more than in brown industries. This assessment was layered with climate risk perceptions through an anonymous survey of 20 financial institutions. Respondents identified 'petroleum, coal and mining' and 'vehicles' as sectors most at risk from climate change.

Finally, the report features a key exercise—a climate stress test for Indian banks. It used a stranded assets approach, i.e., measurement of climate risk based on the returns of a portfolio of underutilised fossil fuel reserves, with lower returns indicating higher transition

risk. The report uses the NIFTY Energy Index and Coal India returns to compute expected capital shortfalls for the banks. Public sector banks were found to be at a greater risk of large capital shortfalls due to an adverse climate shock. Though a preliminary exercise, it did not explore scenarios or enumerate the financial costs of transition risks as is the case for stress tests undertaken by other central banks.

Securities and Exchange Board of India (SEBI)

SEBI has been increasingly active in developing and issuing regulations on disclosures related to green debt securities.

In April 2022, SEBI mandated that the utilisation of proceeds from green debt securities be verified by the report of an external auditor.[105] In May 2022, SEBI constituted an advisory committee on ESG matters[106] for (i) enhancement of BRSR, (ii) ESG Ratings, and (iii) ESG investing. This committee consists of 20 members, out of which only one member institution is environment-related which is The Energy and Resources Institute (TERI). The committee also lacks representation from social institutions. To have a diverse and cross-functional committee that can work cohesively to develop and implement effective ESG disclosures, it is necessary to increase the representation of institutions active in the environmental and social space such as NGOs, social science institutions, etc.

SEBI's advisory committee lacks representation from social institutions to develop and implement effective ESG disclosures.

In August 2022, SEBI sought comments on a consultation paper[107] on the viability and scope of green and blue bonds. SEBI undertook a review[108] of the consultation paper in December 2022 and expanded the definition of green debt securities to include pollution controls and 'eco-efficient' products. It also introduced blue bonds (related to water management and marine sector), yellow bonds (related to solar energy) and transition bonds as sub-categories of green bonds.

While the fundamental aspect of any green bond is to fund environmentally beneficial projects, in the case of the marine sector, most economic activities have the potential to cause significant ecological harm. SEBI has already attracted scepticism[109] by including deep sea ocean mining, which studies have shown is potentially problematic.[110,111]

Similarly, according to the IPCC's mitigation of climate change report,[112] geo-engineering techniques such as ocean fertilisation could lead to significant adverse consequences on marine ecosystems. Attracting capital for such problematic areas should be avoided.

The SEBI NCS Regulation, 2021 was amended twice in February, 2023 to state that an issuer desirous of issuing and listing green debt securities shall comply with conditions as may be specified by the SEBI Board,[113] and that the disclosure framework for green debt securities must align with the updated Green Bond Principles (GBP).[114] This included details pertaining to: (i) alignment of projects with relevant taxonomies, (ii) green standards or certifications at both India and global levels, (iii) alignment of the objective of this issue with India's Nationally Determined Contributions (NDCs) in case the proceeds are raised through transition bonds, (iv) an indicative estimate of distribution of proceeds raised between financing and refinancing of projects and/or assets, (v) the perceived social and environmental risks and proposed mitigation plan associated with proposed project(s) to be financed/refinanced, (vi) appointment of an independent third party reviewer/certifier, its process including project evaluation and selection criteria, project categories eligible for financing, etc. Appointing a third party reviewer/certifier is applicable on a 'comply or explain' basis for a period of two years, (vii) impact reporting on a project-by-project basis including reporting standards or taxonomies used with regard to reporting of environmental impact. Verification of internal tracking and impact reporting shall be done by appointing a third party reviewer/certifier applicable on a 'comply and explain' basis for a period of two years, and (viii) ensuring compliance on do's and don'ts related to green debt securities to avoid greenwashing. All these additions shall come into force for all green debt securities launched after April 1, 2023.

SEBI has also issued a circular on avoiding greenwashing via green debt securities.[115] As a step towards combating instances of greenwashing, the circular is largely an advisory guideline, lacking an enforcement mechanism or a mitigation protocol.

In March 2023, the SEBI Board[116] approved key proposals from two consultation papers on ESG Disclosures, Ratings and Investing[117] and a Regulatory Framework for ESG Ratings Providers (ERP) in the Securities Market.[118]

As a step towards combating instances of greenwashing, the circular is largely an advisory guideline, lacking an enforcement mechanism or a mitigation protocol.

- SEBI introduced BRSR Core disclosures, which contains a limited set of Key Performance Indicators (KPIs), for which listed entities shall need to obtain reasonable assurance. It is also a glide path for BRSR Core beginning with the top 150 listed entities (by market capitalisation) from FY 2023–24, gradually extending to the top 1000 listed entities by FY 2026–27.

- Implementation plans for ESG disclosures as per BRSR Core have been proposed for the value chain of the top 250 listed entities (by market capitalisation) from FY 2024–25 (assurance not mandatory) to FY 2025–26 (assurance on comply-or-explain basis).

- ESG Rating Providers (ERPs) will be required to consider India/Emerging Market parameters in ESG Ratings. ERPs may also offer a separate category of ESG Rating called “Core ESG Rating’’, based on the parameters under BRSR Core.

- On ESG investing, the Board has mandated (i) ESG schemes to invest at least 65% of AUM in listed entities, where assurances on BRSR Core are required, (ii) third party assurance and certification by Board of AMCs on compliance with objective of the ESG scheme, (iii) enhanced disclosures on voting decisions with specific focus on environmental, social and governance factors, (iv) disclosure of fund manager commentary and case studies highlighting the application of ESG strategy on the fund/investments, and (v) introduction of a new scheme category, to launch multiple schemes on ESG related factors.

Assurance is an important tool in ESG schemes because it provides independent third party validation of ESG performance data. A comprehensive BRSR along with BRSR Core will provide important ESG-relevant data. ESG schemes should invest 100% of AUM in companies which are reporting with assurances on both BRSR Core and comprehensive BRSR disclosures.

A notable gap in SEBI's definition of ESG ratings is that it is not clear what is considered 'material' information as part of the ESG profile of an entity or security.

A notable gap in SEBI's definition of ESG ratings is that it is not clear what is considered 'material' information as part of the ESG profile of an entity or security. ERPs should consider rating material risks to companies which threaten their targets or goals, as these are relevant to investors. For example, they should consider the materiality of each factor, which means they assess the importance of each factor to a company's long-term financial performance and its environmental and social sustainability. Also, the definition is not clear about the perspective of 'double materiality' in the context of climate-related information.

Normally, ERPs consider only ESG factors that may pose a threat or opportunity to a business, known as single materiality. This does not tell anything about how "green" a company's business practices are, but only how vulnerable its earnings may be to ESG risks. The definition of 'double materiality' in measuring an entity's/rating products' scoring should be clear.

Considering SEBI's intent to encourage start-ups/new entrants to join the ESG rating industry, the regulator has categorised ERPs as Category-I and Category-II based on net worth, nature of services offered, size of the balance sheet, etc. This action could hamper the credibility of ESG ratings provided by Category-I ERPs. As Cat-II would be incapable and inexperienced in using proprietary systems, algorithms, metrics, research teams, and sources of non-financial information as well as transparency in methodology, it would be difficult for investors to clearly assess a true ESG product. This could lead to mis-selling and greenwashing.

One suggestion to avoid such a situation would be to consider Cat-II only for mid-cap, small-cap, and state-owned companies which are not large-cap entities' (i.e., market capitalisation of ₹20,000 CR or more). Also, ratings provided by Cat-II ERPs should be clearly indicated as 'Cat-II ESG rating' in marketing or advertising campaigns or visuals to clearly differentiate from the higher quality Cat-I ERPs.

Overall, while the regulatory space in India is still evolving with respect to climate and ESG-related risks, there is a need for more robust protocols and stringent guidelines to aid development of the sector and prevent greenwashing.

07 Conclusions

Despite encouraging small steps in the right direction on part of a few key banks, the Indian banking sector as a whole remains largely unprepared to deal with the impacts of climate change. The RBI's growing concern over this issue is yet to manifest in mandatory regulations.

As a result, Indian banks are lagging both in terms of assessing material risks they face from the climate crisis, and managing the risk their operations pose to the climate. While it is true that this is an emerging field and even banking systems in developed economies are behind the curve, this cannot be an excuse for inaction, particularly as India will, unfortunately, be harder hit by climate change than the richer countries.

As with most remedial measures, measurement is the first step to managing climate risk. Most banks are still far from being able to calculate their own Scope emissions. Basel III disclosure formats vary across banks, making any comparative exercise difficult. It is crucial to streamline formats so that tools can be deployed to measure and manage climate risk. The faster the data is collected in a uniform manner, the quicker a management strategy to attain net zero can be realised.

The Indian banking system also needs to be pushed to generate the scale of investment needed to finance India's energy transition; this will not happen under a Business-as-Usual mindset. Coordinated actions on the part of government bodies are required to ensure that the might of India's banking system is leveraged for the energy transition. As the energy and materials transition accelerates, transition risks will grow for carbon-intensive sectors. The absence of any pressure on these borrowers to institute transition plans is a recipe for chaotic disruption down the road.

Lastly, as the world's financial systems grow increasingly integrated and dependent, India's leading banks need to ensure that they are competitive with their global peers when it comes to managing climate risk and sustainability issues in general, for both reputational and financial reasons. In addition to measurement, this requires proactive and detailed public disclosures and staying abreast of the latest international developments on this issue.

Endnotes

1. Down to Earth. (2023). 3,026 people, 2 million ha crops: How 314 days of extreme weather events affected India in 2022. Available at https://www.downtoearth.org.in/news/natural-disasters/3-026-people-2-million-ha-crops-how-314-days-of-extreme-weather-events-affected-india-in-2022-87181

2. World Economic Forum. (2023). Global Risks Report 2023. Available at: https://www.marshmclennan.com/content/dam/mmc-web/insights/publications/2023/global-risks-report-2023/global-risks-report-2023.pdf

3. Swiss Re. (2022). Hurricane Ian drives natural catastrophe year-to-date insured losses to USD 115 billion, Swiss Re Institute Estimates. Available at: https://www.swissre.com/press-release/Hurricane-Ian-drives-natural-catastrophe-year-to-date-insured-losses-to-USD-115-billion-Swiss-Re-Institute-estimates/2ab3a681-6817-4862-8411-94f4b8385cee

4. Graf, A. and Gull, Z. (2022). Hurricane Ian unlikely to pose serious credit risk to Florida banks. S&P Global Market Intelligence. Available at: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/hurricane-ian-unlikely-to-pose-serious-credit-risk-to-florida-banks-72444136

5. World Bank. (2022). Climate Investment Opportunities in India's Cooling Sector. Available at https://www.dropbox.com/s/s01drnsy2xp76dk/Climate%20Investment%20Opportunities%20in%20India%27s%20Cooling%20Sector.pdf?dl=0

6. https://www.bseindia.com/Static/about/downloads.aspx), as of 31 March, 2022.

7. International Energy Agency. (2022). Coal in Net Zero Transitions: Strategies for rapid, secure and people-centred change. Available at: https://iea.blob.core.windows.net/assets/4192696b-6518-4cfc-bb34-acc9312bf4b2/CoalinNetZeroTransitions.pdf

8. IFC. (2023). IFC's Green Equity Approach (GEA) 2023 Update. Available at: https://www.ifc.org/wps/wcm/connect/3d5772d1-9ad7-4ea3-920e-a7237d14d31e/GEA+2023+update+%281%29.pdf?MOD=AJPERES&CVID=otdg3Tn

9. UNEP FI. (2022). Net Zero Banking Alliance: 2022 Progress Report. Available at: https://www.unepfi.org/industries/banking/net-zero-banking-alliance-2022-progress-report/

10. Reclaim Finance. About the Tool. Available at: https://coalpolicytool.org/the-coal-policy-tool-about-the-tool/

11. ECB. (2022). Supervisory assessment of institutions' climate-related and environmental risks disclosures. Available at: https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.ECB_Report_on_climate_and_environmental_disclosures_202203~4ae33f2a70.en.pdf

12. Accenture. (2022). TCFD Recommendations: Global progress Report for the Banking Sector. Available at: https://www.accenture.com/content/dam/accenture/final/industry/banking/document/Accenture-Banking-TCFD-progress-report.pdf#zoom=40

13. Bain & Company. (2022). Banks' Great Carbon Challenge. Available at: https://www.bain.com/globalassets/noindex/2022/bain_brief_banks_great_carbon_challenge.pdf

14. TFCD Hub (2023). The Use of Scenario Analysis in Disclosure of Climate-related Risks and Opportunities. London. Available at: https://www.tcfdhub.org/scenario-analysis/

15. Kotak Mahindra Bank. (2022). Integrated Annual Report. Available at: https://www.kotak.com/bank/mailers/annualreport/pdf/Kotak-IAR-FY22.pdf

16. YES Bank Limited. (2022). Sustainability report FY 2021-22. https://www.yesbank.in/pdf?name=sustainability_report_fy2021_22_pdf.pdf

17. RBL Bank Limited. (2022). Integrated Annual Report 2021-22. Available at: https://ir.rblbank.com/pdfs/financial-highlights/rbl-bank-ar-21-22.pdf

18. ECB. (2022). Good Practices for Climate-related and Environmental Risk Management. ECB. Available at: https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.thematicreviewcercompendiumgoodpractices112022~b474fb8ed0.en.pdf

19. KPMG. (2022). Banks' climate-related disclosures (Phase 2): Benchmarking how banks reported against the TCFD recommended disclosures in 2021. Available at: https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2022/06/banks-climate-related-disclosures-report-phase2.pdf

20. Jaiswal, S., & Gadre, R. (2022). Financing India's 2030 Renewables Ambition. BNEF. Available at: https://assets.bbhub.io/professional/sites/24/BNEF-Financing-India%E2%80%99s-2030-Renewables-Ambition_FINAL.pdf

21. Axis Bank. (2021). Axis Bank lists $600 million Sustainable USD AT1 notes on India INX and NSE IFSC at GIFT City. Available at: https://www.axisbank.com/about-us/press-releases/axis-bank-lists-600-million-sustainable-usd-at-1-notes-on-india-inx-and-nse-ifsc-at-gift-city

22. LiveMint. (2021). SBI Lists 650Mn Green Bonds on India INX and Luxembourg Stock Exchange. Available at: https://www.livemint.com/industry/banking/sbi-lists-650-mn-green-bonds-on-india-inx-luxembourg-stock-exchange-11637592802184.html

23. CDP. (2023). CDP Response Sheets for mentioned banks. Available at: https://www.cdp.net/en

24. TCFD. (2023). TCFD Supporters. Available at: https://www.fsb-tcfd.org/supporters/

25. UNEP FI (2022) Signatories – united nations environment – finance initiative. Available at: https://www.unepfi.org/banking/prbsignatories/

26. Dufour, L.,Tucker, B., van der Burg, L., Hendriwardani, M., and Geddes, A. (2022). Turning Pledges Into Action: How Glasgow Statement signatories can meet their commitment to shift international public finance out of fossil fuels and into clean energy by the end of 2022. International Institute for Sustainable Development. Canada. Available at: https://www.iisd.org/system/files/2022-06/turning-glasgow-statement-into-action.pdf

27. Wass, S., and Terris, H. (2022). Path to net-zero: Banks' targets clouded by discrepancies, opaqueness. Available at: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/path-to-net-zero-banks-climate-targets-clouded-by-discrepancies-opaqueness-72752733

28. YES Bank Limited. (2022) Sustainability Report FY 2021-22. Available at: https://www.yesbank.in/pdf?name=sustainability_report_fy2021_22_pdf.pdf

29. PCAF. (2023). The Global GHG Accounting and Reporting Standard for the Financial Industry. Available at: https://carbonaccountingfinancials.com/standard

30. YES Bank Limited. (nd). Environment and Social Risk Management System. Available at: https://www.yesbank.in/pdf?name=yb_esrms.pdf

31. YES Bank Limited. (2022). Environmental Management Policy. Available at: https://www.yesbank.in/pdf?name=yes_bank_environmental_management_policy_summary_pdf.pdf

32. HDFC Bank. (2022). Integrated Annual Report 2021-22. Available at: https://v.hdfcbank.com/content/dam/hdfc-aem-microsites/Annual_Report_FY22/pdfs/HDFC%20IAR%20FY22.pdf

33. Axis Bank. (2022). Annual Report 2021-22. Available at: https://www.axisbank.com/annual-reports/2021-2022/Axis%20Bank%20AR%202021-22.pdf

34. Axis Bank. (2022). Sustainability Report 2021-22. Available at: https://www.axisbank.com/Sustainability-Reports/2021-2022/Axis-Bank_SR.pdf

35. Axis Bank. (2021). Sustainable Financing Framework, July 2021. Available at: https://www.axisbank.com/docs/default-source/default-document-library/axis-bank-sustainable-financing-framework.pdf

36. Kotak Mahindra Bank. (2022). Integrated Annual Report 2021-22. Available at: https://www.kotak.com/bank/mailers/annualreport/pdf/Kotak-IAR-FY22.pdf

37. Kotak Mahindra Bank. (2022). ESG Framework 2022. Available at: https://www.kotak.com/content/dam/Kotak/investor-relation/governance/Policies/ESG-framework-2022.pdf

38. State Bank of India. (2022). Sustainability Report 2021-22. Available at: https://sbi.co.in/documents/17826/35696/200622-Sustainability+Report+%28SR%29+2021-22.pdf

39. SBI. (2023). ESG Financing Framework. 2023. Available at: https://sbi.co.in/web/investor-relations/esg

40. IndusInd Bank. (2022). Annual Report 2021-22. Available at: https://www.indusind.com/content/dam/indusind-corporate/investor-resource/latest-annual-report/annual-report-2021-22.pdf

41. IndusInd Bank. (2021). IndusInd Bank launches Green Fixed Deposits. Mumbai. Available at: https://www.indusind.com/in/en/about-us/mediabrand/FY/2021-2022/December/indusInd-bank-launches-green-fixed-deposits.html

42. IndusInd Bank. (2022). Fixed Deposit (FD). Available at: https://www.indusind.com/in/en/personal/deposits/fixed-deposit.html

43. IndusInd Bank. (2023). Green Fixed Deposits FY 2021-22. Mumbai. Available at: https://www.indusind.com/content/dam/indusind-corporate/generic/Green-Fixed-Deposits-FY22-Assurance-Statement.pdf

44. Federal Bank. (2022). Annual Report 2021-22. Available at: https://www.federalbank.co.in/documents/10180/157195632/Annual+Report+for+the+Financial+Year+2021-22.pdf/49e023c9-786b-af02-11b0-8903666e39a9?t=1657042751235

45. Federal Bank. (2022). Environment and Social Management System (ESMS) Policy. Available at: https://www.federalbank.co.in/documents/10180/45777/Environmental+and+Social+Management+system+%28ESMS%29+Policy.pdf/d8b4df0b-d6c6-9dfc-ff77-8903886bd541?t=1627993730353#:~:text=ESMS%20policy%20will%20enable%20Bank,are%20sustainable%20and%20environment%20friendly.

46. RBL Bank Limited. (2022). 79th Integrated Annual Report 2021-22. Available at: https://ir.rblbank.com/pdfs/financial-highlights/rbl-bank-ar-21-22.pdf

47. RBL Bank Limited. (2022). Environmental and Social Risk Policy. Available at: https://drws17a9qx558.cloudfront.net/document/Bank%20Policies/e-and-s-risk-policy.pdf

48. IDFC First Bank. (2022). Annual Report 2021-22. Available at: https://www.idfcfirstbank.com/content/dam/idfcfirstbank/pdf/annual-report/Annual-Report-FY-2021-22.pdf

49. ICICI Bank. (2022). ESG Report 2022. Available at: https://www.icicibank.com/content/dam/icicibank/managed-assets/docs/investor/annual-reports/2022/ICICI-Bank-ESG-Report.pdf

50. ICICI Bank. (2022). Integrated Report FY2021-22. Available at: https://www.icicibank.com/content/dam/icicibank/managed-assets/docs/investor/annual-reports/2022/ICICI-BANK-IR-2022-INTEGRATED-REPORT.pdf

51. AU Small Finance Bank. (2022). Sustainability Report FY 2021-22. Available at: https://objectstorage.ap-mumbai-1.oraclecloud.com/n/aubank2/b/Marketing/o/Sustainability_Report.pdf

52. Basel Committee on Banking Supervision. (2021). Climate-related risk drivers and their transmission channels. Available at: https://www.bis.org/bcbs/publ/d517.pdf

53. BCBS. (2022). Principles for the effective management and supervision of climate-related financial risks. Available at: https://www.bis.org/bcbs/publ/d532.htm

54. BCBS. (2022). Basel Committee clarifies how climate-related financial risks may be captured in the existing Basel Framework. Available at: https://www.bis.org/press/p221208.htm

55. RBI. (2022). Master Circular – Basel III Capital Regulations. Available at: https://www.rbi.org.in/Scripts/BS_ViewMasCirculardetails.aspx?id=12278

56. Reserve Bank of India. (2023). Report on Currency and Finance 2022-23: Towards a Greener Cleaner India. Mumbai. Available at: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/RCF03052023395FAF37181E40188BAD3AFA59BF3907.PDF

57. Asapur, S. and Fernandes, A. (2023). Removing investment barriers to fund India's energy transition. ET Energy World. Economic Times. Available at: https://energy.economictimes.indiatimes.com/news/renewable/removing-investment-barriers-to-fund-indias-energy-transition/97587243

58. UNEP FI. (2023). Climate Risks in the Industrials Sector. Available at: https://www.unepfi.org/themes/climate-change/climate-risks-in-the-industrials-sector/

59. PTI. (2023). Power ministry seeks comments on draft carbon credit trading scheme. ET Energy World. Economic Times. Available at: https://energy.economictimes.indiatimes.com/news/power/power-ministry-seeks-comments-on-draft-carbon-credit-trading-scheme/99037310

60. RBI. (2023). RBI releases 2022 list of Domestic Systemically Important Banks (D-SIBs). Mumbai. Available at: https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=54979

61. RBI. (nd). Framework for Dealing with Domestic Systemically Important Banks (D-SIBs). Available at: https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2861

62. IPCC. (2023).Synthesis Report of the IPCC Sixth Assessment Report (AR6). Switzerland. Available at:https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_LongerReport.pdf

63. Climate Policy Initiative [B.Naran, J.Connolly, P.Rosane, D.Wignarajah, E.Wakaba, B.Buchner]. (2022). Global Landscape of Climate Finance: A Decade of Data 2011-2020. Available at: https://www.climatepolicyinitiative.org/wp-content/uploads/2022/10/Global-Landscape-of-Climate-Finance-A-Decade-of-Data.pdf

64. United Nations Environment Programme. (2022). Adaptation Gap Report 2022: Too Little, Too Slow – Climate adaptation failure puts world at risk. Nairobi. Available at: https://www.unep.org/adaptation-gap-report-2022

65. UN Conference on Trade and Development. (2022). COP 27 High-Level Event Series- Background Note: Transformative Adaptation. Available at: https://unctad.org/meeting/cop27-high-level-event-financing-global-adaptation-challenge

66. UNCTAD. (2023). COP27 debrief: Milestones for climate-resilient development in Sharm el-Sheikh. Available at: https://unctad.org/news/blog-cop27-debrief-milestones-climate-resilient-development-sharm-el-sheikh

67. DTE. (2022). COP27: Adaptation pledge sum 35% less than Glasgow, despite UN call for more support. Available at: https://www.downtoearth.org.in/news/climate-change/cop27-adaptation-pledge-sum-35-less-than-glasgow-despite-un-call-for-more-support-86076#:~:text=Published%3A%20Friday%2018%20November%202022&text=The%20amount%20pledged%20for%20climate,the%20United%20Nations%20Adaptation%20Fund.

68. UN Environment Programme Finance Initiative & World Resources Institute. (2022). Physically Fit? Available at: https://www.unepfi.org/themes/climate-change/physically-fit/

69. UNEP FI. (2022). Adapting to a New Climate. Available at: https://www.unepfi.org/wordpress/wp-content/uploads/2022/11/Adapting-to-a-New-Climate.pdf

70. The Guardian. (2022). Watchdog bans HSBC climate ads in fresh blow to bank's green credentials. Available at: https://www.theguardian.com/business/2022/oct/19/watchdog-bans-hsbc-ads-green-cop26-climate-crisis

71. Greenpeace. (2023). Legal action on the horizon as Canadian banks fail to match their climate conduct to their commitments: Report. Canada. Available at: https://www.greenpeace.org/canada/en/press-release/57437/legal-action-on-the-horizon-as-canadian-banks-fail-to-match-their-climate-conduct-to-their-commitments-report/

72. Banking on Climate Chaos. (2023). Fossil Fuel Finance Report 2023. Available at: https://www.bankingonclimatechaos.org/wp-content/uploads/2023/05/BOCC_2023_vF-05-08.pdf

73. Reclaim Finance. (2023). Throwing Fuel on the Fire: GFANZ financing of fossil fuel expansion. Available at: https://reclaimfinance.org/site/wp-content/uploads/2023/01/Throwing-fuel-on-the-fire-GFANZ-financing-of-fossil-fuel-expansion.pdf

74. Launched in April 2021, the membership of NZBA spans 126 banks in 43 countries with $73 trillion of assets under management (AUM) i.e., 41% of global banking assets and is tasked with bankrolling and facilitating the execution of global net zero ambitions.

75. Reclaim Finance. (2022). HSBC's new oil and gas policy shows the way. Available at: https://reclaimfinance.org/site/en/2022/12/14/hsbcs-new-oil-and-gas-policy-show-the-way/

76. Danske Bank. (2023). Position Statement on Fossil Fuels. Available at: https://danskebank.com/-/media/danske-bank-com/file-cloud/2017/5/danske-bank-position-statement-fossil-fuels.pdf

77. Warmerdam, W. (Profundo) and Beenes, M. (BankTrack). (2022). Banking on thin ice - two years in the heat: Exposing Nordic bank finance for fossil fuels. BankTrack. The Netherlands. Available at: https://www.banktrack.org/download/banking_on_thin_ice_two_years_in_the_heat/221122_banking_on_thin_ice_ii_final.pdf

78. Wass, S. (2021). COP26: Banks' Net-Zero Pledges ignore most fossil-fuel financing. Available at: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/cop26-banks-net-zero-pledges-ignore-most-fossil-fuel-financing-67266332

79. Toxic Bonds. (2022). How Banks are breaking their Net Zero pledges to finance Climate Chaos. Available at: https://s3.amazonaws.com/s3.sumofus.org/images/Toxic-Bonds-Bank_-Underwriting-Report_FINAL.pdf

80. Financial Stability Board. (2022). Climate Scenario Analysis by Jurisdictions: Initial findings and lessons. Available at: https://www.fsb.org/wp-content/uploads/P151122.pdf

81. The French Prudential Supervision and Resolution Authority, formerly known as Prudential Supervision Authority.

82. ACPR. (2021). A first assessment of financial risks stemming from climate change: The main results of the 2020 climate pilot exercise. Available at: https://acpr.banque-france.fr/sites/default/files/medias/documents/20210602_as_exercice_pilote_english.pdf

83. European Banking Authority. (2021). Mapping climate risk: Main findings from the EU-wide pilot exercise. Available at: EBA/Rep/2021/11. https://www.eba.europa.eu/eba-publishes-results-eu-u wide-pilot-exercise-climate-risk

84. European Central Bank. (2021). ECB economy-wide climate stress test. Occasional Paper Series, No. 281, September 2021. Available at: https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op281~05a7735b1c.en.pdf?a906b470027633036f-85fa7ecfa86088

85. BoE. (2022). Results of the 2021 Climate Biennial Exploratory Scenario. Available at:https://www.bankofengland.co.uk/stress-testing/2022/results-of-the-2021-climate-biennial-exploratory-scenario

86. ECB. (2022). 2022 Climate Risk Stress Test. Available at: https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climate_stress_test_report.20220708~2e3cc0999f.en.pdf

87. Federal Reserve Board. (2023). Pilot Climate Scenario Analyses Exercise: Participant Instructions. Available at: https://www.federalreserve.gov/publications/climate-scenario-analysis-exercise-instructions.htm

88. FSB. (2022). Progress Report on Climate-Related Disclosures. Available at: https://www.fsb.org/wp-content/uploads/P131022-2.pdf

89. EBA. (2022). ESAs propose disclosures for fossil gas and nuclear energy investments. Available at: https://www.eba.europa.eu/esas-propose-disclosures-fossil-gas-and-nuclear-energy-investments

90. European Securities and Market Authority. (2023). ESAs propose amendments to extend and simplify sustainability disclosures. Available at: https://www.esma.europa.eu/press-news/esma-news/esas-propose-amendments-extend-and-simplify-sustainability-disclosures

91. European Securities and Market Authority. (2023). ESAs put forward common understanding of greenwashing and warn on risks. Available at: https://www.esma.europa.eu/press-news/esma-news/esas-put-forward-common-understanding-greenwashing-and-warn-risks

92. IFRS. (2023). International Sustainability Standards Board. Available at: https://www.ifrs.org/groups/international-sustainability-standards-board/

93. ISSB. (2022). Exposure Draft ED/2022/S2 Climate-related Disclosures. IFRS Sustainability Disaclosure Standard. London. Available at: https://www.ifrs.org/content/dam/ifrs/project/climate-related-disclosures/issb-exposure-draft-2022-2-climate-related-disclosures.pdf

94. ISSB. (2022). Illustrative Guidance on Climate-related Disclosures. IFRS Sustainability Disaclosure Standard. London. Available at: https://www.ifrs.org/content/dam/ifrs/project/climate-related-disclosures/issb-exposure-draft-2022-2-illustrative-guidance-on-climate-related-disclosures.pdf

95. IFRS. (2023). ISSB ramps up activities to support global implementation ahead of issuing inaugural standards end Q2 2023. Available at: https://www.ifrs.org/news-and-events/news/2023/02/issb-ramps-up-activities-to-support-global-implementation-ahead-of-issuing-inaugural-standards-end-q2-2023/

96. IFRS. (2023). Supplementary ISSB Update April 2023. Available at: https://www.ifrs.org/news-and-events/updates/issb/2023/supplementary-issb-update-april-2023/

97. Eames, N. and Barmes, D. (2022). The Green Central Banking Scorecard 2022 Edition. Positive Money. Available at: https://positivemoney.org/publications/green-central-banking-scorecard-2022

98. Reserve Bank of India. (2022). Discussion Paper on Climate Risk and Sustainable Finance. Department of Regulation. Mumbai. Available at: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/CLIMATERISK46CEE-62999A4424BB731066765009961.PDF

99. RBI. (2022). Challenges and Opportunities in Scaling up Green Finance. Speeches. Mumbai. Available at: https://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/BSBFSISUMMITF9F9354E0E074B9DAC7DC5D38AA78559.PDF

100. RBI. (2022). Financial Stability Report, Issue No. 26. Financial Stability Unit, RBI. Mumbai. Available at: https://rbidocs.rbi.org.in/rdocs//PublicationReport/Pdfs/0FSRDECEMBER2022F93A2F188A394ACDB2FDDC2FCC0D07F0.PDF

101. RBI. (2023). South Asia's Current Macroeconomic Challenges and Policy Priorities. Speeches. RBI. Mumbai. Available at: https://rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=1347

102. Government of India. (2022). Framework for Sovereign Green Bonds. Department of Economic Affairs, Ministry of Finance. New Delhi. Available at: https://dea.gov.in/sites/default/files/Framework%20for%20Sovereign%20Green%20Bonds.pdf

103. RBI. (2023). Framework for acceptance of Green Deposits. Mumbai. Available at: https://rbi.org.in/scripts/NotificationUser.aspx?Mode=0&Id=12487

104. Reserve Bank of India. (2023). Report on Currency and Finance 2022-23: Towards a Greener Cleaner India. Mumbai. Available at: https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/RCF03052023395FAF37181E40188BAD3AFA59BF3907.PDF

105. Securities and Exchange Board of India. (2022). Updated Operational Circular for issue and listing of Non-convertible Securities, Securitised Debt Instruments, Security Receipts, Municipal Debt Securities and Commercial Paper: Modifications in Chapters I, II and XIV, Introduction of Chapter XIX on Investor Charter and Introduction of Chapter XX on payment of fees. Mumbai. Available at: https://www.sebi.gov.in/legal/circulars/apr-2022/updated-operational-circular-for-issue-and-listing-of-non-convertible-securities-securitised-debt-instruments-security-receipts-municipal-debt-securities-and-commercial-paper-modifications-in-cha-_58060.html

106. SEBI. (2022). SEBI constitutes advisory committee on Environmental, Social and Governance (ESG) matters. Mumbai. Available at: https://www.sebi.gov.in/media/press-releases/may-2022/sebi-constitutes-advisory-committee-on-environmental-social-and-governance-esg-matters_58794.html

107. SEBI. (2022). Consultation Paper on Green and Blue Bonds as a mode of Sustainable Finance. Mumbai. Available at: https://www.sebi.gov.in/reports-and-statistics/reports/aug-2022/consultation-paper-on-green-and-blue-bonds-as-a-mode-of-sustainable-finance_61636.html

108. SEBI. (2022). SEBI Board Meeting. Mumbai. Available at: https://www.sebi.gov.in/media/press-releases/dec-2022/sebi-board-meeting_66407.html

109. Azizuddin, K. (2022). Indian blue bond mining provision draws market scepticism. Responsible Investor. Available at: https://www.responsible-investor.com/indian-blue-bond-mining-provision-draws-market-scepticism/

110. Levin, L.A., Amon, D.J. and Lily, H. (2020). Challenges to the sustainability of deep-seabed mining. Nature Sustainability 3, 784–794. https://doi.org/10.1038/s41893-020-0558-x

111. Economist Group. (2019). Is deep-sea mining part of the blue economy?. World Ocean Initiative. Available at: https://ocean.economist.com/innovation/articles/is-deep-sea-mining-part-of-the-blue-economy

112. IPCC. (2022). Climate Change 2022: Mitigation of Climate Change. Mumbai. Available at: https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/

113. SEBI. (2023). Securities and Exchange Board of India (Issue and Listing of Non-Convertible Securities) Regulations, 2021 [Last amended on February 2, 2023]. Mumbai. Available at: https://www.sebi.gov.in/legal/regulations/feb-2023/securities-and-exchange-board-of-india-issue-and-listing-of-non-convertible-securities-regulations-2021-last-amended-on-february-2-2023-_67862.html

114. SEBI. (2023). Revised Disclosure Requirements for Issuance and Listing of Green Debt Securities. Mumbai. Available at: https://www.sebi.gov.in/legal/circulars/feb-2023/revised-disclosure-requirements-for-issuance-and-listing-of-green-debt-securities_67837.html

115. SEBI. (2023). Do's and don'ts relating to green debt securities to avoid occurrences of greenwashing. Mumbai. Available at: https://www.sebi.gov.in/legal/circulars/feb-2023/dos-and-don-ts-relating-to-green-debt-securities-to-avoid-occurrences-of-greenwashing_67828.html

116. SEBI. (2023). SEBI Board Meeting. Mumbai. Available at: https://www.sebi.gov.in/media/press-releases/mar-2023/sebi-board-meeting_69552.html

117. SEBI. (2023). Consultation Paper on ESG Disclosures, Ratings and Investing. Mumbai. Available at:https://www.sebi.gov.in/reports-and-statistics/reports/feb-2023/consultation-paper-on-esg-disclosures-ratings-and-investing_68193.html

118. SEBI. (2023). Consultation Paper on Regulatory Framework for ESG Rating Providers (ERPs) in Securities Market. Mumbai. Available at: https://www.sebi.gov.in/reports-and-statistics/reports/feb-2023/consultation-paper-on-regulatory-framework-for-esg-rating-providers-erps-in-securities-market_68337.html

Annexure

(List of banks in the top 1000 entities by market capitalisation at the BSE as on March 31, 2022)

Company name	Market Cap (₹ CR)
HDFC Bank Ltd.	8,15,166.80
ICICI Bank Ltd.	5,07,434.03
State Bank of India	4,40,340.33
Kotak Mahindra Bank Ltd.	3,48,198.06
Axis Bank Ltd.	2,33,496.25
IndusInd Bank Ltd.	72,438.75
Bank Of Baroda	57,712.40
Bandhan Bank Ltd.	49,514.94
IDBI Bank Ltd.	46,020.28
Canara Bank	41,289.60
AU Small Finance Bank Ltd.	39,231.82
Punjab National Bank	38,593.61
Indian Overseas Bank	34,402.39
YES Bank Ltd.	30,792.54
Union Bank Of India	26,484.65
IDFC First Bank Ltd.	24,653.21
Federal Bank Ltd.	20,458.37

Company name	Market Cap (₹ CR)
Indian Bank	19,154.88
Bank Of India	18,814.85
Central Bank Of India	15,929.52
UCO Bank	14,191.72
Bank of Maharashtra	11,239.93
City Union Bank Ltd.	9,544.34
RBL Bank Ltd.	7,799.67
Equitas Small Finance Bank Ltd.	6,404.12
Punjab & Sind Bank	6,261.37
CSB Bank Ltd.	3,670.96
Jammu & Kashmir Bank Ltd.	3,013.22
Ujjivan Small Finance Bank Ltd.	2,557.91
DCB Bank Ltd.	2,158.18
Fino Payments Bank Ltd.	2,085.35
Karnataka Bank Ltd.	1,723.85
South Indian Bank Ltd.	1,573.74
Suryoday Small Finance Bank Ltd.	931.01

climate
risk
horizons

Climate Risk Horizons' work highlights the systemic risks that climate change poses to investors, lenders and infrastructure investments. Through a data driven, research-oriented approach that incorporates a holistic understanding of climate policy, energy infrastructure regulatory processes, CRH provides advice on risk management strategies to minimise stranded, non-performing assets and economic disruption in the face of climate change.

For more log on to ***www.climateriskhorizons.com***

Address

4th Floor, Umiya Emporium, Opp. Forum Mall,
Hosur Main Road, Koramangala, Bengaluru 560 029,
Karnataka, INDIA