

India Banking and Finance Report 2025

Edited by

Partha Ray
Arindam Bandyopadhyay
Sanjay Basu

NATIONAL INSTITUTE OF
BANK MANAGEMENT
(NIBM), PUNE



India Banking and Finance Report 2025

IBFR 2025 is published by the Academic Foundation in association with NIBM, Pune, and is available for purchase from Amazon

IBFR 2025 is published by the Academic Foundation in association with NIBM, Pune, and is available for purchase from Amazon

India Banking and Finance Report 2025

Edited by

Partha Ray

Arindam Bandyopadhyay

Sanjay Basu



NATIONAL INSTITUTE OF BANK MANAGEMENT (NIBM)
PUNE, INDIA



ACADEMIC FOUNDATION
INDIA

www.academicfoundation.org

First published in 2025
by

AF PRESS

No. 35, Sector 7,
IMT Manesar,
Gurugram – 122050.
Phones : +91-124-4215070 / 71.
E-mail : booksaf@gmail.com
www.academicfoundation.org

in association with

NATIONAL INSTITUTE OF BANK MANAGEMENT (NIBM), PUNE

ALL RIGHTS RESERVED.

No part of this book shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copyright holder(s) and/or the publishers.

DISCLAIMER:

The views expressed in the Report reflect the opinions of the authors and are not to be ascribed to NIBM or its Governing Board.

© 2025

National Institute of Bank Management.

India Banking and Finance Report 2025

Edited by Partha Ray, Arindam Bandyopadhyay and Sanjay Basu

ISBN: 9789332707122 (Paperback edition)

ISBN: 9789332707139 (ebook/Kindle edition)

Typeset, printed and bound by AF Press, Manesar, Gurugram.

Contents

List of Tables and Figures	vii
List of Abbreviations	xi
Preface	xv

Macroeconomy and Markets

- 1. Macro-Financial Perspectives on Indian Economy**
Sanjay Basu | Tasneem Chherawala | Jiji Matthew |
Kedar nath Mukherjee | Smita Roy Trivedi 3
- 2. Municipal Bonds and the Future of Urban Finance in India:
Alternative Pathways for Funding Urban Growth**
Kedar nath Mukherjee 29
- 3. Insurance Market in India: Opportunities and Challenges**
Debaditya Mohanti | Satish V. Hegde 45

Risk Management in the Financial Sector

- 4. Green Transition After COP29:
Opportunities, and the Way Forward**
Arindam Bandyopadhyay | Ashutosh Kashyap 57
- 5. Compliance Risk:: Impact on Indian
Commercial Banks and NBFCs**
Dipali Krishnakumar | Tasneem Chherawala 71
- 6. Emerging Risks for the NBFC Sector in India**
Srividhya Sridharan | Rupa Rege Nitsure | Sanjay Basu 83
- 7. Taking Stock: Status of Risk Based Supervision in India**
Richa Verma Bajaj 91

Technology and Digitalisation in Banking

8. **Responsible Use of Large Language Models for Customer-centric Banking in India**
Deepankar Roy | Saurabh Pathak 109
9. **Digital Innovation in Agriculture: Transforming Value Chains and Finance**
Nisha Bharti | Naveen Kumar K 123
10. **AI-Driven Transformation of Human Resource Management: Implications for Banks**
Asha Binu Raj | Amit Das 135

Marketing and Strategy

11. **A Study on the Role of the Antecedents of Cross-buying: A Banking Perspective**
Kaushik Mukerjee | Mahasweta Saha 151
 12. **Women Leadership, Bank Conduct and Performance: Study of New Generation Private Banks in India**
Anjan Roy | Tanya Rajesh 161
 13. **Digital Disruptions and Transformation of Bank Marketing**
Sarita Bhatnagar. 171
- About the Editors and Contributors* 183

List of Tables and Figures

Tables		
1.1	Bank Credit Volume (Rs. Cr.) and Growth	7
1.2	Fresh (Weighted Average) Loan and Term Deposit Rates (in %)	7
1.3	Spread as a Percentage of Assets	7
1.4	CASA Ratios Across Bank Groups	8
1.5	Deposits as a Ratio of Total Liabilities (in %)	8
1.6	Weighted Average Call Rates (WACR) and CD Rates (in %)	8
1.7	Return on Assets and Basel III Capital Adequacy Ratios for PSBs (in %)	8
1.8	Return on Assets and Basel III Capital Adequacy Ratios for PVBs (in %)	8
1.9	Outstanding (Weighted Average) Loan and Term Deposit Rates (in %)	9
1.10	Govt. Borrowings (Issuance & Outstanding of Securities: GoI vs. State Govt.)	18
1.11	State-wise Issuance and Trading in SDL (% Share).	21
2.1	Revenue and Borrowing Structures of ULBs: A Global Scenario	32
2.2	Revenue Receipts of Municipal Corporations in India (State Avg.) (Rs. Cr.)	34
2.3	Trend in Municipal Bond Market Structure in US.	38
2.4	Outstanding Market for Municipal Bonds in India.	39
3.1	Growth in Real Premium by Region in the World in 2023	47
3.2	Insurance Penetration – India vs World	48
3.3	Insurance Penetration in India	49
3.4	Insurance Density – India vs World	49
3.5	Insurance Density in India	49
3.6	Total Premium of Life Insurers (₹ Crore)	50
4.1	A Summary Comparison of the Conference of the Parties (COP) Annual Meetings	58
4.2	State-wise Estimated Potential of Renewable Energy	60
4.3	Bank Exposures to Fossil Fuel Intensive Sectors	64
4.4	Green Financing Initiatives by the Two Leading SCBs in India.	65
4.5	Summary Statistics	67
4.6	Correlation Matrix	67
4.7	Mean and Median Comparison Performance Tests between Low ESG Banks vs. Moderate & High ESG Banks	68
4.8	Panel FGLS Regression: Impact of ESG on the Market Performance of Banks	68
4.9	Panel 2SLS Regression: Impact of ESG on the Market & Asset Performance of Banks	69
5.1	Themes or Categories of Violations Identified across SCBs	74
5.2	Non-Compliance Penalties by Type of RE (2010 - March-2025)	75
5.3	Descriptive Statistics of CAR	78
5.4a	CAR Profiles by Bank Categories	79
5.4b	CAR Profiles for Non-monetary Sanctions.	79
5.5	Average CARs by Type of Violation	80
6.1	Average Cumulative Gap-to-Cumulative Outflow Ratios for UL NBFCs	85

		Figures
6.2	Average Cumulative Gap-to-Cumulative Outflow Ratios for ML NBFCs	86
6.3	Average Share of Key Assets and Liabilities up to 1 Year – UL NBFCs	86
6.4	Average Share of Key Assets and Liabilities up to 1 Year – ML NBFCs	86
6.5	Average Interest Rates on Loans and NIM for UL NBFCs	86
6.6	Average Interest Rates on Loans and NIM for ML NBFCs	86
6.7	Average Ratios of Incremental to Gross NPAs for UL NBFCs (in %)	87
6.8	Average Ratios of Incremental to Gross NPAs for ML NBFCs (in %)	87
7.1	Comparison of Supervisory Assessment Programmes	94
7.2	Variables and their Impact on Banking Stability	98
7.3	Scores of Scheduled Commercial Banks in India	99
8.1	Ethical Guidelines for the Use of AI and LLM in Banking	113
9.1	Comparative Analysis of Different Agritech Categories in India	129
10.1	Components of Digital HRM in Banking	140
10.2	Traditional HRM Vs AI-Based HRM in Banking	141
10.3	Technology and Banking Specific	142
10.4	Data and Banking Specific	142
10.5	Workforce and Banking Specific	142
10.6	Compliance and Risk and Banking Specific	143
10.7	Emerging Tech variable and Banking Specific	143
11.1	Demographic Profile of the Respondents	155
11.2	Reliability and Validity Estimates	156
11.3	Measurement Model Evaluation: Discriminant Validity	156
11.4	Parameter Estimates of the Hypothesized Models	157
12.1	Descriptive Statistics for Dependent and Independent Variables	164
1.1	Aggregate Demand Vs Aggregate Supply: Annual GDP and GVA Growth	5
1.2	Trends in Quarterly GDP and GVA: Post-COVID Recovery	5
1.3	Trends in CPI Inflation	6
1.4	Trends in WPI Inflation.	6
1.5	Important Fiscal Ratios (%of GDP)	9
1.6	Year On Year Growth in Non-Food Bank Credit and Policy Repo Rate	10
1.7	YOY Domestic Credit Growth Across Bank Groups	11
1.8	YOY Credit Growth for Major Segments	11
1.9	YOY Bank Credit Growth to Commercial Sectors	12
1.10	Growth of Credit to Industry Segments Versus IIP Growth	12
1.11	YOY Credit Growth in Segments of Retail Bank Credit	13
1.12	YOY Credit Growth in Commercial and Residential Housing Credit vis-a-vis Change in HPI.	14
1.13	YOY Growth in Credit to Priority Sector Segments	14
1.14	Trend in Banking Sector Asset Quality Indicators	15
1.15	Asset Quality Indicators by Banking Group as of 30-Sep-2024	15
1.16	Trend in GNPA Ratio - by Broad Credit Sectors.	15
1.17	Trend in GNPA Ratio by Retail Credit Categories	16
1.18	Movement of NPAs	16
1.19	NPA Profile	16
1.20	Debt Market as a Percentage of GDP in Selected Economies	17
1.21	Primary Issuance of Corporate Bonds in India	17
1.22	Quarterly Business Growth of SCBs: Deposits, Credit & Investments	18
1.23	Maturity-wise Secondary Mkt. Trading Volume in G-Secs	19
1.24	Trends in GOI Yield Spreads or Risk-free Term Premium (in Bps.).	20

1.25	Historical Trend in Bond Yield vs Policy Rate in India	20	5.2	Share of Penalty Instances on SCBs (%) (2010 - 2025)	76
1.26	Peer Group Comparison of Currencies (2024-2026)	22	5.3	Trend in No. of Penalties by Violation Type	77
1.27	Peer Group Volatility (2020 -2025)	22	5.4	Trend in 4-day and 8-day Average CARs vis-a-vis Non-Compliance Penalties	79
1.28	INR Movement (Jan 2024 to July 2025)	23	7.1	Supervisory Assessment Programme	93
1.29	Crude Prices and Rupee Movement	24	7.1(a)	Banking Stability Map of Public Sector Banks	99
1.30	Export Growth and Export Credit.	24	7.1(b)	Bank-wise Composite Score of Public Sector Banks	100
1.31a	CPI Food and General and WPI Food Movement	25	7.2(a)	Banking Stability Map of Private Sector Banks	100
1.31b	WPI Non-Food and Fuel	25	7.2(b)	Bank-wise Composite Score of Private Sector Banks	100
1.32	Trends in Foreign Currency Assets (USD mn.) and USD/INR Movement	26	7.3(a)	Banking Stability Map of Foreign Banks	101
1.33	Major Global Stock Markets and their Movement	26	7.3(b)	Bank-wise Composite Score of Foreign Banks.	101
1.34	Volatility of Global Indices	27	7.4(a)	Banking Stability Map of Small Finance Banks	102
1.35	Movement in Nifty	27	7.4(b)	Bank-wise Composite Score of Small Finance Banks	102
2.1	Trend in Revenue Sources of Indian Municipal Corporations (Avg. of States).	33	7.5(a)	Banking Stability Map of Payment Banks	103
2.2	Municipal Bond Issuance in India (2017-25) (Rs. Cr.).	40	7.5(b)	Bank-wise Composite Score of Payment Banks	103
3.1	Insurance Penetration in India (in per cent)	49	9.1	Global Agrifood Tech Funding	131
3.2	Insurance Density in India (in USD)	49	9.2	Investment in Agrifood Tech in India	131
4.1	Sector-wise Contribution of GHG Emission in India	59	9.3	Agritech Categories and Funding Opportunities	132
4.2	Industry-wise Consumption of Coal	60	10.1	AI Model for Banking Sector	144
4.3	Sector-wise Equity Funding in FY23	61	10.2	Roadmap for the Digital HRM in Banking Industry.	145
4.4	Year-wise Debt and Equity Funding.	61	11.1	Conceptual Model	154
4.5	Industry-wise Emission Trajectory	61			
4.6	ESG Scores across Selected Scheduled Commercial Banks	67			
5.1	Trend of Compliance Penalties on Regulated Entities.	76			

IBFR 2025 is published by the Academic Foundation in association with NIBM, Pune, and is available for purchase from Amazon



List of Abbreviations

AC	Affective commitment	CAGR	Compound Annual Growth Rate
AFS	Available for Sale	CAMELS	Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity
AI	Artificial Intelligence		
AI-ML	Artificial Intelligence - Machine Learning	CAR	Cumulative Abnormal Returns
ALM	Asset Liability Management	CAR	Capital Adequacy Ratio
AML	Anti-Money Laundering	CASA	Current Account and Savings Account
AMRUT	Atal Mission for Rejuvenation and Urban Transformation	CB	Cross Buying
AMT	Alternative Minimum Tax	C2B	Customer to Business
API	Application Programming Interface	CCIL	Clearing Corporation of India Limited
ASEAN	Association of Southeast Asian Countries	CCO	Chief Compliance Officer
ATM	Automated Teller Machine	CCTS	Carbon Credit Trading Scheme
ATR	Average True Range	CEEW	Council on Energy, Environment and Water
AVE	Average variance extracted	CD	Certificate of Deposit
B2B	Business to Business	CDP	Carbon Disclosure Project
B2C	Business to Consumer	C-D Ratio	Credit-Deposit Ratio
BA	Brand Attachment	CDS	Credit Default Swap
BCBS	Basel Committee on Banking Supervision	CDSB	Climate Disclosure Standards Board
BCG	Boston Consulting Group	CEO	Chief Executive Officer
BEE	Bureau of Energy Efficiency	CFO	Chief Financial Officer
BFSI	Banking, Financial Services, and Insurance	C&I	Credit & Investments
BIS	Bank for International Settlements	CI&O	Cybersecurity, IT Risk, and Outsourcing
BRL	Brazilian Real	CMJ	Climate Mitigation Journey
BRSR	Business Responsibility and Sustainability Reporting	CNY	Chinese Yuan Renminbi
BSE	Bombay Stock Exchange	COP	Conference of the Parties
		CP	Commercial Paper
		CPI	Consumer Price Index
		CRAR	Capital to Risk Weighted Assets Ratio

CR&T	Customer Rights and Transparency	GFC	Global Financial Crisis
CRISIL	Credit Rating Information Services of India Limited	GCF	Gross Capital Formation
CRE	Commercial Real Estate	GFCE	Government Final Consumption Expenditure
CRR	Cash Reserve Ratio	GFD	Gross Fiscal Deficit
CSR	Corporate social responsibility	GHG	Green House Gas
CUS	Carbon Capture, Utilisation and Usage	GIC	General Insurance Corporation of India
CX	Customer Experience	GMRA	Global Master Repurchase Agreement
DFIs	Development financial institutions	G&L	Governance and Licensing
DPDPA	Digital Personal Data Protection Act	GNPA	Gross Non-Performing Asset
EBLR	External Benchmark Lending Rate	GoI	Government of India
ECB	External Commercial Borrowing	GPT	Generative Pre-trained Transformer
ECL	Expected Credit Loss	GST	Global Stocktake
ECM	error correction model	GST	Goods and Services Tax
EDPMS	Export Data Processing and Monitoring System	GVA	Gross Value Added
EFRAG	European Financial Reporting Advisory Group	HFC	Housing Finance Company
ESG	Environment, Social and Governance	HFT	Held for Trading
ET	Economic Times	HITL	Humans in the Loop
FAQs	Frequently Asked Questions	HPI	Housing Priced Index
FB	Foreign Bank	HQLA	High Quality Liquid Assets
FBIL	Financial Benchmarks India Private Limited	HRM	Human Resource Management
FDI	Foreign Direct Investment	HSBC	Hongkong and Shanghai Banking Corporation Limited
FEMA	Foreign Exchange Management Act	HTM	Held to Maturity
FI	Financial Institution	HUDCO	Housing and Urban Development Corporation
FICCI	Federation of Indian Chambers of Commerce and Industry	IBC	Insolvency and Bankruptcy Code
FIDC	Finance Industry Development Council	ICP	Internal Carbon Pricing
FIMMDA	Fixed Income Money Market and Derivatives Association of India	ICT	Information and communication technologies
FPI	Foreign Portfolio Investments	IDPMS	Import Data Processing and Monitoring System
FRBM	Fiscal Responsibility and Budget Management	IDR	Indonesian Rupiah
FSR	Financial Stability Report	IFR	India Finance Report
FTSE	Financial Times Stock Exchange	IFRS	International Financial Reporting Standards
FY	Financial Year	ILO	International Labour Organisation
GBA	Global Biofuel Alliance	IMF	International Monetary Fund
GDAXI	Deutscher Aktien Index, Germany	INR	Indian Rupee
GDP	Gross Domestic Product	IP&C	Internal Processes and Controls
GPDR	General Data Protection Regulation	IRACP	Income Recognition, Asset Classification and Provisioning

IRDAI	Insurance Regulatory and Development Authority of India	NGFS	Network for Greening the Financial System
IRRBB	Interest Rate Risk in the Banking Book	NIM	Net Interest Margin
ISMPC	Internal Shadow Monetary Policy Committee	NIST	National Institute of Standards and Technology
ISSB	International Sustainability Standards Board	NLP	Natural Language Processing
JAM	Jan Dhan Aadhaar Mobile	NNPA	Net Non-Performing Asset
JNNURM	Jawaharlal Nehru National Urban Renewal Mission	NPCI	National Payment Corporation of India
KPIs	Key Performance Indicators	NSE	National Stock Exchange
KYC	Know Your Customer	OECD	Organisation for Economic Co-operation and Development
LAF	Liquidity Adjustment Facility	OSR	Own Source Revenue
LCR	Liquidity Coverage Ratio	OTC	Over the Counter
LGD	Loss Given Default	PBR	Price to Book Ratio
LIC	Life Insurance Corporation of India	P2P	Peer to Peer
LIME	Local Interpretable Model-Agnostic Explanations	PAT	Profit After Tax
LLM	Large Language Model	PB	Payment Bank
LLaMA	Large Language Model Meta AI	PCA	Prompt Corrective Action
LMS	Learning Management System	PCR	Provision Coverage Ratio
LMT	Lakh Metric Tons	PD	Primary Dealer
MAU	Monthly Active User	PD	Probability of Default
MD&CEO	Managing Director and Chief Executive Officer	PFCE	Private Final Consumption Expenditure
MeitY	Ministry of Electronics and Information Technology	PFDF	Pooled Finance Development Fund
MFI	Micro Finance Institutions	PFM	Personal Financial Management
ML	Machine Learning	PIB	Press Information Bureau
MMT	Million Metric tonnes	PII	Personally Identifiable Information
MT	Million Tonnes	PMI	Purchasing Managers Index
MoHUA	Ministry of Housing and Urban Affairs	PMS	Performance Management System
MPC	Monetary Policy Committee	PNB	Punjab National Bank
MRM	Model Risk Management	PPP	Public-Private Partnership
MSCI	Morgan Stanley Capital International	PSBs	Public Sector Banks
MSF	Marginal Standing Facility	PSD	Payments Service Directive
MSP	Minimum Support Price	PSL	Priority Sector Lending
MSMEs	Micro, Small and Medium Enterprises	PV	Perceived Value
NASSCOM	National Association of Software and Service Companies	PVB	Private Sector Banks
NBFC	Non-Banking Financial Company	ROA	Return on Assets
NBFC-ICCs	Non-Banking Finance Company (Investment and Credit Company)	RBI	Reserve Bank of India
		RBS	Risk Based Supervision
		RE	Regulated Entity
		RFP	Request For Proposal
		RR	Regulatory Reporting

RRBs	Regional Rural Banks	TCFD	Taskforce on Climate related Financial Disclosures
RSI	Relative Strength Index	TReDS	Trade Receivables Electronic Discounting System
SAP	Systems Applications and Products in Data Processing	2SLS	Two-Stage Least Squares
SARFAESI	Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest	UID	User interface design
SBI	State Bank of India	ULB	Urban Local Bodies
SC	Service Convenience	UJALA	Unnat Jyoti by Affordable LEDs for All
SCBs	Scheduled Commercial Banks	UNCTAD	United Nations Conference on Trade and Development
SCM	Smart Cities Mission	UNEP	United Nations Environment Programme
SDL	State Development Loans	UNESCO	United Nations Educational, Scientific and Cultural Organization
SEBI	Securities and Exchange Board of India	UPI	Unified Payments Interface
SEM	Search Engine Marketing	USD	US Dollar
SEO	Search Engine Optimisation	VIF	Variance Inflation Factor
SFBs	Small Finance Banks	VR	Virtual Reality
SFC	State Finance Corporation	WACR	Weighted Average Call Rate
SHAP	Shapley Additive Explanations	WEF	World Economic Forum
SIDBI	Small Industries Development Bank of India	WOM	Word of Mouth
SLR	Statutory Liquidity Ratio	WPI	Wholesale Price Index
SMS	Short Message Service	WTO	World Trade Organisation
SPARC	Supervisory Programme for Assessment of Risk and Capital	XAI	Explainable Artificial Intelligence
SWIFT	Society for Worldwide Interbank Financial Telecommunication	ZAR	South African Rand



Preface

The fourth edition of the India Banking and Finance Report (IBFR) 2025 is a compendium of articles on financial markets, risk management, information technology, marketing and strategy. The chapters are written by the faculty members of NIBM, at times in collaboration with external experts. The report covers a comprehensive list of topics – from macro-financial perspectives during easy money regime to strategy issues in banks. From municipal bond markets to insurance markets. From climate risk management to risk-based supervision. From regulatory penalties to emerging risks in the NBFC sector. From the impact of digitalisation on agriculture to effect of AI on HRM. From women in leadership to customer-centric strategy. As before, the analysis is rigorous, while the style is lucid. IBFR 2025 continues to be a definitive source of information and discussion on the financial sector for practitioners, regulators, policymakers and academicians.

Macroeconomy and Markets

In the first chapter, *Macro-Financial Perspectives on the Indian Economy*, the authors Sanjay Basu, Tasneem Chherawala, Jiji Matthew, Kedar nath Mukherjee and Smita Roy Trivedi observe that India remains the fastest growing economy in the world, despite a slowdown in fixed capital formation and GDP growth. Inflation has been benign, fiscal deficit has declined and policy rates have been reduced. Banks are in a comfortable position in terms of solvency, profitability and asset quality. The stock market

has been buoyant and INR steady against major currencies. However, bank net interest margins may be strained in the near future. The imposition of harsh tariffs may cause some strain on the MSME sector, which has driven bank credit growth in the recent past. Furthermore, the secular decline in bank credit growth may have an adverse impact on future GDP growth.

The second chapter titled *Municipal Bonds and the Future of Urban Finance in India: Alternative Pathways for Funding Urban Growth* discusses the genesis, rationale and potential of municipal bond markets in India. The author, Kedar nath Mukherjee, begins with the need for smooth financing of urban local bodies (ULBs). He examines the sources of finance and the challenges faced by ULBs. The structure of municipal bond markets in and their relative performance, vis-à-vis peer economies, is explained. The chapter makes the important point that municipal bond markets may be cost effective and efficient avenues for funding urban growth in India.

In the third chapter *Insurance Market in India: Opportunities and Challenges*, Debaditya Mohanti and Satish Hegde seek to provide a comprehensive examination of the development and performance of the Indian insurance sector, while addressing the key challenges it faces. It presents a comparative analysis of the sector, vis-a-vis global markets highlighting its performance in terms of premium earned, penetration and density. The study explores the business and financial performance of the life and

non-life segments, with insights into market dynamics, operational efficiency and financial outcomes. It offers suggestions on potential policy directions and sectoral reforms.

Risk Management in Financial Sector

In chapter four, *Green Transition After COP29: Challenges, Opportunities and the Way Forward*, Arindam Bandyopadhyay and Ashutosh Kashyap examine the COP29 climate finance agreement, its implications, and challenges in implementation in India. It discusses India's ongoing domestic actions and international alliance efforts against climate change. It suggests a strategic path for the economy, highlighting the role of public and private sectors in endorsing climate finance, green economy and sustainable development. The study proceeds to analyse the impact of ESG scores and CDP ratings on the profitability of selected Indian public and private sector banks. The goal is to determine whether banks with stronger climate disclosures and ESG performance achieve better financial outcomes, reinforcing the business case for integrating ESG into banking strategies.

Chapter five, on *Compliance Risk: Impact on Indian Commercial Banks and NBFCs*, is written by Dipali Krishnakumar and Tasneem Chherawala. It investigates the evolving profile of non-compliance penalties imposed on regulated entities by RBI and their impact on the stock performance of banks. Developing a unique dataset spanning the period from 2010 to 2025, the study indicates that the nature of violations and entities penalized have changed over time, along with the financial sector and its regulations. It finds that the equity market has also reacted adversely since cumulative abnormal returns have been negative on average for banks at the time of the penalty announcement. It infers that regulatory costs and sanctions have been effective in deterring non-conforming behaviour in banks.

In Chapter six, Srividhya Sridharan, Rupa Rege Nitsure and Sanjay Basu study the *Emerging Risks for the NBFC Sector in India*. They show that upper and middle layer NBFCs in India assume higher levels of credit risk, relative to

banks, in order to manage liquidity and interest rate risks. In short, the chapter discusses how risk transformation occurs within NBFCs. It also highlights the constraints faced by NBFCs on liquidity risk management and proposes a few solutions, to alleviate subsequent interest rate and credit risks. It identifies possible stress tests for the NBFC sector.

Chapter seven titled *Taking Stock: Current Status of Risk Based Supervision in India*, is written by Richa Verma Bajaj. It develops Banking Stability Maps, with twenty-three ratios along six dimensions, for supervisory comparison across all the bank groups in India. It finds that Indian banks are sound because they have adequate capital. Private sector banks are ahead of public sector entities in terms of asset quality, profitability, liquidity and efficiency parameters.

Technology and Digitalisation in Banking

Chapter eight, on *Responsible Use of Large Language Models (LLMs) for Customer-centric Banking in India*, is written by Deepankar Roy and Saurabh Pathak. It examines how LLMs can enhance engagement across the banking value chain, from conversational assistants and personalized recommendations to intelligent document passing and Financial Wellness insights. With focus on Indian context, it highlights the use cases such as multilingual support for financial inclusion, voice enabled services for rural customers and AI driven financial literacy tools. This chapter also argues that in order to leverage its unique digital public infrastructure and meet its financial inclusion mandates, India must adopt a strategic path that prioritizes the development of sovereign, localized LLMs over generic global models.

Chapter nine, titled *Digital Innovation in Agriculture: Transforming Value Chains and Finance* is written by Nisha Bharti and Naveen Kumar. It discusses the extent of digitalisation in agriculture and agribusiness, highlighting its potential to augment agricultural finance more diligently. Using secondary data, it identifies and evaluates key digital innovations in the agricultural value chain. It enables banks and FIs to refine their agricultural lending strategies

through data-driven and informed decisions. This chapter offers important lessons for policymakers, by highlighting the role of digitalisation in strengthening the agricultural value chain and the financial ecosystem.

Chapter ten, on *AI-Driven Transformation of Human Resource Management: Implications for Banks*, is written by Asha Binu Raj and Amit Das. It explores the potential of Artificial Intelligence (AI) to revolutionize ongoing HRM practices in Indian banks. Emerging AI technologies are useful for addressing various challenges in the domain of recruitment inefficiencies, employee engagement, performance management and training. It analyses how digital tools and analytics are reengineering traditional HR practices and contributing to strategic business outcomes. The chapter offers a roadmap for successful digital transformation in HR which will scale up the overall performance of the banking sector.

Marketing and Strategy

Chapter eleven, titled *A Study on the role of the Antecedents of Cross-buying: A Banking Perspective* is written by Kaushik Mukerjee and Mahasweta Das Saha. In this chapter, a conceptual model is developed, based on Structural Equation Modelling (SEM), to examine the impact of several antecedents of cross-buying in the banking industry. This study shows that service convenience has the strongest influence on cross-buying, followed by brand attachment, and user interface design. The chapter offers important strategies, for provision of convenient and smooth service and the design of customer friendly user interfaces, that may enhance cross-buying among customers and create stronger bonds to reduce grievances.

The next chapter is on *Women Leadership, Bank Conduct and Performance: Study of New Generation Private Banks in India*. Based on data of six new generation private sector banks between 2011-12 and 2023-24, Anjan Roy and Tanya Rajesh try to understand whether women in leadership roles indeed matter. They infer that the impact of women leadership is not clear. The market price multiple seems to be subdued with more women in board or top management

positions, but women MD&CEO of banks elicit positive responses. Banks led by women exhibit lower gross non-performing assets, provision coverage as well as the number of regulatory penalties. However, there is lack of discernible effect on the strategy variables, such as growth rate, credit - deposit ratio, non-interest income and for corporate social responsibility performance of banks.

The final chapter titled *Digital Disruptions and Transformation of Bank Marketing*, is written by Sarita Bhatnagar. It traces the evolution of technology in banking and transformation from the traditional marketing paradigm to the present digital marketing era. It analyses the changing dimensions of the Marketing Mix in light of digital developments. The study identifies the main ways in which the core marketing functions of banks, such as customer acquisition, brand promotion, product development, service differentiation, experience management, and loyalty development, have been transformed.

Acknowledgement

We are grateful to the esteemed reviewers of all the chapters of IBFR 2025, for kind comments and suggestions. They are: Atta Omar Basheer, Paritosh Basu, Subir Kumar Das, Rajesh Mahajan, Jeeban Jyoti Mohanty, Gotla Nagaraju, Deepak Narang, Amol Padhye, Vardhana Pawaskar, K. Srinivasa Rao, Bazil Shaikh, Ashish Srivastava and Onkar Shivraj Swami. Their detailed observations have gone a long way towards a substantial improvement in the quality of the report.

We are also indebted to all the participants of the Round Table Discussion, on the draft chapters of IBFR 2025, held at NIBM Campus on Tuesday, August 19, 2025. In particular, the external experts at the round table, viz. Paritosh Basu, Rajaram Dasgupta, Vardhana Pawaskar, Subrata Sarkar and Bazil Shaikh offered valuable advice on the chapters they discussed. The entire event was interactive, insightful and enjoyable.

Needless to say, the responsibility for any errors, which remain in the chapters, lies solely

with the authors. The views expressed in the Report also reflect the opinions of the authors and are not to be ascribed to National Institute of Bank Management or its Governing Board.

NOVEMBER 2025

The first three editions of the India Banking and Finance Report were appreciated by academicians, practitioners and industry experts. We hope that IBFR 2025 will also be well received. *Happy reading!*

PARTHA RAY

ARINDAM BANDYOPADHYAY

SANJAY BASU