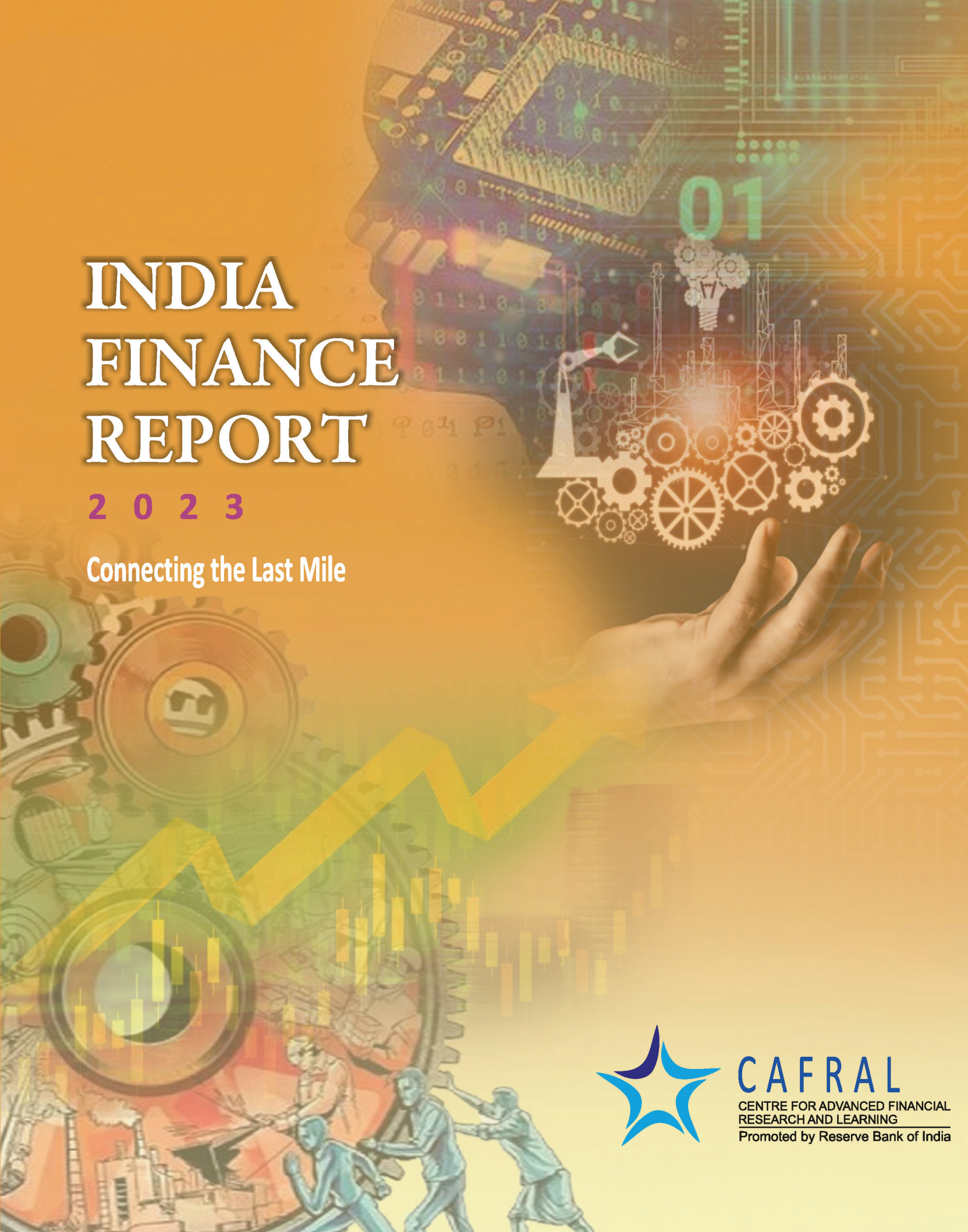
INDIA FINANCE REPORT

2023

Connecting the Last Mile



CAFRAL
CENTRE FOR ADVANCED FINANCIAL RESEARCH AND LEARNING
Promoted by Reserve Bank of India

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Director's Note

Centre for Advanced Financial Research and Learning (CAFRAL) was set up as an independent body by the Reserve Bank of India (RBI) to promote research in the field of finance, macroeconomics, and public policy against the backdrop of India's evolving role in the global economy. CAFRAL is a not-for-profit organisation and became operational in January 2011 with the Governor of RBI as the Chairman of the Governing Council of CAFRAL.

CAFRAL seeks to establish itself as a worldwide centre of excellence for advanced research and learning to contribute to policy formulation and build cutting-edge technical capacity and financial leadership competencies in the Indian financial sector and public policy space. Since its inception, CAFRAL has continued to achieve excellence in research in the fields of banking, finance, and macroeconomics. Within these broad areas, our researchers work on diverse topics including financial institutions, financial markets, behavioural finance, corporate finance, household finance and related areas of macro-finance such as monetary economics or international finance with CAFRAL researchers publishing in leading academic journals along these themes.

With renewed vigour in contributing to the policy space in India, CAFRAL is launching its first annual flagship “India Finance Report (IFR)”. IFR 2023 focuses on the evolving non-banking financial sector as its theme and studies financial inclusion, rapid digitization and its implications, and emerging stresses in the non-banking financial sector. I present to you this year’s report, titled “Connecting the last mile.”

Bibhu Prasad Kanungo
Director, CAFRAL
November 7, 2023

Foreword

Non-banking financial companies (NBFCs) constitute an important link in the financial intermediation continuum. They perform multi-faceted roles – infusing diversity and competition among credit providers; expanding the ambit of formal financial inclusion to underserved segments of the economy and geographically far-flung regions; and innovating financial products and unconventional delivery mechanisms. They also enhance the resilience of the financial system by filling in gaps in bank intermediation. Accordingly, the NBFC ecosystem in India has evolved over the years in terms of operations, asset quality, heterogeneity, profitability and regulatory architecture.

In response to disruptive shocks in 2018-19 and more recently, during the COVID-19 pandemic, prescient policies undertaken by the Reserve Bank of India (RBI) and the Government of India (GOI) have shored up the sector and helped it to emerge stronger and more resilient than before.

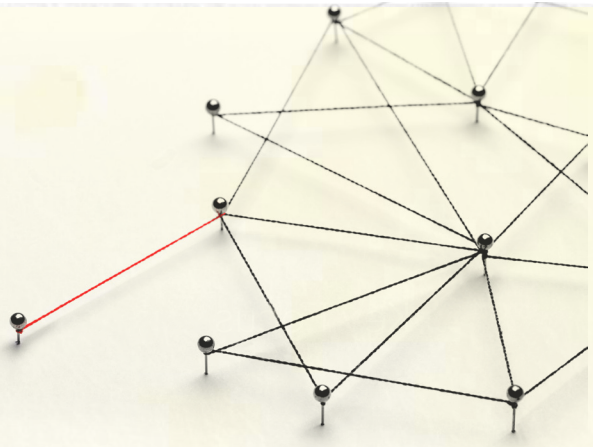
It is apposite now to take stock of the sector and catalyse it for a bigger and more versatile role in financial intermediation as India shrugs off the drag of the pandemic and positions itself on a higher growth trajectory. For this purpose, it is crucial to understand the markets and borrowers targeted by NBFCs, the special role of NBFCs in the formal financial system and in credit markets, and the manner in which they are harnessing the recent growth in the FinTech space.

Alongside these transformations, the NBFC sector is also going through changes in regulation and supervision that seek to bring in best practices; close out regulatory arbitrage; ensure the protection of customer interests; and leverage on technology.

Exploiting the synergies between growth and technological change can lead to individual NBFCs becoming systemic. The challenge is to find the right balance of interventions, and the play of market forces. Looking ahead, the past can provide lessons for future policy responses. At the same time, we need to be ready to incubate new solutions to address the fast paced transformation of the sector. This involves all stakeholders. Together we must build the sector's sophistication and resilience.

CAFRAL's first flagship India Finance Report, with "Connecting the Last Mile: Non-Banking Financial Companies in India" as its theme, is a commendable step. The Report provides fresh insights into the non-banking financial sector in India that can aid all stakeholders, including regulators and policymakers, in securing a greater understanding of the sector and a wider appreciation of its niche strengths and opportunities. Structured into four chapters, the Report draws on rigorous empirical and theoretical research and exploits novel regulatory and proprietary datasets to fulfil this vision. I commend Team CAFRAL for this endeavour.

Shaktikanta Das
Governor
Reserve Bank of India
November 7, 2023



India Finance Report: Connecting the Last Mile

Against the backdrop of India's evolving role in the global economy, the Centre for Advanced Financial Research and Learning (CAFRAL) was set up in 2006 by the Reserve Bank of India (RBI) to develop into a world-class global institution for research and learning in finance and macroeconomics. CAFRAL's research arm has the dual mandate of conducting cutting-edge academic research and contributing to policymaking in India.

The past five years have seen CAFRAL evolve in the quest of this vision and mission. The year 2023 marks an important milestone for CAFRAL on this trajectory. During the year, CAFRAL's core research team expanded to close in on its full strength emboldening the launch of its first India Finance Report (IFR) that will focus every year on a theme of contemporary relevance and of national importance. This year's IFR chooses "Connecting the Last Mile" as its theme.

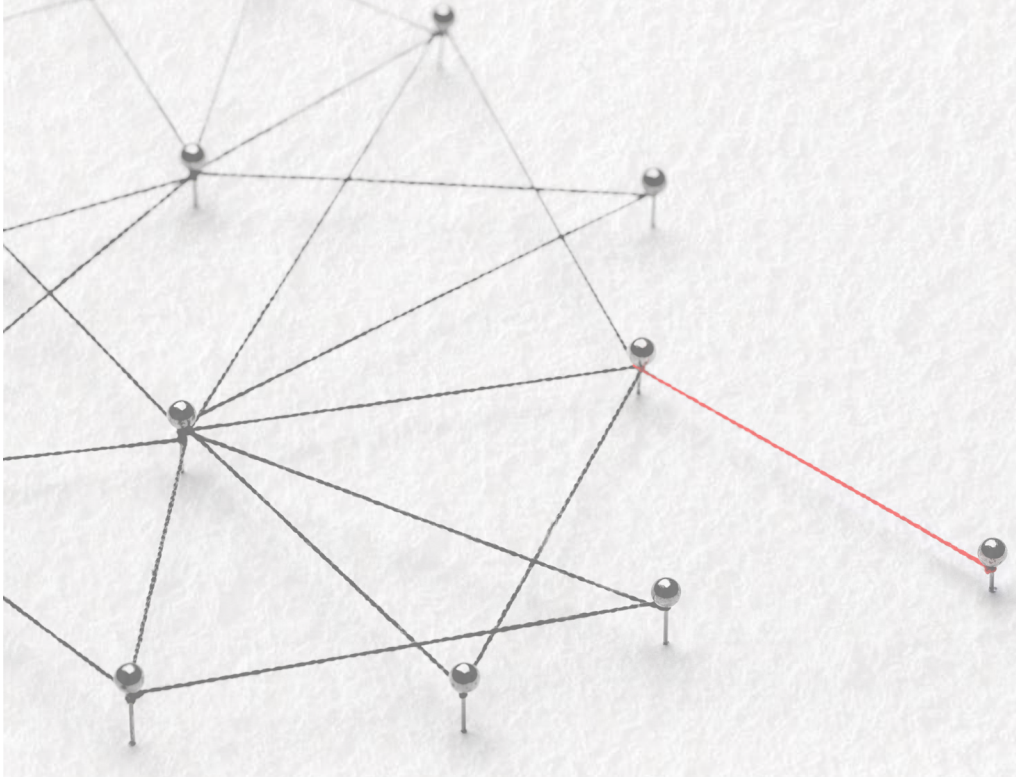
The motivation for the choice of the theme is derived from the fact that over the decade gone by, there has been rapid growth in non-banking financial intermediation. Non-Banking Financial Companies (NBFCs) have emerged as agents for formalizing finance in India by facilitating financial inclusion through innovative financial products and novel delivery mechanisms. A panoply of pre-emptive policy measures and timely regulatory interventions helped the sector emerge stronger from the COVID-19 pandemic shock, but some attendant risks remain.

The growing systemic importance of NBFCs is the *raison d'être* of this IFR. Leveraging on regulatory and proprietary datasets, the report aims to highlight the unique opportunities and challenges that confront NBFCs in the Indian context, with a focus on (i) financial inclusion; (ii) interlinkages between the nonbanking sector and other segments of the financial system; (iii) digitalization and its impact and (iv) emerging balance of risks for the sector.

In this stock take, the report is sensitive to the significant heterogeneity within NBFCs, issues in complementarity and competitiveness vis-*à*-vis the traditional banking sector and the growing synergies between NBFCs and FinTech, particularly in reaching out to sections of the society that get excluded from formal credit markets. An important sub-theme of the IFR is the role of NBFCs in filling the market continuum with hitherto missing segments. The report also delves into the changing contours of regulation and supervision of NBFCs in response to the recent shocks and advances in international regulatory architecture and standards/best practices.

The report is organized into four chapters. It starts out with an in-depth analysis of the trends in the growth of NBFCs in Chapter 1, different phases of transformation of the NBFC landscape and regulatory responses in each phase. Chapter 2 explores the role of NBFCs in financial inclusion, the retail markets targeted by NBFCs and the marginal borrowers they cater to. Also discussed here is the recent growth in FinTech lending and its interactions with NBFCs, challenges arising from third-party lending service providers and regulations for the protection of customers from unethical lending practices. Chapter 3 focuses on the opportunities created by digitization in the NBFC sector. Chapter 4 focuses on the growing interlinkages between NBFCs and the traditional banking sector and the balance of risks facing the sector.

I commend the team led by Nirupama Kulkarni, Gautham Udupa, Nirvana Mitra, Vidhya Soundararajan, Kaushalendra Kishore, Yogeshwar Bharat and the supporting team of research associates comprising Rumana Patel, Sowmya Ganesh, Tanya Agrawal, Siddharth Verma, Tanisha Agrawal, Aanchal Sagwal for this comprehensive report highlighting key opportunities for NBFCs in India. I also thank Vineet Kumar Srivastava, Vijay Singh Shekhawat, K.S.Jyotsna and Sonali Sengupta, Pallavi Chavan, K. M. Neelima, and Nandini Jayakumar of the Reserve Bank of India who provided valuable inputs to the CAFRAL research team.



Michael Debabrata Patra
Deputy Governor
Reserve Bank of India
November 7, 2023

CONTENTS

Chapter III: The Digital Revolution and Digital Lending

Chapter IV: NBFC Linkages, Systemic Risk, and Monetary Transmission

LIST OF BOXES

LIST OF TABLES

LIST OF CHARTS

LIST OF ABBREVIATIONS

2SLS	Two-Stage Least-Squares
AE	Advanced Economy
AI	Artificial Intelligence
APR	Annualised Percentage Rate
AUM	Assets Under Management
BBPS	Bharat Bill Payment System
BIS	Bank for International Settlements
BNPL	Buy Now, Pay Later
BPLR	Benchmark Prime Lending Rate
BRS	Base Rate System
CAGR	Compounded Annual Growth Rate
CAR	Capital Adequacy Ratio
CDs	Certificates Of Deposit
CIBIL	Credit Information Bureau (India) Limited
CIC	Core Investment Company
CIRP	Corporate Insolvency Resolution Process
CLM	Co-Lending Model
COVID-19	Coronavirus Disease
CP	Commercial Paper
CPHS	Consumer Pyramids Households Survey
CRA	Credit Rating Agency
CRAR	Capital Risk Adjusted Ratio
CRO	Chief Risk Officer
CRR	Cash Reserve Ratio
DBT	Direct Benefit Transfer
DHFL	Dewan Housing Finance Limited
DICGC	Deposit Insurance and Credit Guarantee Corporation
DLA	Digital Lending App
DRR	Debenture Redemption Reserve
ECBs	External Commercial Borrowings
ECLGS	Emergency Credit Line Guarantee Scheme
EMDE	Emerging Market and Developing Economy
EMI	Equated Monthly Installment
FIIs	Foreign Institutional Investors
FinTech	Financial Technology
FPIs	Foreign Portfolio Investors
FSB	Financial Stability Board
FY	Financial Year
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GNPA	Gross Non-Performing Asset
GOI	Government of India

GSDP	Gross State Domestic Product
GSTN	Good and Services Tax Network
HFCs	Housing Finance Companies
IAMAI	Internet and Mobile Association of India
IBC	Insolvency and Bankruptcy Code
ICC	Investment and Credit Company
ICT	Information and Communication Technology
IDF-NBFCs	Infrastructure Debt Fund–Non-Bank Finance Companies
IL&FS	Infrastructure Leasing & Financial Services
IMF	International Monetary Fund
IND-RA	India Ratings
INR	Indian National Rupee
IRDAI	Insurance Regulatory Development Authority of India
IT	Information Technology
IV	Instrumental Variable
JAM	Jan Dhan-Aadhaar-Mobile
KCC	Kisan Credit Card
KFS	Key Fact Statement
KYC	Know Your Customer
LAP	Loans Against Property
LCR	Liquidity Coverage Ratio
LSP	Lending Service Provider
MCLR	Marginal Cost of Lending Rate
MES	Marginal Expected Shortfall
MFIs	Micro Finance Institutions
MGC	Mortgage Guarantee Company
MLIs	Member Lending Institutions
MPC	Monetary Policy Committee
MSMEs	Micro, Small and Medium Enterprises
MSR	Mortgage Servicing Right
NBFC-AA	NBFC-Account Aggregator
NBFC-BL	NBFC-Base Layer
NBFC-ICC	NBFC- Investment And Credit Company
NBFC-IDF	NBFC-Infrastructure Debt Fund
NBFC-IFC	NBFC-Infrastructure Finance Company
NBFC-MFI	NBFC-Micro Finance Institution
NBFC-ML	NBFC-Middle Layer
NBFC-NOFHC	NBFC-Non-Operative Financial Holding Company
NBFC-P2P	NBFC–Peer To Peer Lending Platform
NBFCs	Non-Banking Financial Companies
NBFCs-D	Deposit-Taking NBFCs
NBFCs-ND-SI	Non- Deposit- Taking Systemically Important NBFC
NBFC-TL	Top Layer
NBFC-UL	Upper Layer

NBFIs	Non-Banking Financial Institutions
NCD	Non-Convertible Debenture
NCLT	National Company Law Tribunal
NFHS	National Family Health Survey
NHB	National Housing Bank
NIMs	Net Interest Margins
NNPA	Net Non-Performing Asset
NPA	Non-Performing Asset
NPCI	National Payments Corporation of India
P2M	Person to Merchant
P2P	Person to Person
PAN	Permanent Account Number
PCE	Partial Credit Enhancement
PCGS	Partial Credit Guarantee Scheme
PFCE	Personal Final Consumption Expenditure
PFRDA	Pension Fund Regulatory and Development Authority
PLR	Prime Lending Rate
PMAY	Pradhan Mantri Aawas Yojana
PMJDY	Pradhan Mantri Jan Dhan Yojana
POS	Point of Sale
PSBs	Public Sector Banks
PVBs	Private Sector Banks
RE	Regulated Entity
RBI	Reserve Bank of India
RBIH	Reserve Bank Innovation Hub
RoA	Return on Assets
RoE	Return on Equity
SBR	Scale Based Regulation
SCBs	Scheduled Commercial Banks
SEBI	Securities And Exchange Board Of India
SES	Systemic Expected Shortfall
SIDBI	Small Industries Development Bank Of India
SLF-MF	Special Liquidity Facility For Mutual Funds
SLS	Special Liquidity Scheme
SME	Small And Medium Enterprises
SPDs	Standalone Primary Dealers
SPV	Special Purpose Vehicle
TRAI	Telecom Regulatory Authority of India
TLTRO	Targeted Long Term Repo Operation
UPI	Unified Payment Interface
USD	United States Dollar
VaR	Value at Risk

CHAPTER I

NON-BANKING FINANCIAL SECTOR: AN OVERVIEW*

Non-Banking Financial Companies (NBFCs) in India grew rapidly after the global financial crisis, albeit disrupted by shocks and systemic spill overs in 2018-19. Consolidation in the sector ensured that market forces played out and weaker NBFCs exited or shrunk. Consequently, the sector was relatively more robust entering the COVID-19 pandemic, allowing NBFCs to weather the shocks better. Since then the sector has emerged stronger with improved liquidity and capital position, better asset quality, and higher profitability.

1.1. Introduction

I.1 Non-banking financial institutions[1] (NBFIs) form a vital part of the Indian financial system. They complement the traditional banking sector by offering innovative financial products through their novel delivery mechanisms. By doing so, they expand financial inclusion by catering to the small-scale and retail sectors that remain underserved by other financial intermediaries. They also bring in other efficiencies through newer pricing technologies and better modes of delivery. Rapid growth has increased their systemic importance in recent years, and interconnectedness has amplified their externalities.

I.2 NBFIs comprise a broad universe of intermediaries. This chapter analyses an important subset regulated by the Reserve Bank, namely Non-Banking Financial Companies (NBFCs). Given the broad and highly heterogeneous regulatory and operational environment across NBFIs, this report focuses on NBFCs.

I.3 NBFCs experienced massive growth starting the Global Financial Crisis (GFC), as the ailing banking sector relinquished its market share post-GFC. Globally too, as countries pushed to regulate the traditional banking sector post-GFC (Admati *et al.,* 2013, Hanson, Kashyap, and Stein, 2011; Freixas, Laeven, and Peydró 2015) to prevent risk-shifting and entrench financial stability (Flannery, 2014; Thakor, 2014), intermediation migrated into the lighter regulated non-banking financial sector (Irani *et al.,* 2021). After rapid expansion, the NBFC sector in

* This chapter has been prepared by a team comprising Nirupama Kulkarni, Rumana Patel, and Sowmya Ganesh.

[1] NBFIs comprise of NBFCs, HFCs, all-India financial institutions (National Bank for Agriculture and Rural Development (NABARD), EXIM Bank of India, Small Industries Development Bank of India (SIDBI), National Housing Board (NHB), and primary dealers. AIFIs act as financial intermediaries to the agricultural and rural sector, small industries, NBFCs, HFCs, Microfinance Institutions, firms in foreign trade etc., along with other specialised segments and institutions (RBI, 2022).

India suffered two significant shocks - the fall of Infrastructure Leasing & Financial Services (IL&FS) in September 2018 and the Dewan Housing Finance Limited (DHFL) collapse in June 2019, which adversely affected market confidence in the sector. These events tellingly brought to bear the recognition that non-banking financial intermediaries, unlike banks, cannot issue insured liabilities or access central bank liquidity during periods of stress, making them susceptible to failure, which can amplify contagion risks (Plantin 2014; Martinez-Miera and Repullo 2018; Chretien and Lyonnet 2018). The sector remained resilient and strong during the country's worst period of COVID-19 pandemic. The Reserve Bank and the Government of India (GoI) undertook several regulatory measures that restored the flow of credit to the NBFC sector and nursed the sector back to health with timely liquidity support. Despite this turmoil, NBFC credit has steadily increased from 8.6 per cent of GDP in 2013 to 12.3 per cent in 2022 (RBI, 2022). In the retail space, NBFCs' market share expanded nearly 1.8 times between 2015 and June 2022.[2]

I.4 Recognizing the growing role of NBFIs world over, the G20 has mandated that the Financial Stability Board (FSB) should develop a comprehensive framework to regulate the global financial system, underscoring the increasing resilience of non-banking financial intermediaries (RBI, 2022). The persistently low interest rate environment globally in the previous decade, have further heightened their financial vulnerabilities arising from a combination of high leverage, liquidity mismatches, and interconnectedness (IMF, 2023). Therefore, gauging future stresses and assessing regulatory and supervisory actions to address them effectively has emerged as a key policy objective.

I.5 The objective of this chapter is to provide an overview of events shaping the NBFC sector. The following section reviews the structural characteristics of NBFCs. Section 1.3 examines important events and phases of transformation of the NBFC sector. Section 1.4 highlights the patterns of borrowing and financial performance of NBFCs against this backdrop. Lastly, Section 1.5 concludes.

1.2. Structural Characteristics of the NBFC sector

I.6 NBFCs can be classified into different categories based on their i) asset or liability structure, ii) scale-based classification, and iii) the lending segment they target.

I.7 On the basis of liabilities or their sources of funding, NBFCs can be classified into deposit-taking NBFCs (NBFCs-D) and non-deposit-taking NBFCs (NBFCs-ND). As of July 31, 2022, there were 49 NBFCs-D and a much larger 9467 NBFCs-ND in the country (Chart 1.1A) .

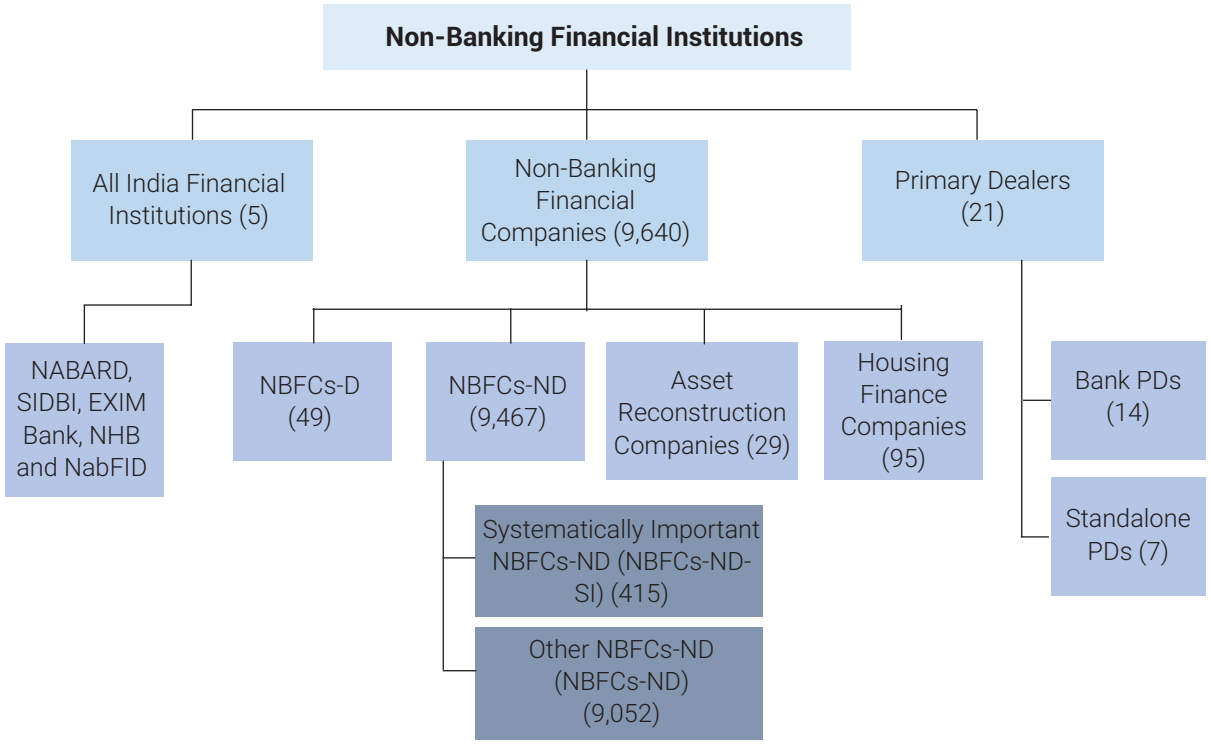
I.8 Deposits of NBFCs-D are not covered by the Deposit Insurance and Credit Guarantee Corporation (DICGC). Given the risk this poses, prudential norms have evolved over time to discourage deposit-taking by these entities (RBI, 1998; 2006). Extant regulations mandate

[2] CIBIL

[3] Net owned fund (NOF) is the aggregate of paid-up capital and free reserves minus accumulated and intangible assets.

Chart 1.1A

Structure of NBFIs under the Reserve Bank's Regulation (As of July 31, 2022)



Source: Reserve Bank of India.

that only investment grade NBFCs-D can accept fixed deposits from the public and the amount of deposits is limited to 1.5 times their net owned funds[3] with tenure limited to 12-60 months, and interest rates are capped at 12.5 per cent (RBI, 2022). Over the years, the number of deposit-taking NBFCs have decreased steadily from 784 in 2002 to only 49 as of January 2022. The NBFCs-D constitute a smaller 14.4 per cent of the total assets of the sector, with privately owned NBFC-D entities accounting for a larger share of 88.3 per cent of total assets within the NBFC-D in 2021-22. Overall, public deposits constitute only 2 per cent of total liabilities of the NBFC sector. (RBI, 2022).

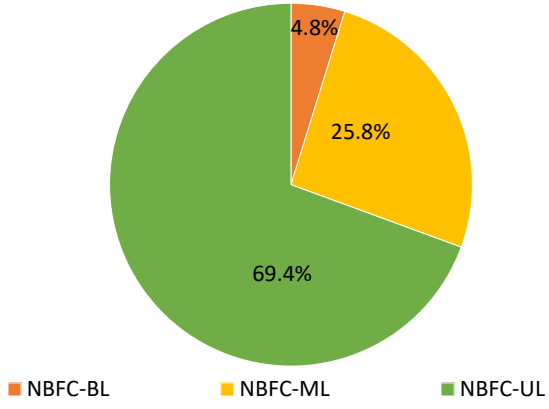
I.9 The NBFC sector is predominantly comprised of non-deposit-taking NBFCs. NBFCs-ND are classified into systemically important (NBFCs-ND-SI) if asset size exceeds ₹500 crore. There were 415 NBFCs-ND-SI as of July 31, 2022 and they constitute 85.1 per cent of the total assets of the sector (RBI, 2022).

I.10 As the NBFC sector has rapidly grown in recent years, many NBFCs have assumed systemic significance and are increasingly interlinked with the banking and capital market sectors. As a result, in October 2022, the Reserve Bank has introduced scale-based regulation (SBR) for NBFCs in response to their increasing systemic importance. The scale-based regulation

is based on the principle of proportionality and narrows the regulatory arbitrage between banks and large NBFCs while allowing for operational flexibility. Under this regulation, NBFCs are segregated into four layers based on their size, activity, and perceived level of riskiness: (i) Base Layer (NBFC-BL), (ii) Middle Layer (NBFC-ML), (iii) Upper Layer (NBFC-UL), and (iv) Top Layer (NBFC-TL). NBFC-BL comprises all NBFCs-ND with asset size below ₹1,000 crore. NBFCs-ND with asset size above ₹1,000 crore and NBFCs-D come under NBFC-ML. NBFC-UL are NBFCs (including NBFCs-D) specifically monitored by the Reserve Bank based on a set of parameters and scoring methodology. The top ten eligible NBFCs based on their asset size come under NBFC-UL. 16 NBFCs (including HFCs) currently are in NBFC-UL. If the Reserve Bank perceives a substantial increase in the potential systemic risk from specific NBFCs in NBFC-UL, they move to NBFC-TL, though this layer will ideally remain empty. NBFCs in the middle and upper layers, together, account for nearly 95 per cent of the total assets (Charts 1.1B). The Reserve Bank has prescribed progressively stronger regulatory regimes for NBFCs in these two layers given their systemic importance. The Prompt Corrective Action (PCA) framework, applicable to banks, has been extended to NBFCs in the middle and upper layers. Under the PCA framework, NBFCs need to undertake timely remedial measures if they breach the prescribed risk thresholds (shown in Table 1.1).[4]

Chart 1.1B

Share in Total Assets of SBR
(As of March 31, 2023)



Notes: 1. Data are provisional.
2. Including CICs, PDs and HFCs.
Source: Reserve Bank of India.

[4] The NBFC sector in India is distinct from the global NBFI sector. Indian NBFCs mainly fall under the Economic Function 2 (EF2) of the global NBFIs under FSB 2022, which are defined as entities whose loan provisioning is dependent on short-term financing. This reliance on short-term financing can amplify stress and propagate shocks if these entities cannot roll over short-term liabilities. Hence, the policy tools for EF2, typically address credit and liquidity risks. Hence, scale-based regulation incorporates the principle of proportionality and is geared towards making the regulation for more systemically important NBFCs similar to the banking entities.

Table 1.1: Risk Thresholds defined under PCA Framework for NBFCs-ND-SI and NBFCs-D

Indicator	RT-1	RT2	RT3
CRAR	Less than the regulatory minimum of 15 per cent but greater than or equal to 12 per cent	Less than 12 per cent but greater than or equal to 9 per cent	Less than 9 per cent
Tier-I Capital Ratio	Less than the regulatory minimum of 10 per cent but greater than or equal to 8 per cent	Less than 8 per cent but greater than or equal to 6 per cent	Less than 6 per cent
NNPA Ratio	Greater than 6 per cent but less than or equal to 9 per cent	Greater than 9 per cent but less than or equal to 12 per cent	Greater than 12 per cent

Source: Reserve Bank of India.

I.11 In terms of types of activity, NBFCs are classified into 11 types (RBI, 2022) (Table 1.2). Housing Finance Companies (HFCs) are specialised institutions that extend housing credit, along with scheduled commercial banks. They were initially under the purview of the National Housing Bank (NHB) till they were brought under the Reserve Bank's regulatory purview in August

Table 1.2: Classification of NBFCs by Activity

	Type of NBFC	Activity
1.	Investment and Credit Company (ICC)	Lending and investment.
2.	NBFC-Infrastructure Finance Company (NBFC-IFC)	Lending of infrastructure loans.
3.	Core Investment Company (CIC)	Investment in equity shares, preference shares, debt, or loans of group companies.
4.	NBFC-Infrastructure Debt Fund (NBFC-IDF)	Facilitate flow of long-term debt to infrastructure projects.
5.	NBFC-Micro Finance Institution (NBFC-MFI)	Making collateral free, small ticket loans to small borrowers and to economically disadvantaged groups.
6.	NBFC-Factor	Acquisition and financing of receivables.
7.	NBFC-Non-Operative Financial Holding Company (NBFC-NOFHC)	For the setup of new banks in the private sector through its promoters/ promoter groups.
8.	Mortgage Guarantee Company (MGC)	Undertaking mortgage guarantees of loans.
9.	N NBFC-Account Aggregator (NBFC-AA)	Collecting information about a customer's financial assets to be provided to the customer or others authorized persons.
10.	NBFC–Peer to Peer Lending Platform (NBFC-P2P)	Connect lenders and borrowers through an online platform.
11.	Housing Finance Companies (HFC)	Focused on the housing finance sector to provide financing for the purchase, construction, reconstruction, or renovation repairs of residential dwelling units.

Notes: 1. Standalone Primary Dealers (SPDs) lie in the middle layer.
2. Government NBFCs lie in either base or middle layer.

Source: Reserve Bank of India.

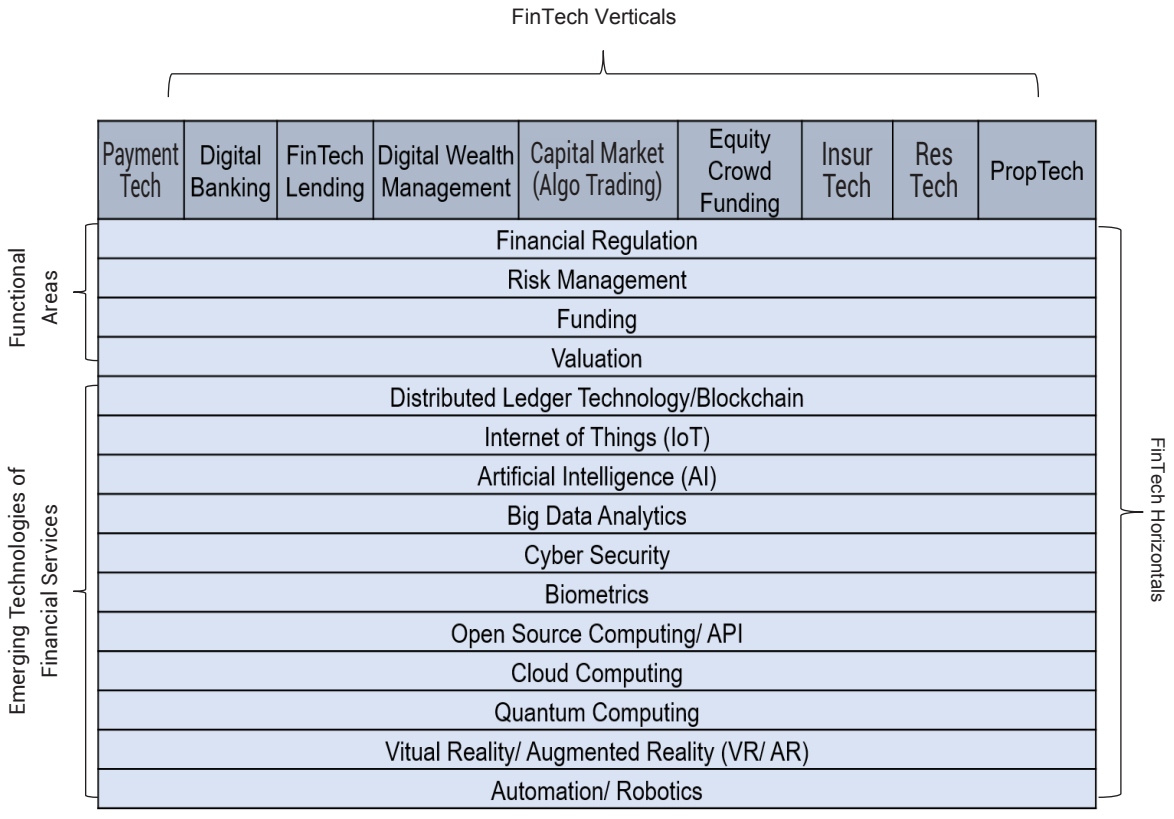
2019. With a view to standardize regulations between HFCs and NBFCs, the sector has undergone several legislative and regulatory changes. In October 2020, the Reserve Bank released the revised regulatory framework for HFCs and subsequently, the Master Directions issued on February 17, 2021 compiled the extant regulations applicable to HFCs.

1.2.1 Digital Lending

I.12 Recent years have seen the advent of digital lending. Though there is no widely accepted terminology for digital lending, a defining feature is that credit intermediation occurs predominantly though a digital channel. The RBI Working Group on Digital Lending (RBI, 2020) notes that the "characteristics that are essential to distinguish digital lending from conventional lending are use of digital technologies, seamlessly to a significant extent, as part of lending processes involving credit assessment and loan approval, loan disbursement, loan repayment, and customer service." FinTech lending forms an important part of the larger digital landscape (Chart 1.2) comprising of "vertical sectors" and "horizontal" areas of focus. This definition is closely tied to the Financial Stability Board (FSB) definition of FinTech as "technologically enabled innovation in financial services that could result in new business models, applications,

Chart 1.2

Digital Lending Landscape



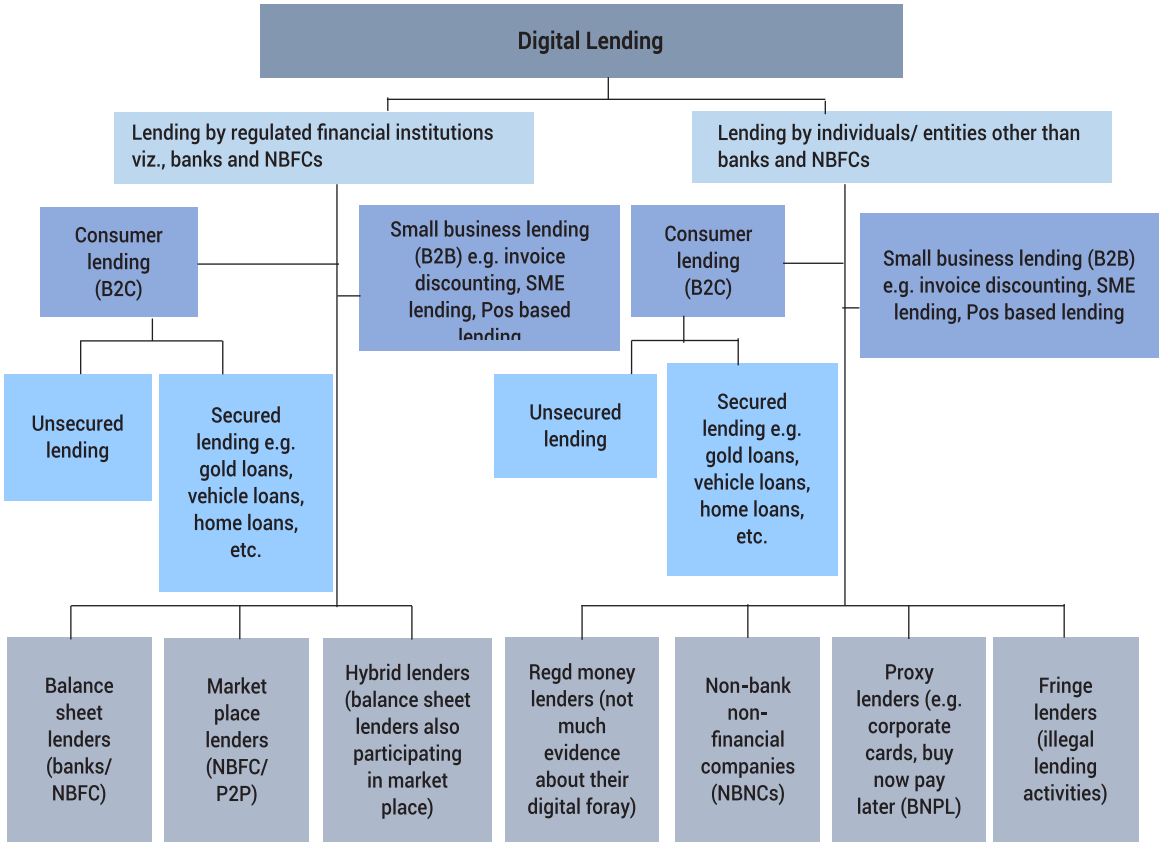
Source: Reserve Bank of India.

processes or products with an associated material effect on financial markets and institutions and the provision of financial services" (Financial Stability Board, 2022).

I.13 While NBFCs have been the front runners in digital lending, banks too have entered the arena as recent years have brought into sharp focus the viability of conventional banking models. Banks and NBFCs have also increasingly expanded their digital lending segment by deploying third party outsourcing agents, known as Lending Service Providers (LSPs). Broadly, digital lending can be of two forms: balance sheet lending, or market place lending (platform lending). Balance sheet lenders (BSL) carry the credit risk of the loans they make on their balance sheet and provide capital for these assets. Market place lenders (MPL) or market place aggregators (MPAs) match lenders to borrowers but do not carry the loans on their balance sheets. Examples of MPLs and MPAs include P2P lending and other digital loan originators — such as FinTech platforms, 'neo banks' or Buy Now, Pay Later (BNPL) players — that then transfer such loans to BSLs.

Chart 1.3

The Digital Lending Ecosystem in India

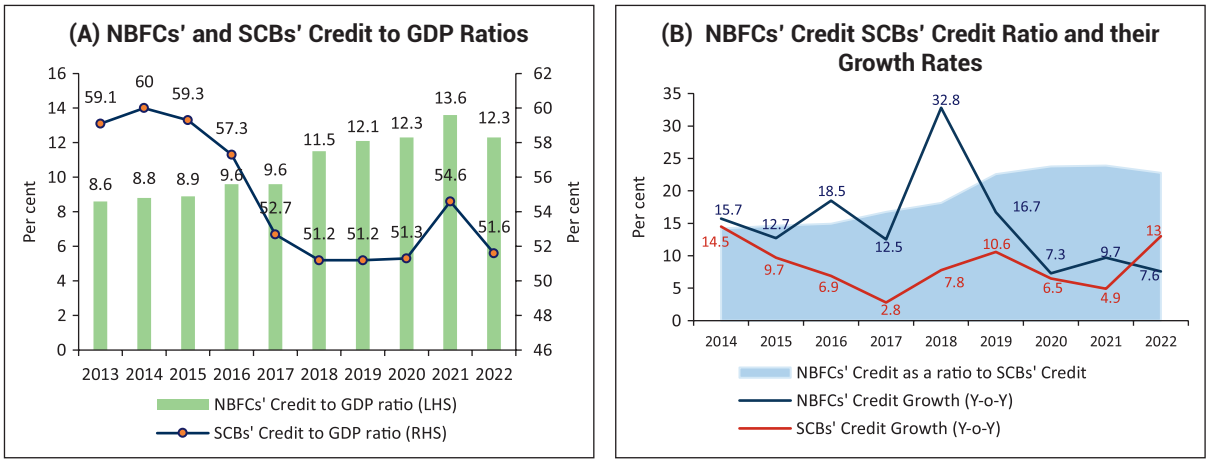


Source: Reserve Bank of India.

Chart 1.4

NBFCs' Credit relative to SCBs' Credit and GDP

(At end March)



Note: GDP refers to GDP at Current Market Prices base: 2011-12.
Source: Reserve Bank of India, 2022.

1.3 Phases of transformation and regulatory landscape

I.14 The NBFC sector has undergone three distinct phases of transformation post-GFC. Concomitant regulations during each phase, either as factors propelling transformation or as a response to idiosyncratic shocks affecting the sector have shaped the NBFC financial landscape.

1.3.1 The High Growth Phase: - 2012-2017

I.15 Between 2012 to 2017, the sector witnessed a boom and NBFCs' credit-GDP ratio increased from 8.6 per cent to 11.5 per cent between 2013 and 2018. The sector's rapid growth is also evident from the spectacular stock price increase (Chart 1.5). The weighted stock price index of large listed NBFCs increased by 250 per cent between January 2012 to October 2016, with a further 86 per cent jump between November 2016 to September 2018.

I.16 The rapid growth in the NBFC sector has been accompanied by a simultaneous decline in the share of bank credit (Chart 1.4A). Between 2013 and 2018, the credit-GDP ratio of banks declined from 59.1 per cent to 51.2 per cent. Credit growth of NBFCs outpaced that of banks, with the relative gap widening up until 2018 (Chart 1.4B). Juxtaposed against this, bank credit growth declined between 2014 to 2018, a period marked by significant stress in the banking sector. The expansion of NBFC credit precisely when banking credit was contracting underscores the role of NBFCs as shock absorbers (see Box 1.1).

Box 1.1: NBFCs as Shock Absorbers

NBFCs can act as shock absorbers by stepping in to provide credit when the traditional banking sector credit declines due to stress (Elliott, Meisenzahl, and Peydró 2023). Non-bank lending can also expand while bank lending contracts, such as during monetary policy tightening cycles (Xiao, 2020). In India, a beleaguered traditional banking sector saw stressed assets increase massively post-GFC, affecting banks' credit growth (Chari *et al.*, 2022). This box examines whether NBFCs in India acted as shock absorbers during the period 2012 to 2016, offsetting the credit contraction by banks.

Empirical analysis using retail credit data from CIBIL provides some interesting insights. First, granular branch-level data is used to extract supply-side bank shocks at the district level. The main hypothesis of interest is how declines in credit by traditional banks relate to NBFC credit growth. Using the district-level credit shock to instrument for bank credit declines, the impact on NBFC credit is examined (see Appendix A).

The baseline model indicates that higher the credit shock, lower is the credit growth of public sector banks providing validation of using the credit shocks as an instrument (Table 1). Importantly, credit *increases* for NBFCs, underscoring the substitution between NBFCs and banks. Thus, NBFC lending expands while bank lending contracts. Results hold in more robust instrumented specifications (Table 2).

Overall, the findings suggest that during the period between 2012-16 non-bank credit substituted for the decline in bank credit, especially in districts catered to by banks undergoing negative credit shocks. The rising footprint of NBFCs during the 2012-16 period acted as shock absorbers for the pullback in credit by stressed banks.

Table 1: Impact on lending

Panel A: Reduced Form Estimates

Dependent variables:	(1)	(2)	(3)	(4)
	Δ Log(Loans)			
	PSB	Pvt.	NBFC	HFC
SCB Credit Shock	-1.432*** (0.322)	-0.949 (0.676)	3.482** (1.723)	-0.181 (0.549)
R^2	0.024	0.002	0.006	0.000
N	1715	1553	613	1680

Panel B: Two-Stage Least-Squares (2SLS) Estimates

Dependent variables:	(1)	(2)	(3)	(4)	(5)
	First Stage	PSB	Pvt.	NBFC	HFC
SCB Credit Shock	49.863*** (9.087)				
SCB Credit decline		-0.029*** (0.008)	-0.018 (0.012)	0.030** (0.015)	-0.003 (0.010)
R^2	0.025	-0.900	-0.074	-0.040	-0.003
F-statistic	30.114				
N	1717	1715	1553	613	1680

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

References:

Chari, A., Jain, L., & Kulkarni, N. (2021). The Unholy Trinity: Regulatory Forbearance, Stressed Banks and Zombie Firms (No. w28435; p. w28435). *National Bureau of Economic Research.* https://doi.org/10.3386/w28435

Elliott, D., Meisenzahl, R., & Peydro, J.-L. (2023). Nonbank lenders as global shock absorbers: Evidence from US monetary policy spillovers. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4397177

Xiao, K. (2020). Monetary transmission through shadow banks. *The Review of Financial Studies.* 33 (6), pp. 2379–2420.

Chart 1.5

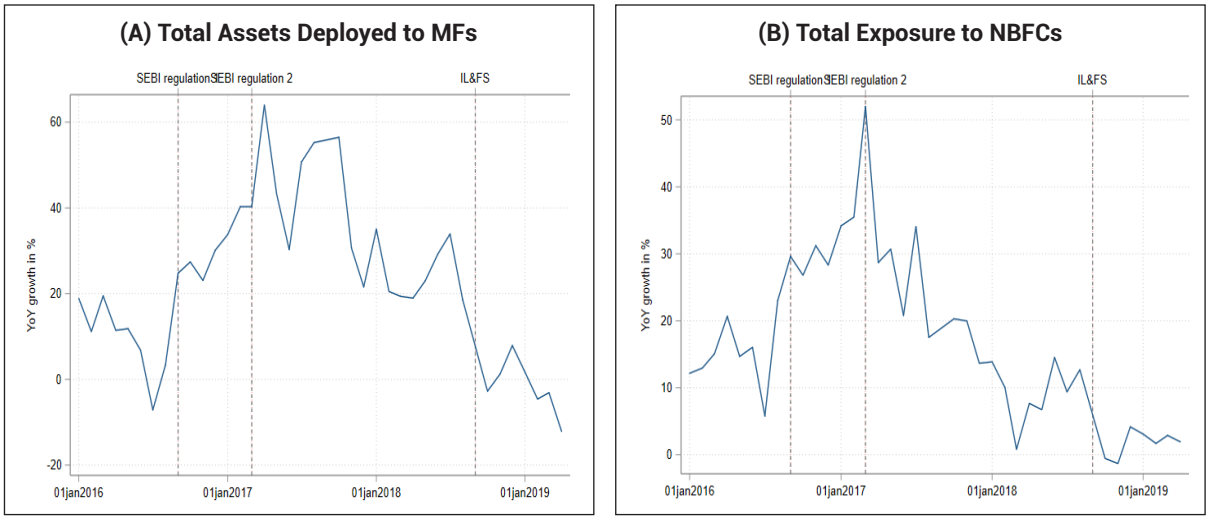
NBFC Stock Price Index

Note: Data are provisional.
Source: Reserve Bank of India.

I.17 Coincident funding flows into the NBFC sector during the period further fuelled growth. The sudden influx of liquidity into the financial system post-demonetisation in November 2016 led to an increase in assets under management (AUM) of mutual funds, which grew by 42 per cent in 2017 (Chart 1.6A). Flush with liquidity, mutual funds deployed capital in the NBFC sector, mainly through investments in commercial paper (Kulkarni, Neelima, and Sinha, 2023).

Chart 1.6

Total Assets Deployed by Mutual Funds



Source: CRISIL; Bhargava, Ganesh, Ghosh, and Kulkarni (2023).

I.18 Between 2016 and 2017, Securities and Exchange Board of India (SEBI) also introduced two regulations that increased the flow of funds to mutual funds and subsequently to HFCs. The regulations targeted HFCs with a view to increase flows to the affordable housing segment under the Pradhan Mantri Aawas Yojana (PMAY) (SEBI, February 2017).

I.19 The SEBI regulations mandated that the sectoral exposure of debt oriented mutual fund schemes in any sector not exceed 25 per cent of their net asset value. An additional 5 per cent exposure to financial services sector, specifically only to HFCs, was allowed. This additional exposure limit was increased to 10 per cent for HFCs on August 10th, 2016 subject to certain conditions. In particular, SEBI required that such securities be rated AA and above and the issuer HFCs are registered with the NHB. HFCs were the largest issuers of AA and AAA rated bonds in the market and the additional exposure of 5 per cent was meant to allow fund managers to increase exposure to creditworthy bonds (SEBI, Feb 2017). Subsequently, following the influx of liquidity into the financial system post-demonetisation, SEBI further relaxed the exposure limits to HFCs from 10 per cent to 15 per cent on February 22, 2017. A steep increase in inflow of funds to mutual funds and to NBFCs coincides with the SEBI regulations (Chart 1.6A and Chart 1.6B, respectively).

1.3.2 The Stress Years: 2018-19

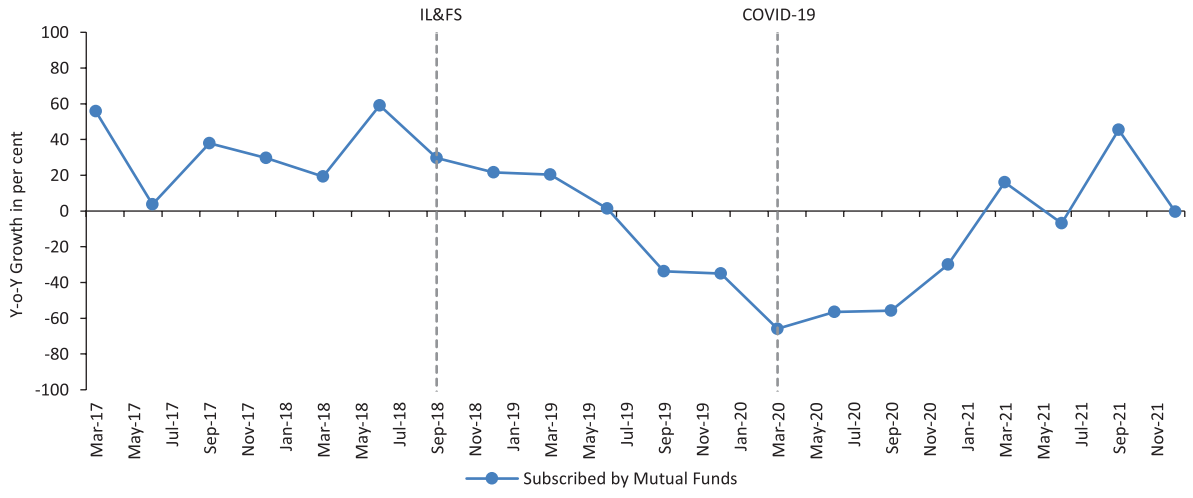
I.20 In September 2018, IL&FS, a core investment company, defaulted on debt worth ₹91,000 crore, of which ₹57,000 crore was owed to public sector banks (Bandyopadhyay, 2021). IL&FS had a complex group structure of nearly 347 subsidiaries and had been facing liquidity problems for some time. In June 2018, IL&FS Transportation Networks Limited defaulted on ₹450 crore of inter-corporate deposits of the Small Industries Development Bank of India (SIDBI), which was reflected in the swift fall in stock prices. Subsequently, in September 2018, IL&FS defaulted on repayment of ₹1,000 crore in short-term loans from SIDBI (Business Standard, 2018). As a result, credit rating agencies started downgrading IL&FS and its subsidiaries.

I.21 The IL&FS default adversely affected market confidence, with the NBFC sector facing higher borrowing costs and liquidity stress (RBI, 2021). The IL&FS event also created widespread panic amongst mutual funds, which started pulling out of commercial paper (CP) issued by NBFCs (Chart 1.7).

I.22 NBFCs found it increasingly difficult to repay short-term obligations, which further amplified the stress in the sector. Subsequently, in June 2019, DHFL was unable to pay ₹1,150 crore to its bondholders. As with IL&FS, panicked mutual funds started pulling out of the commercial paper market. Credit rating agencies downgraded their ratings on the DHFL commercial paper due to its deteriorating liquidity conditions. The NBFC and HFC sector further weakened and the NBFC stock market index fell by 3 per cent post-DHFL in June 2019 (Chart 1.5).

Chart 1.7

NBFCs' Commercial Papers Subscribed by Mutual Funds

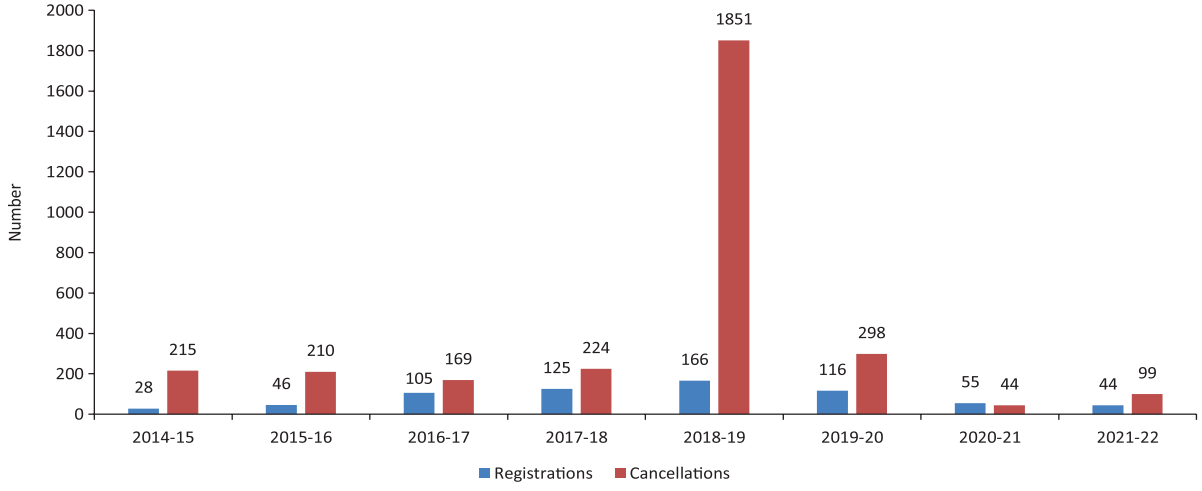


Source: Reserve Bank of India, Kulkarni, Neelima, and Sinha (2023).

I.23 The stress in the sector during this period was also reflected in a large number of cancellations/ surrender of licenses post the IL&FS default in 2018-19 and 2019-20, due to non-compliance of criteria of net owned fund (NOF)[5] (Chart 1.8).

Chart 1.8

Registrations and Cancellation of Certificate of Registrations of NBFCs



Note: Data are provisional.
Source: Supervisory Returns, Reserve Bank of India.

[5] Regulatory guidelines mandated that NBFCs should have minimum net owned fund of ₹2 crore in 2021, but was revised to ₹10 crore in 2022, to be met in a phased manner, failing which they are not allowed to operate. NBFCs-ICC, NBFCs-MFI and NBFC-Factors are required to attain net owned fund of ₹10 crore by March 2027 following a glide-path.

1.3.2.1 2018-19 Crisis Management: The Regulatory Measures/Intervention[6]

I.24 Several measures by the Reserve Bank and the GoI ensured that contagion from the 2018-19 NBFC crisis due to NBFCs' interlinkages with banks and financial markets was limited.

I.25 To improve regulatory oversight in the aftermath of the 2018-19 crisis, the Finance Bill was introduced in 2019 through amendments to the 1934 RBI Act, conferring powers on the Reserve Bank to strengthen NBFC governance. The Reserve Bank could remove NBFC directors, supersede the board and appoint administrators, impose penalties for non-compliance, and resolve an NBFC through amalgamation, reconstruction or splitting the NBFCs.

I.26 Further, as part of the goal to strengthen oversight, government-owned NBFCs-ND-SI and NBFCs-D were brought under the Reserve Bank's on-site inspection framework and off-site surveillance. The Reserve Bank also created a new category, NBFC- Investment and Credit Company (NBFC-ICC), to reduce complexity, encompassing Asset Finance Companies, Loan Companies, and Investment Companies. Bank exposure to NBFCs (excluding CICs) was risk-weighted based on ratings with risk-weighting for CICs at 100 per cent. Large NBFCs with asset sizes greater than ₹5000 crore were also required to appoint an independent Chief Risk Officer (CRO).

I.27 The Reserve Bank revised the guidelines for asset-liability management of NBFCs. The framework introduced more granular maturity buckets and encouraged the adoption of liquidity risk monitoring tools. Liquidity coverage ratio (LCR) was required to be at least 50 per cent for NBFCs-D and NBFCs-ND with asset sizes above ₹10,000 crore and 30 per cent for all NBFCs-ND with asset sizes between ₹5,000 crore to ₹10,000 crore as of December 1, 2020, and this ratio is required to reach 100 per cent by December 1, 2024.

I.28 To support the NBFC sector and address growing funding costs, the GoI removed the Debenture Redemption Reserve (DRR) requirement of 25 per cent for NBFCs and HFCs by amending the Companies (Share Capital and Debentures) Rules. This amendment reduced the cost of raising funds, paving the way for deeper corporate bond markets. Restrictions on external commercial borrowings (ECBs) were also relaxed wherein eligible borrowers could raise ECBs from recognized lenders (excluding foreign branches and overseas subsidiaries of Indian banks) with (i) a minimum average maturity period of 10 years for working capital, general corporate purposes and repayment of domestic rupee loans for on-lending (excluding capital expenditure) and, (ii) a minimum average maturity period of 7 years for repayment of domestic capital expenditure rupee loans. Banks could also provide partial credit enhancement (PCE) to refinance existing debt (with three-year maturity or more) issued by NBFCs-ND-SI and HFCs. To promote securitization, the Reserve Bank also relaxed

[6] See Report on Trends and Progress in Banking (2019), Box VI.I for further details.

the minimum holding period (MHP) requirement for loans with 5-year or above maturity up until December 31, 2019.

I.29 In addition to these measures, GoI introduced a scheme to provide a one-time partial credit guarantee with first loss of up to 10 per cent to PSBs for the purchase of high-rated pooled assets up to ₹1 lakh crore from financially sound NBFCs/HFCs. Foreign Institutional Investors (FIIs) and Foreign Portfolio Investors (FPIs) were also permitted to invest in debt securities issued by Infrastructure Debt Fund–Non-Bank Finance Companies (IDF-NBFCs) that would be transferred or sold to any domestic investor within the specified lock-in period.

I.30 The third set of measures directly supported NBFC borrowers adversely affected by the crisis. NBFCs-ND-SIs could co-originate loans with banks (excluding Regional Rural Banks and Small Finance Banks) in the priority sector. Support was also extended to micro, small and medium enterprises (MSMEs) relying on NBFCs for their funding: NBFCs-ND-SIs were encouraged to support the GoI scheme introducing a 2 per cent interest subvention for all GST-registered MSMEs on November 2, 2018. Further, a one-time loan restructuring scheme was introduced to address temporary hardships, allowing MSME loans in default but standard as of January 1, 2019, to be restructured without an asset classification downgrade.

I.31 Lastly, to facilitate clean-up and resolution, NBFCs were also included in the Insolvency and Bankruptcy Code (IBC) in November 2019. NBFCs and HFCs with asset sizes greater than or equal to ₹500 crore became eligible to be included under the IBC, and their insolvency resolution and liquidation proceedings to be carried out as per the provisions of the IBC. However, Corporate Insolvency Resolution Process (CIRP) against NBFCs could be initiated only on an application by the Reserve Bank before the National Company Law Tribunal (NCLT).

1.3.3 The COVID-19 Pandemic and Later Years

I.32 The COVID-19 pandemic in March 2020 heightened stress in the sector as evidenced by the steep fall in the NBFC stock price index of 50 per cent by April 2020 (Chart 1.5), though it improved soon after. Several regulatory measures ensured that market confidence in the sector was restored and overall credit extended by the sector even improved between 2020 and 2021 (Chart 1.4). The Reserve Bank took various measures during the pandemic primarily to provide liquidity to NBFCs and to support their adversely hit borrowers (Table 1.3).

I.33 In addition to these measures, two important regulations changed the regulatory landscape for HFCs and NBFCs. In October 22, 2020 the regulation of HFCs shifted from the NHB to the Reserve Bank. HFCs would now be treated under the category of NBFCs for regulatory purposes.[7]

[7] See https://rbidocs.rbi.org.in/rdocs/notification/PDFs/MD10007CE48ADE2FB4BF981444FE1349E3B71.PDF

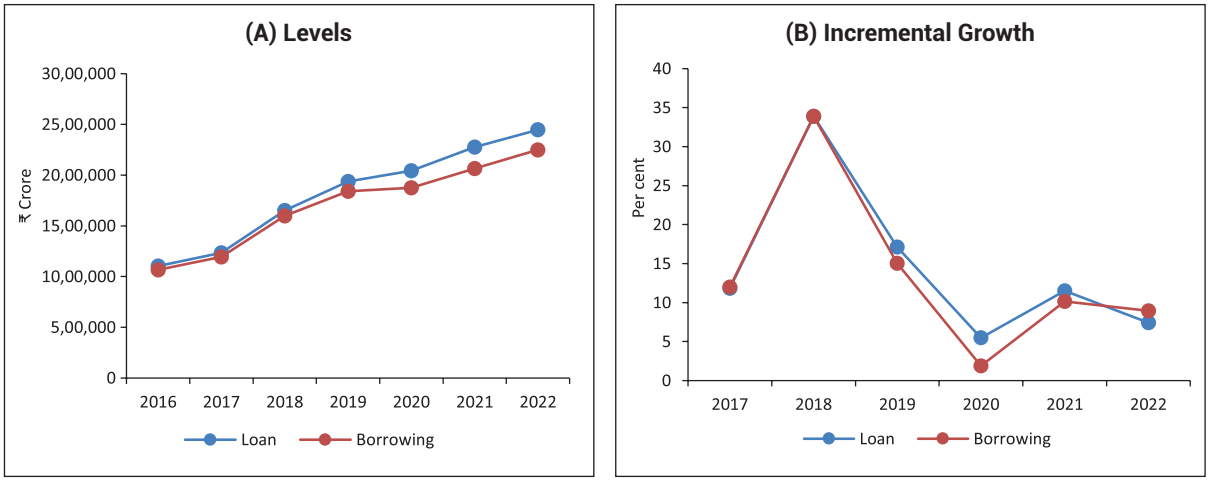
Table 1.3: COVID-19 measures to help NBFC Access to Funds

Sr. no.	Regulatory Measures	Date of Announcement	Function
1.	Targeted Long Term Repo Operation (TLTRO)	March 27, 2020; April 17, 2020; and October 9, 2020	To ensure liquidity in specific sectors. Funds received by banks were to be invested in investment grade corporate debt. TLTRO 1.0: ₹1,00,000 crore (in four tranches of ₹25,000 crore each) for loans up to 3-year maturity with floating rates linked to repo. TLTRO 2.0: Easing liquidity constraints of small and mid-sized corporates, including NBFCs and micro finance institutions (MFIs). ₹50,000 crore, up to 3-year maturity with floating rates linked to repo. TLTRO 3.0: Targeted sectors like agriculture, micro, small and medium enterprises (MSMEs) and secured retail, amongst others. On-tap TLTRO of up to three years tenor for a total amount of up to ₹1,00,000 crore at a floating rates linked to the policy repo rate.
2.	Special Liquidity Facility for Mutual Funds (SLF-MF)	April 27, 2020	To mitigate the liquidity constraints of mutual funds due to redemption pressure. Under the scheme, banks could avail of funding at the fixed repo rate for 90 days exclusively to meet the liquidity requirements of MFs by extending loans, undertaking outright purchase of and/or repos against the collateral of investment grade corporate bonds, commercial paper, debentures and certificates of Deposit (CDs) held by mutual funds.
3.	Moratorium	March 27, 2020	To reduce the debt burden in the system. This scheme allowed all financial institutions to grant a moratorium of 3 months on payments of all instalments for all term loans, falling due between 01 March, 2020 to 31 May, 2020.
4.	Partial Credit Guarantee Scheme (PCGS)	May 20, 2020	To provide portfolio guarantees for the first 20 per cent loss to public sector banks purchasing bonds or commercial paper with a rating of AA and below issued by NBFCs/MFCs/Micro Finance Institutions.
5.	Special Liquidity Scheme (SLS) for NBFCs/HFCs	July 1, 2020	To improve the liquidity position of NBFCs/HFCs through a Special Purpose Vehicle (SPV) to avoid any potential systemic risks to the financial sector. The SPV would purchase short-term paper from eligible NBFCs/HFCs, who could then use the proceeds for the purpose of extinguishing existing liabilities. CPs and NCDs with a residual maturity of not more than three months and rated as investment grade were considered as eligible instruments.
6.	Emergency Credit Line Guarantee Scheme (ECLGS)	May, 2020	The scheme was introduced to support Micro, Small and Medium Enterprises (MSMEs) and other business enterprises to meet operational liabilities. The scheme covered all sectors and 100% guarantee was provided to Member Lending Institutions (MLIs) for the credit facility extended under the scheme to eligible borrowers.

I.34 The Reserve Bank also introduced a new scale based regulatory framework for the NBFC sector in October 2022 and reduced regulatory arbitrage between NBFCs and banks (Section 1.2).

Chart 1.9

Borrowings and Advances of NBFCs
(At end March)



Source: Reserve Bank of India; Financial year in the x-axis.

1.4 Analysis of NBFCs

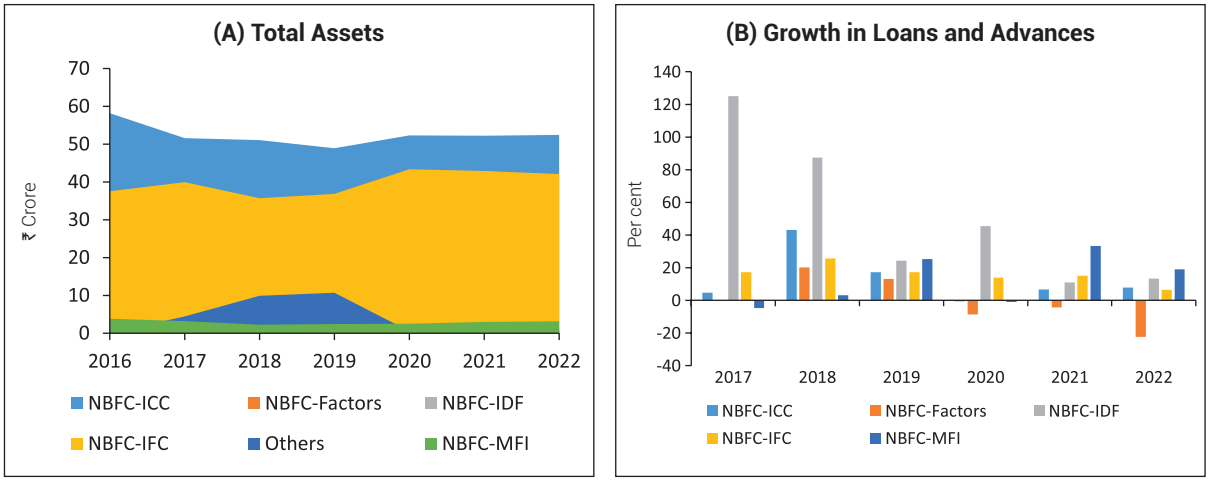
I.35 From 2016 to 2022, NBFC's aggregate lending (loans/advances) and total borrowing grew steadily. Paralleling the distinct phases of transformation in the sector, lending and borrowing surged in FY 2016-17 and FY 2017-18 (Chart 1.9A). Incremental growth declined in FY 2018-19 and FY 2019-20 during the crisis years, abating the market expansion of the earlier years (Chart 1.9B). More recently, borrowing picked up in FY 2020-21 and FY 2021-22 reflecting regulatory efforts to ease funding access during the pandemic, with similar patterns in credit growth.

I.36 The period also reflects significant compositional shifts amongst NBFCs. Total assets of NBFCs-MFI remained relatively stable from FY 2016 to FY 2022 whereas the total assets of NBFCs-ICC and NBFCs-IFC saw a decline in FY 2019, followed by a swift recovery thereafter (Chart 1.10A). More recently, NBFC-ICC and NBFC-IFC experienced positive growth in loans and advances following the COVID-19 pandemic (Chart 1.10B). NBFC-MFIs saw a slowdown in growth in FY 2022 compared to FY 2021, whereas growth in NBFC-Factor turned negative and has continued to decline since FY 2020 (Chart 1.10B).

1.37 The NBFC sector primarily allocated credit to the industry sector, followed by retail loans. The industry sector experienced a decline in its credit share in FY 2020, post the pandemic. In contrast, NBFC sector's retail loan portfolio has increased (Chart 1.11A). The agriculture, industry, and services sectors experienced a decline in NBFC credit growth, with a stark increase in retail loan growth in FY 2020. Since then, credit growth for all sectors has rebounded in FY 2022 (Chart 1.11B).

Chart 1.10

Classification-wise NBFCs-ND-SI: Select Indicators
(At end March)



Source: Reserve Bank of India.

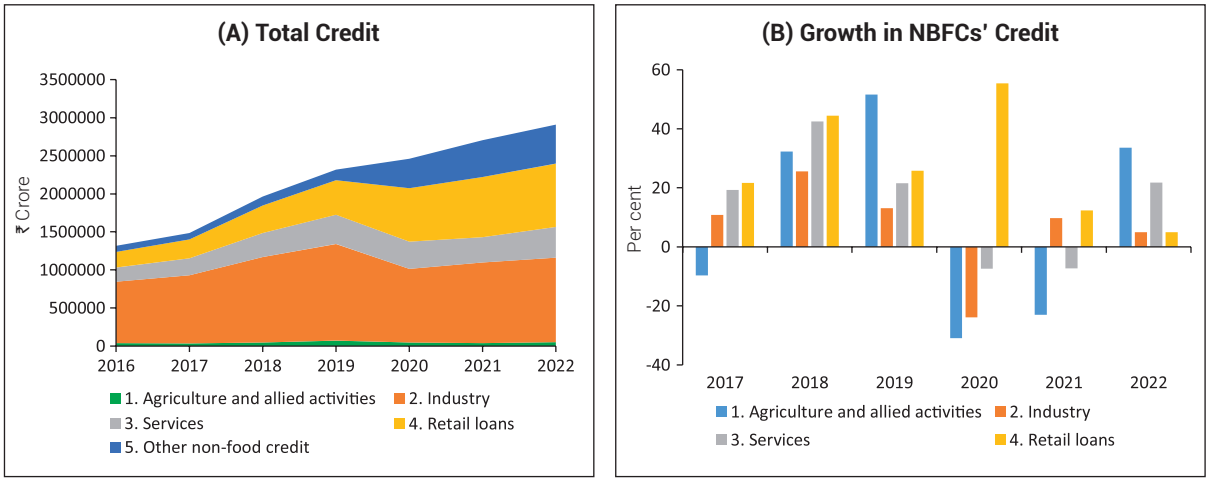
1.4.1 Liquidity vulnerabilities of NBFCs

I.38 Liquidity vulnerabilities at NBFCs can precipitate stress. These can arise due to liquidity mismatches, liquidity spirals, and crowded trades arising from common exposures to assets (IMF, 2023). While liquidity vulnerabilities were observed during the 2018-19 stress period, various regulatory measures undertaken by the Reserve Bank addressed these underlying issues.

I.39 The primary sources of borrowing for NBFCs are debentures and bank borrowings. From FY 2019, NBFC borrowing from banks and financial institutions has increased, accompanied by

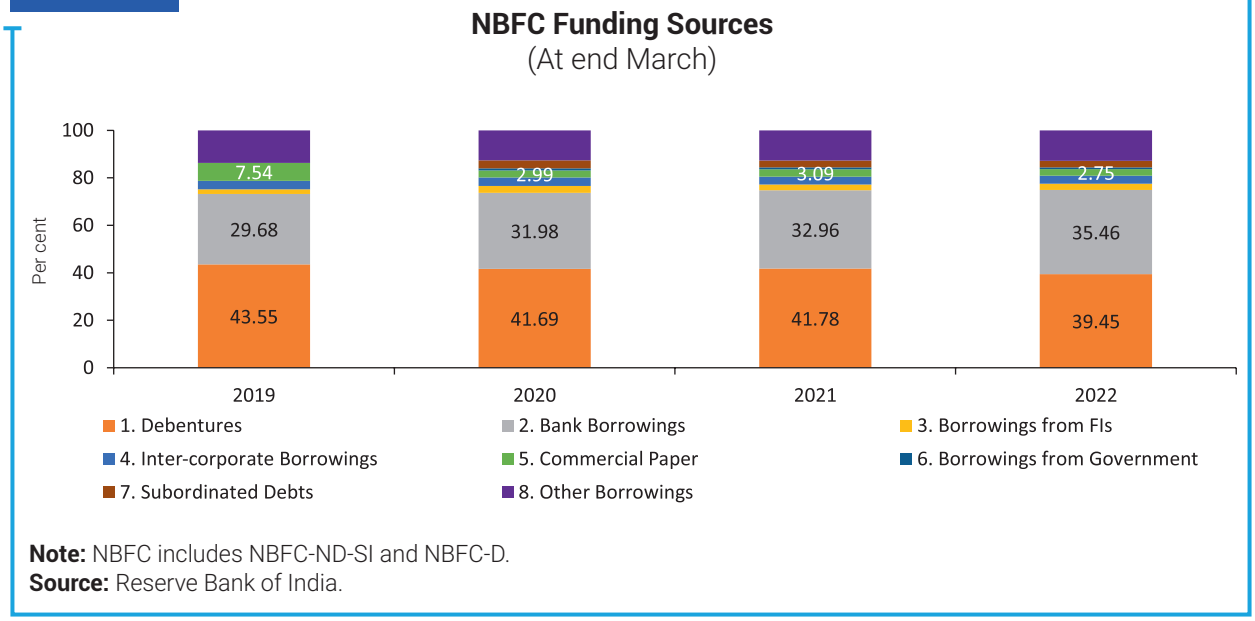
Chart 1.11

Distribution of NBFC Credit
(At end March)



Source: Reserve Bank of India.

Chart 1.12



Note: NBFC includes NBFC-ND-SI and NBFC-D.
Source: Reserve Bank of India.

a corresponding fall in market-based borrowing in the form of debentures and commercial paper (Chart 1.12).

I.40 Short-term liabilities can be a source of stress, especially during liquidity crises. Reliance on short-term borrowing in the form of commercial paper rose from FY 2016 to FY 2018 with commercial paper comprising nearly 8 per cent of total borrowing in FY 2018 (RBI, 2022). Commercial paper has greater rollover risk (Anshuman and Sharma, 2020a; Anshuman and Sharma, 2020b), suggesting an increase in funding fragility in the period leading up to the 2018-19 stress episode. The asset-liability mismatch and the subsequent correction post 2018-19 led to a shrinking in commercial paper borrowing. Banks stepped in to support NBFCs, but only the healthier NBFCs (Kulkarni, Neelima, and Sinha, 2023). Bank borrowing since FY 2019 has increased from 29.6 per cent to 35 per cent of total borrowings in FY 2022 (Chart 1.12).

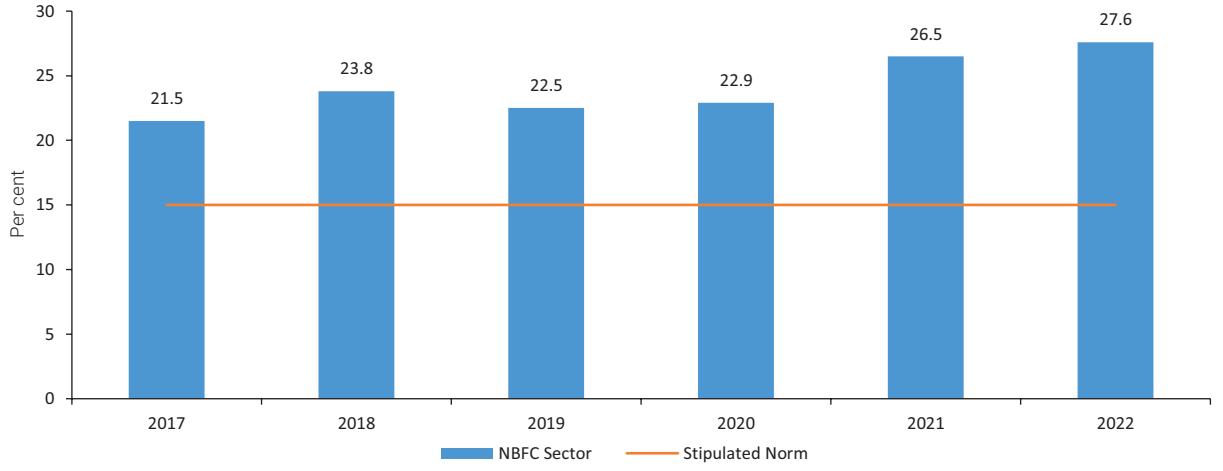
1.4.2 NBFC Capital Positions and Asset Performance

I.41 As a measure of NBFC health, we look at the capital to risk-weighted assets ratio (CRAR) that is also a primary focus of regulation.[8] NBFC sector as a whole demonstrate strong capitalization, surpassing the stipulated level of 15 per cent for CRAR. In the year FY 2022-23, NBFCs witnessed a notable improvement in their CRAR (Chart 1.13). Across all categories of NBFCs-ND-SI CRAR has either improved or remained stable in FY 2022, barring NBFC-IDF and NBFC-MFI for which CRAR marginally declined (Chart 1.14A). CRAR of the NBFCs-D also witnessed a marked increase after COVID-19 in FY 2021 (Chart 1.14B).

[8] The capital adequacy ratio is the ratio of a bank's capital in relation to its risk weighted assets.

Chart 1.13

Capital Position of NBFC Sector (CRAR)
(At end March)

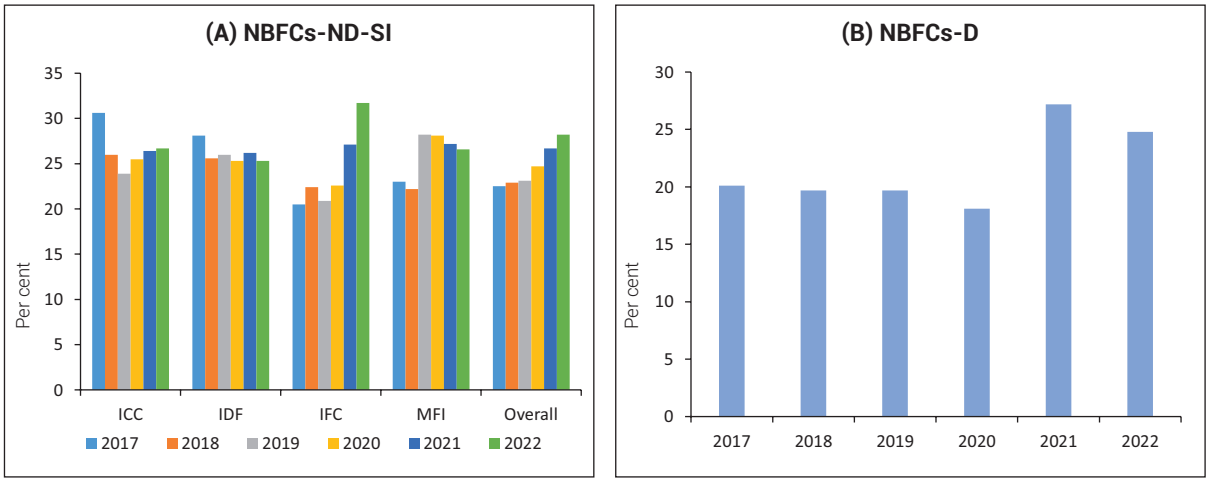


Source: Reserve Bank of India.

I.42 Gross non-performing asset (GNPA) and net non-performing asset (NNPA) ratios of the sector showed improvement after FY 2020. The GNPA ratio decreased from 6.0 per cent to 5.8 per cent, while the NNPA ratio decreased from 2.7 per cent to 2.3 per cent from FY 2021 to FY 2022 (Chart 1.15).

Chart 1.14

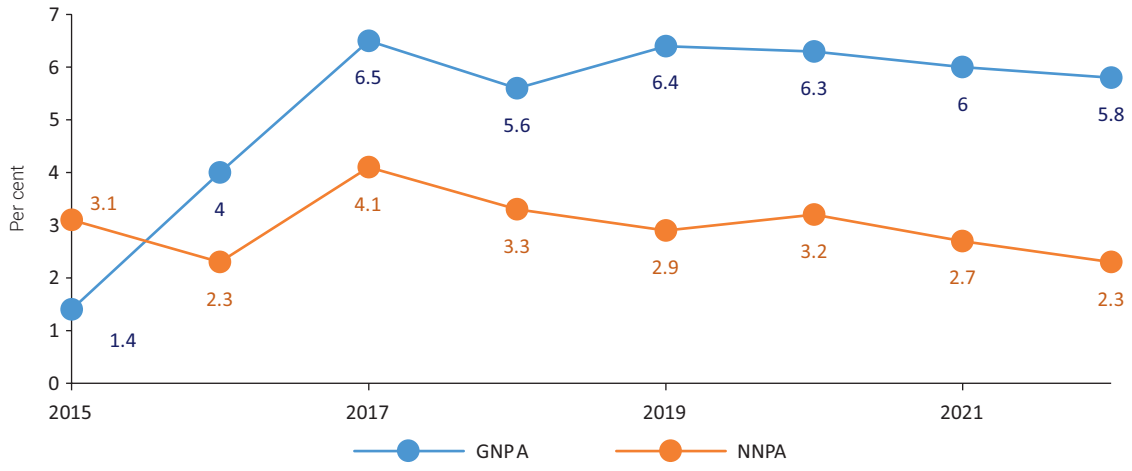
CRAR of NBFCs by Category
(At end March)



Source: Reserve Bank of India.

Chart 1.15

Asset Quality
(At end March)



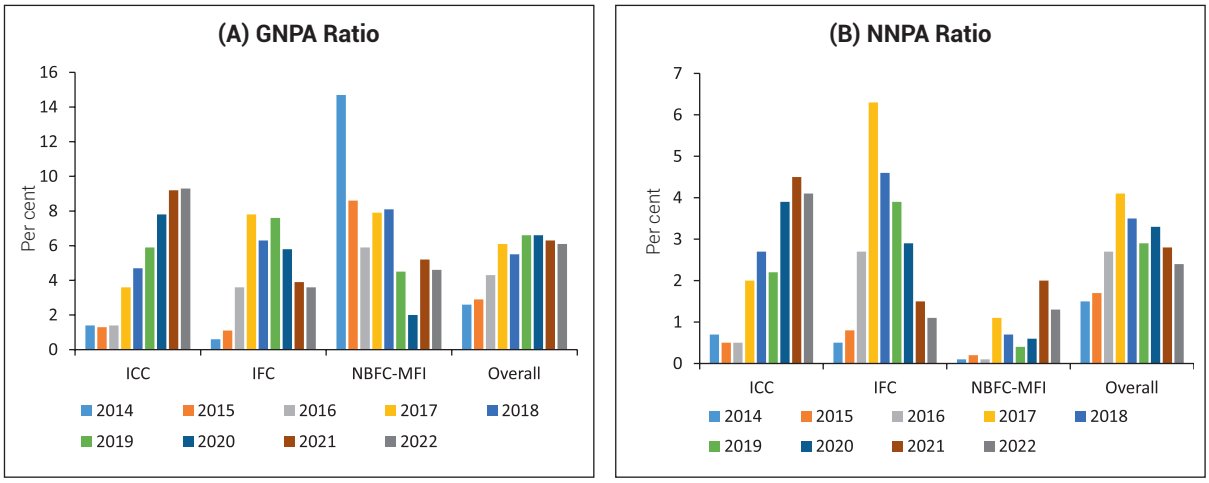
Source: Reserve Bank of India.

I.43 Overall GNPA and NNPA ratios of NBFCs-ND-SI decreased in FY 2022 with a marginal increase in GNPA ratio of NBFCs-ICC (Chart 1.16A). NNPAs too have declined across the board in FY 2022, reflecting improved overall health of NBFCs (Chart 1.16B).

I.44 For NBFCs-D, the GNPA ratio marginally decreased in FY 2022. NNPA ratio, too, fell in FY 2022 (Chart 1.17).

Chart 1.16

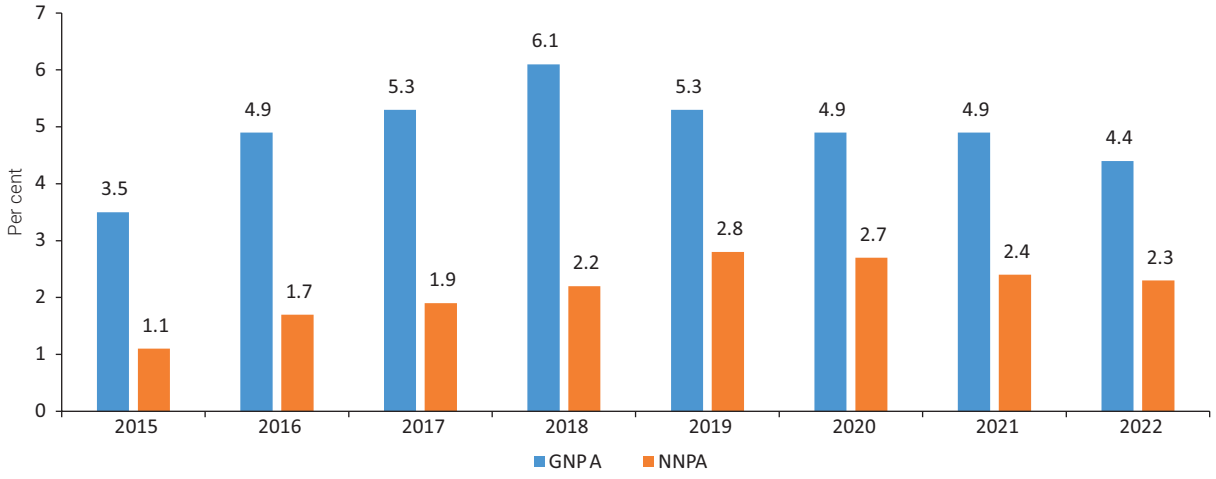
NPAs of NBFCs-ND-SI
(At end March)



Source: Reserve Bank of India.

Chart 1.17

Gross and Net NPA Ratios of NBFCs-D
(At end March)



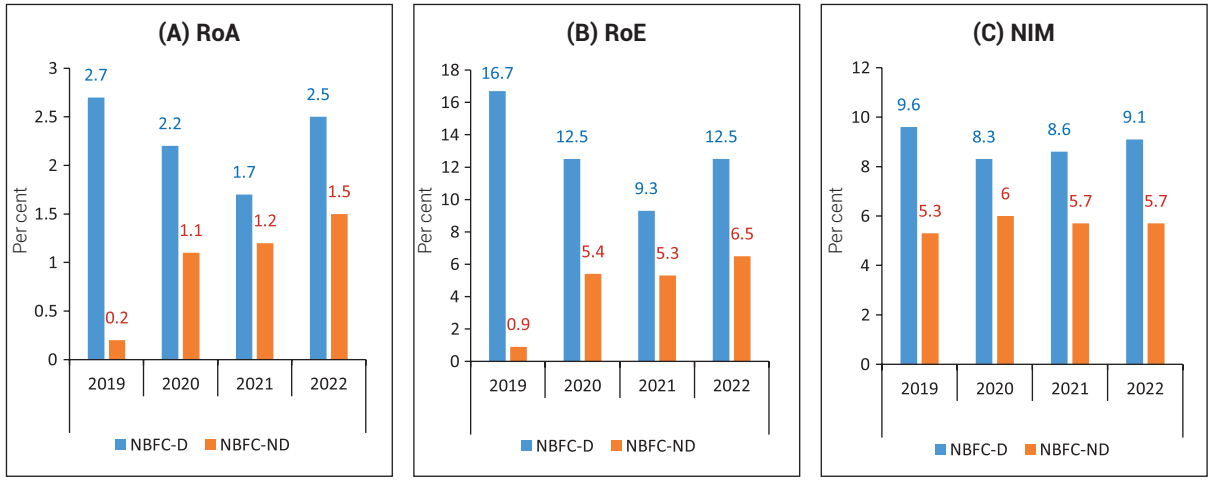
Source: Reserve Bank of India.

1.4.3 NBFC Profitability

I.45 NBFCs-D experienced an improvement in profitability ratios, with both Return on Assets (RoA) and Return on Equity (RoE) showing an increase in FY 2022 compared to FY 2021 (Chart 1.18A and Chart 1.18B). Net interest margin (NIM) also improved during the same period (Chart 1.18C). NBFCs-ND show a similar pattern with an increase in RoA and RoE for FY 2022, while NIM remained unchanged.

Chart 1.18

Profitability Ratio of NBFCs
(At end March)



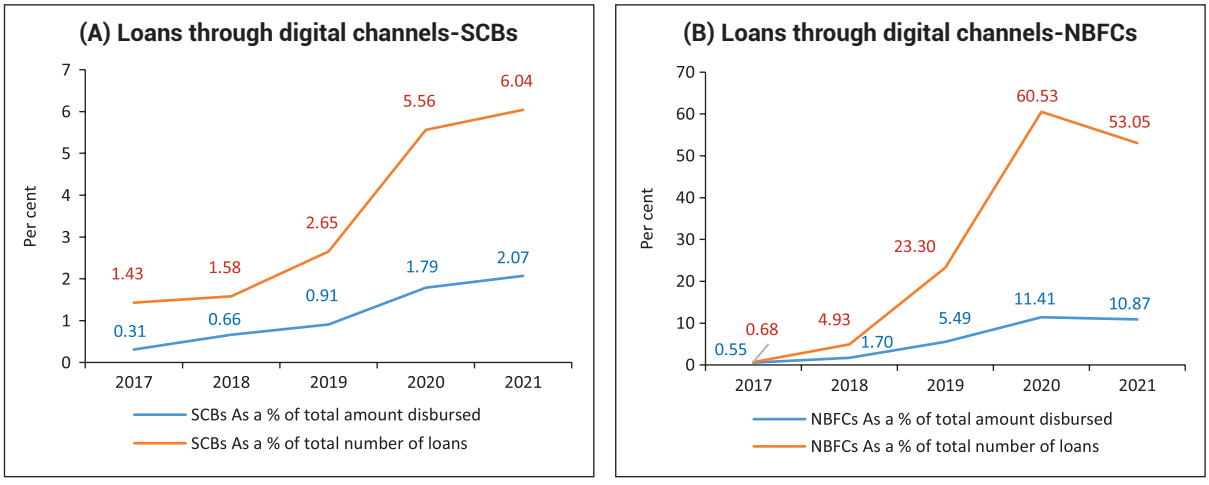
Source: Reserve Bank of India.

1.4.4 Growth in NBFCs' Digital Lending

I.46 Lending through digital mode relative to physical mode is still at a nascent stage for banks (₹1.12 lakh crore via digital mode vis-à-vis ₹53.08 lakh crore via physical mode) based on data from a representative sample of banks and NBFCs (representing 75 per cent and 10 per cent of total assets of banks and NBFCs respectively as on March 31, 2020). In contrast, for NBFCs, a higher proportion of lending (₹0.23 lakh crore via digital mode vis-à-vis ₹1.93 lakh crore via physical mode) is through the digital mode. In FY 2017, there was not much difference between banks (0.31 per cent) and NBFCs (0.55 per cent) in terms of the share of total amount of loan disbursed through digital mode whereas NBFCs were lagging in terms of total number of digital loans with a share of 0.68 per cent vis-à-vis 1.43 per cent for banks (Chart 1.19). Since then, NBFCs have made great strides in lending digitally. .

Chart 1.19

Digital lending banks vis-*à*-vis NBFCs
(At end March)



Source: Reserve Bank of India.

1.5 Conclusion

I.47 In recent years, the NBFC sector has improved, along all dimensions capital, asset quality, and profitability — especially after the pandemic. The overall position of the sector is expected to further strengthen as the economic outlook improves (RBI, 2023).

I.48 The past decade saw NBFCs serve as shock absorbers and facilitated credit expansions, particularly to those segments of markets where the ailing traditional banking sector retreated post-GFC. As the banking sector improves, NBFCs face greater competition from banks. A rising interest rate cycle coupled with global shocks pose potential threats to the sector. As we move into the post-COVID era and NBFCs reconsolidate their position, it is critical that regulation fosters growth while entrenching financial stability.

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APPENDIX A: TECHNICAL APPENDIX

The empirical design used in Box 1.1 is described here.

Using branch-level data, we extract the bank×time shocks as follows:

$$\Delta \text{Loan}_{ib(i)d(i)t} = \delta_{b(i)t} + \gamma_{d(i)t} + \epsilon_{ib(i)d(i)t}$$

for branch *i* at bank *b(i)* in district *d(i)t*. The period of analysis is between 2012-16. The dependent variable is the year-on-year loan growth.

The district-level (bank×time) credit shock measures using bank×time shocks are:

$$\text{Credit Shock}_{dt} = -1 \times \sum_{b} \omega_{bdt_0} \times \hat{\delta}_{b(i)t}$$

where the weight ω_{bdt_0} is the deposit share as of 2010.

To estimate the impact of adverse credit shocks on district-level bank to NBFC lending, we first instrument for bank growth using the credit shock. We then relate banks' credit growth to NBFC credit growth using an instrumental variable strategy.

The empirical specification for district d, at time t (2012–15) is:

First Stage

$$\Delta \text{SCB Loans}_{dt} = \alpha + \beta \times \text{Credit Shock}_{dt} + X_d t + \epsilon_{dt}$$

Second Stage

$$\Delta Y_{dt} = \alpha + \beta \times \Delta \widehat{\text{SCB Loans}}_{dt} + X_d + \epsilon_{dt}$$

Reduced Form

$$\Delta Y_{dt} = \alpha + \beta \times \text{Credit Shock}_{dt} + X_d + \epsilon_{dt}$$

ΔY_{dt} is the loan growth in districts for Scheduled Commercial Banks (SCBs), NBFCs, and HFCs. Scheduled Commercial Banks' loan growth ($\Delta \text{SCB Loans}_{dt}$) is instrumented with adverse credit shock

APPENDIX TABLE I.1: CLASSIFICATION-WISE NBFCS-ND-SI

Share in Total Assets (Per cent)

Category / Asset	End-March 2016	End-March 2017	End-March 2018	End-March 2019	End-March 2020	End-March 2021	End-March 2022
NBFC-ICC	58.19	51.56	51.07	48.93	52.32	52.23	52.45
NBFC-Factors	-	0.16	0.17	0.16	0.15	0.13	0.09
NBFC-IDF	0.45	0.71	0.91	0.92	1.15	1.17	1.30
NBFC-IFC	37.53	39.94	35.71	36.87	43.36	42.91	42.11
NBFC-MFI	3.84	3.18	2.25	2.43	2.50	2.96	3.16
Others	-	4.44	9.90	10.69	0.51	0.60	0.90

Growth in Loans and Advances (Per cent)

Category / Asset	End-March 2017	End-March 2018	End-March 2019	End-March 2020	End-March 2021	End-March 2022
NBFC-ICC	4.62	43.12	17.24	-0.58	6.58	7.77
NBFC-Factors	-	20.12	12.99	-8.75	-4.36	-22.46
NBFC-IDF	125.00	87.35	24.17	45.47	10.96	13.35
NBFC-IFC	17.11	25.64	17.29	13.93	15.10	6.35
NBFC-MFI	-4.74	3.09	25.28	-1.02	33.21	18.94

APPENDIX TABLE I.2: BORROWINGS AND ADVANCES OF NBFCS

(Amount in ₹ crore; Per cent)

Year	Level		Growth	
	Loan	Borrowing	Loan	Borrowing
End-March 2016	11,03,900	10,67,100	-	-
End-March 2017	12,34,600	11,95,100	11.84	12.00
End-March 2018	16,53,217	16,00,053	33.91	33.88
End-March 2019	19,36,593	18,40,657	17.14	15.04
End-March 2020	20,42,745	18,75,467	5.48	1.89
End-March 2021	22,78,224	20,65,567	11.53	10.14
End-March 2022	24,47,059	22,50,360	7.41	8.95

APPENDIX TABLE I.3: DISTRIBUTION OF NBFC CREDIT

Share in Total Credits (Amount in ₹ crore)

Category	End-March 2016	End-March 2017	End-March 2018	End-March 2019	End-March 2020	End-March 2021	End-March 2022
1. Agriculture and allied activities	39,200	35,400	46,821	70,965	49,012	37,728	50,422
2. Industry	8,06,300	8,94,000	11,22,496	12,69,075	9,66,456	10,60411	11,12,852
3. Services	1,86,500	2,22,400	3,16,872	3,85,177	3,56,624	3,30,758	4,02,935
4. Retail loans	2,04,700	2,49,000	3,59,583	4,52,442	7,03,094	7,90,073	8,29,485
5. Other non-food credit	80,100	84,700	1,16,445	1,37,716	3,85,291	4,83,648	5,13,050

Growth in NBFCs' Credit (Per cent)

Category	Agriculture and allied activities	Industry	Services	Retail loans	Other non-food credit
End-March 2017	-9.69	10.88	19.25	21.64	5.74
End-March 2018	32.26	25.56	42.48	44.41	37.48
End-March 2019	51.57	13.06	21.56	25.82	18.27
End-March 2020	-30.93	-23.85	-7.41	55.40	179.77
End-March 2021	-23.02	9.72	-7.25	12.37	25.53
End-March 2022	33.65	4.95	21.82	4.99	6.08

APPENDIX TABLE I.4: NBFCS FUNDING SOURCES

(Amount in ₹ crore)

Items	End-March 2019	End-March 2020	End-March 2021	End-March 2022
Debentures	9,19,314	9,04,655	9,82,576	10,06,496
Bank Borrowings	6,26,495	6,93,918	7,75,099	9,04,715
Borrowings from FIs	40,759	63,133	57,355	66,418
Inter-corporate Borrowings	75,805	77,032	77,840	86,663
Commercial Paper	1,59,158	64,877	72,597	70,117
Borrowings from Government	0	18,752	19,129	18,804
Subordinated Debts	0	73,513	68,984	70,863
Other Borrowings	2,89,254	2,73,969	2,98,099	3,27,015
Total Borrowings	21,10,785	21,69,849	23,51,679	25,51,092

APPENDIX TABLE I.5: CAPITAL POSITION OF NBFC SECTOR

(Per cent)

Year	NBFC Sector	Stipulated Norm
End-March 2017	21.5	15
End-March 2018	23.8	15
End-March 2019	22.5	15
End-March 2020	22.9	15
End-March 2021	26.5	15
End-March 2022	27.6	15

APPENDIX TABLE I.6: CRAR OF NBFCS BY CATEGORY

(Per cent)

Year	NBFC-ICC	NBFC-IDF	NBFC-IFC	NBFC-MFI	Overall	NBFCs-D
End-March 2017	30.6	28.1	20.5	23	22.5	20.1
End-March 2018	26	25.6	22.4	22.2	22.9	19.7
End-March 2019	23.9	26	20.9	28.2	23.1	19.7
End-March 2020	25.5	25.3	22.6	28.1	24.7	18.1
End-March 2021	26.4	26.2	27.1	27.2	26.7	27.2
End-March 2022	26.7	25.3	31.7	26.6	28.2	24.8

APPENDIX TABLE I.7: ASSET QUALITY

(Per cent)

Year	GNPA	NNPA
End-March 2015	1.4	3.1
End-March 2016	4	2.3
End-March 2017	6.5	4.1
End-March 2018	5.6	3.3
End-March 2019	6.4	2.9
End-March 2020	6.3	3.2
End-March 2021	6	2.7
End-March 2022	5.8	2.3

APPENDIX TABLE I.8: NPAS OF NBFCS-ND-SI

(Per cent)

	GNPA Ratio								
	End-March 2014	End-March 2015	End-March 2016	End-March 2017	End-March 2018	End-March 2019	End-March 2020	End-March 2021	End-March 2022
NBFC-ICC	1.4	1.3	1.4	3.6	4.7	5.9	7.8	9.2	9.3
NBFC-IFC	0.6	1.1	3.6	7.8	6.3	7.6	5.8	3.9	3.6
NBFC-MFI	14.7	8.6	5.9	7.9	8.1	4.5	2	5.2	4.6
Overall	2.6	2.9	4.3	6.1	5.5	6.6	6.6	6.3	6.1

(Per cent)

	NNPA Ratio								
	End-March 2014	End-March 2015	End-March 2016	End-March 2017	End-March 2018	End-March 2019	End-March 2020	End-March 2021	End-March 2022
NBFC-ICC	0.7	0.5	0.5	2	2.7	2.2	3.9	4.5	4.1
NBFC-IFC	0.5	0.8	2.7	6.3	4.6	3.9	2.9	1.5	1.1
NBFC-MFI	0.1	0.2	0.1	1.1	0.7	0.4	0.6	2	1.3
Overall	1.5	1.7	2.7	4.1	3.5	2.9	3.3	2.8	2.4

APPENDIX TABLE I.9: GROSS AND NET NPA RATIOS OF NBFCS-D

(Per cent)

Year	GNPA	NNPA
End-March 2015	3.5	1.1
End-March 2016	4.9	1.7
End-March 2017	5.3	1.9
End-March 2018	6.1	2.2
End-March 2019	5.3	2.8
End-March 2020	4.9	2.7
End-March 2021	4.9	2.4
End-March 2022	4.4	2.3

APPENDIX TABLE I.10: PROFITABILITY RATIO OF NBFCS

(Per cent)

Year	RoA				RoE				NIM			
	End-March 2019	End-March 2020	End-March 2021	End-March 2022	End-March 2019	End-March 2020	End-March 2021	End-March 2022	End-March 2019	End-March 2020	End-March 2021	End-March 2022
NBFC-D	2.7	2.2	1.7	2.5	16.7	12.5	9.3	12.5	9.6	8.3	8.6	9.1
NBFC-ND	0.2	1.1	1.2	1.5	0.9	5.4	5.3	6.5	5.3	6	5.7	5.7

APPENDIX TABLE I.11: DIGITAL LENDING BANKS VIS A VIS NBFCS

(Per cent)

Year	SCBs		NBFCs	
	As a % of total amount disbursed	As a % of total number of loans	As a % of total amount disbursed	As a % of total number of loans
End-March 2017	0.31	1.43	0.55	0.68
End-March 2018	0.66	1.58	1.70	4.93
End-March 2019	0.91	2.65	5.49	23.30
End-March 2020	1.79	5.56	11.41	60.53
End-March 2021	2.07	6.04	10.87	53.05

CHAPTER II

NBFCS AND FINANCIAL INCLUSION*

Non-Banking Financial Companies (NBFCs) facilitate further deepening of financial inclusion by catering to the subprime and marginalized borrowers. A negative credit shock from NBFCs can have disproportionately adverse net consumption effects especially on the lower quantile segments of households. Hence, regulation is critical to balancing innovation and growth while protecting borrowers that could have otherwise been financially excluded.

2.1 Introduction

II.1 Financial intermediation has rapidly expanded to sections of the population that would otherwise be rationed out by the credit market. Illustratively, the fraction of households with a bank account in India has increased from 35 per cent to 78 per cent between 2011 and 2021 (Demirgüç-Kunt *et al.*, 2022). Over the last decade, retail lending by NBFCs has grown nearly two fold greater 223.2 per cent[1] by leveraging technology — increasing smartphone access, improved digital literacy, and net banking — thereby financially including borrowers who otherwise may have been left out by traditional banking systems.

II.2 There has been rapid internet adoption across India since 2015[2], with growth in internet users driven more by rural areas than urban areas. The non-traditional banking sector in India has been proactive in using information technology to deliver financial technology solutions. FinTech NBFCs[3] have been particularly adept at harnessing the technological revolution, and are expected to grow rapidly in the future.

II.3 The proliferation of NBFC credit can pose risks to the financial sector especially as they become systemically more important, as was evident in the aftermath of the Global Financial Crisis (GFC) in 2008. A possible channel for such a systemic issue can be due to the segment of consumers these NBFCs target and the interest rate they charge to such consumers. Over and above these factors, there are FinTech NBFCs and other such vendors, which act as an

* This chapter has been prepared by a team comprising Gautham Udupa, Yogeshwar Bharat, Tanya Agrawal, Siddharth Verma, and Sowmya Ganesh.

1 Source: CIBIL, and the decadal growth is from financial year 2013 to 2022.

2 There were around 759 million active internet users in India in 2022 increasing from about 213 million in 2015 (IAMAI Report).

3 FinTech (financial technology) NBFCs are a type of NBFCs that use new-age technologies such as mobile applications to deliver financial services. All references to FinTech companies in this chapter corresponds to this sub-type of NBFCs. Similarly, all references to NBFCs correspond to non-FinTech NBFCs, unless specified otherwise.

extra layer between consumers and NBFCs. Adding this extra layer of third-party vendors can further obfuscate risks in the financial system. Consequently, central banks around the world are modifying regulation to strike a balance between maintaining healthy financial conditions for the macro economy and enabling an environment for innovation and development of the non-banking sector.

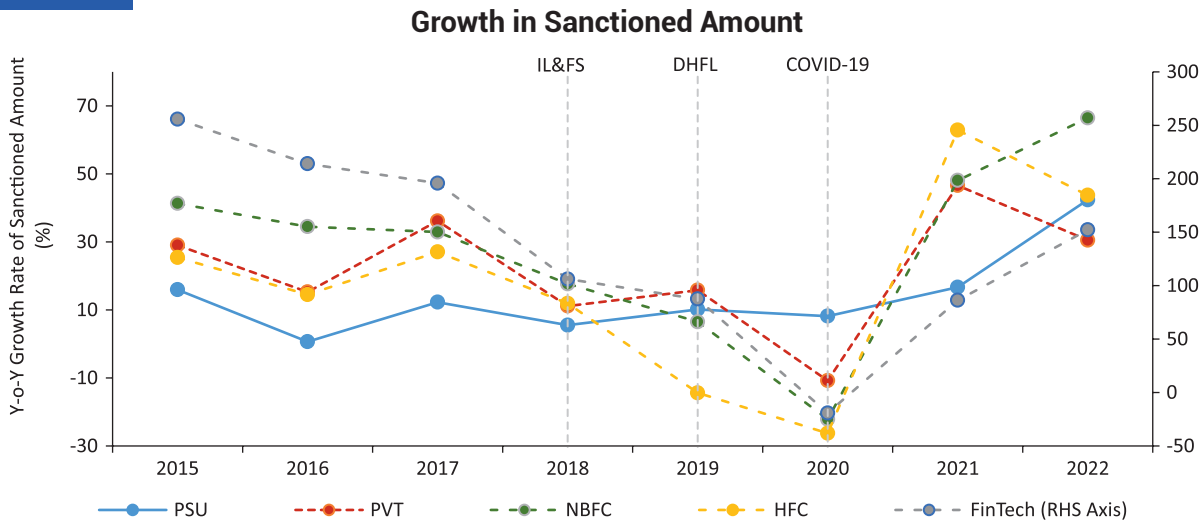
II.4 The rest of the chapter is structured into four sections: Section 2.2 examines the stylized evidence on financial inclusion by NBFCs and FinTechs. Section 2.3 studies the consumption response of households to loans from these lenders. Section 2.4 lays out the regulatory sensitivities driving the approach to risk management in the context of the rapid growth in NBFC and Fintech lending and section 2.5 concludes.

2.2 Retail Credit and Growth Patterns

II.5 During 2015-2018 NBFCs and FinTech-NBFCs showed a robust growth in retail credit, outpacing all banks and HFCs. Factors such as a slowdown in bank lending, a fall in NBFCs' cost of lending and an aggregate increase in demand were responsible for the retail credit growth of NBFCs[4] (Chart 2.1). The credit growth of Housing Finance Companies (HFCs) also registered a significant increase similar to private sector banks, while surpassing that of Public Sector Banks (PSBs).

II.6 The 2018-19 stress period led to a slowdown in NBFC, HFC, and FinTech NBFC credit growth, with a further fall during the pandemic in 2020. However, lending rebounded in 2021. The Infrastructure Leasing & Financial Services (IL&FS) episode in September 2018 had led to a decline in the growth rate of NBFCs in retail credit, public and private banks' credit growth rate rebounded during the period.

Chart 2.1



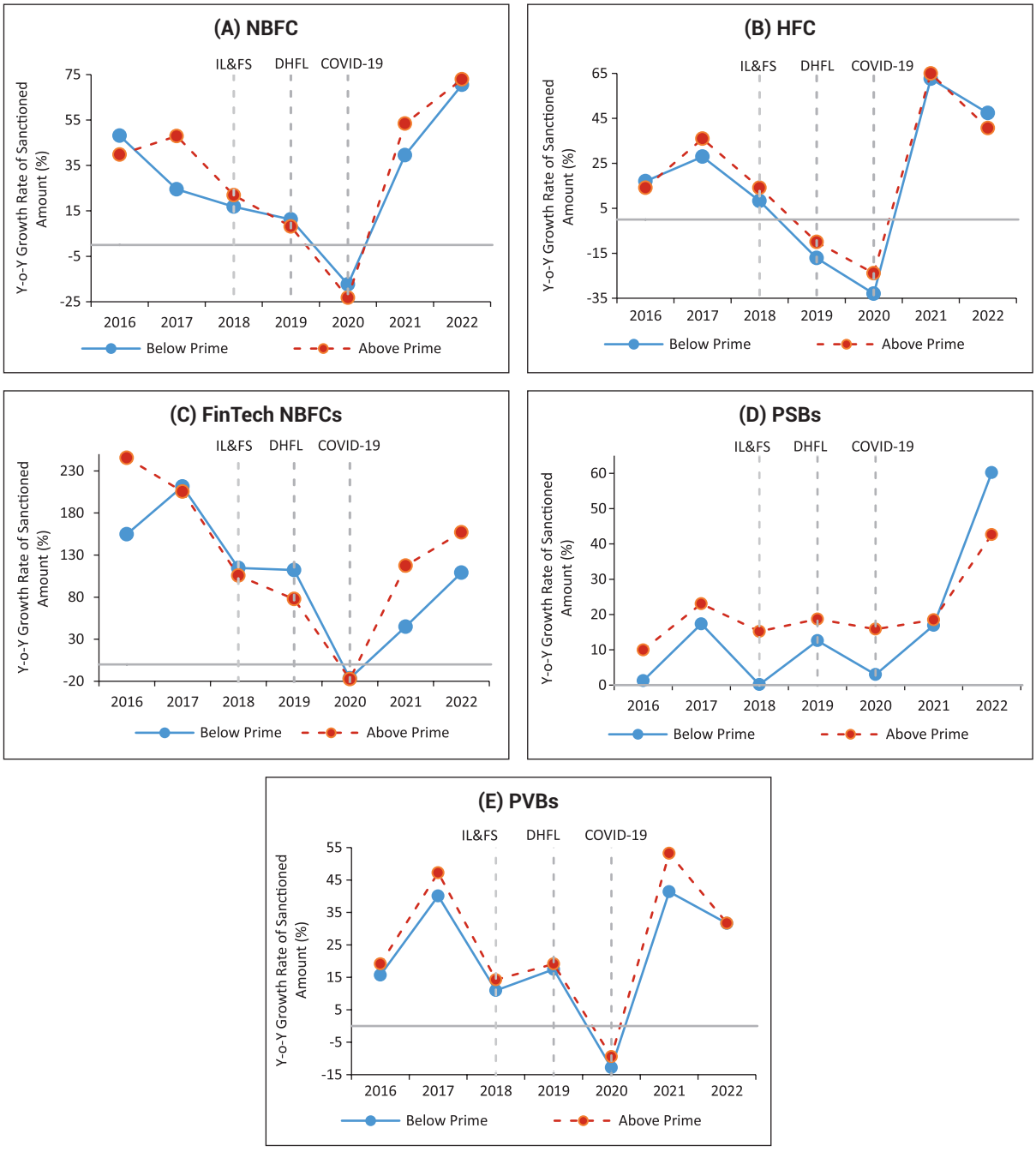
Note: 2022 is year-on-year growth rate for the half year January – June.
Source: CIBIL.

[4] Source: RBI, 2022.

II.7 Growth in the prime borrower segment outpaced the below prime segment for Scheduled Commercial Banks (SCBs) and HFCs throughout the 2016-21 period. In contrast, NBFCs and FinTech NBFC showed similar pattern of growth for below prime and prime segment borrowers in the 2017-21 period (Chart 2.2). During the pandemic, credit declined across the board for both prime and subprime of borrowers (Chart 2.2).

Chart 2.2

Lending By Borrower Type

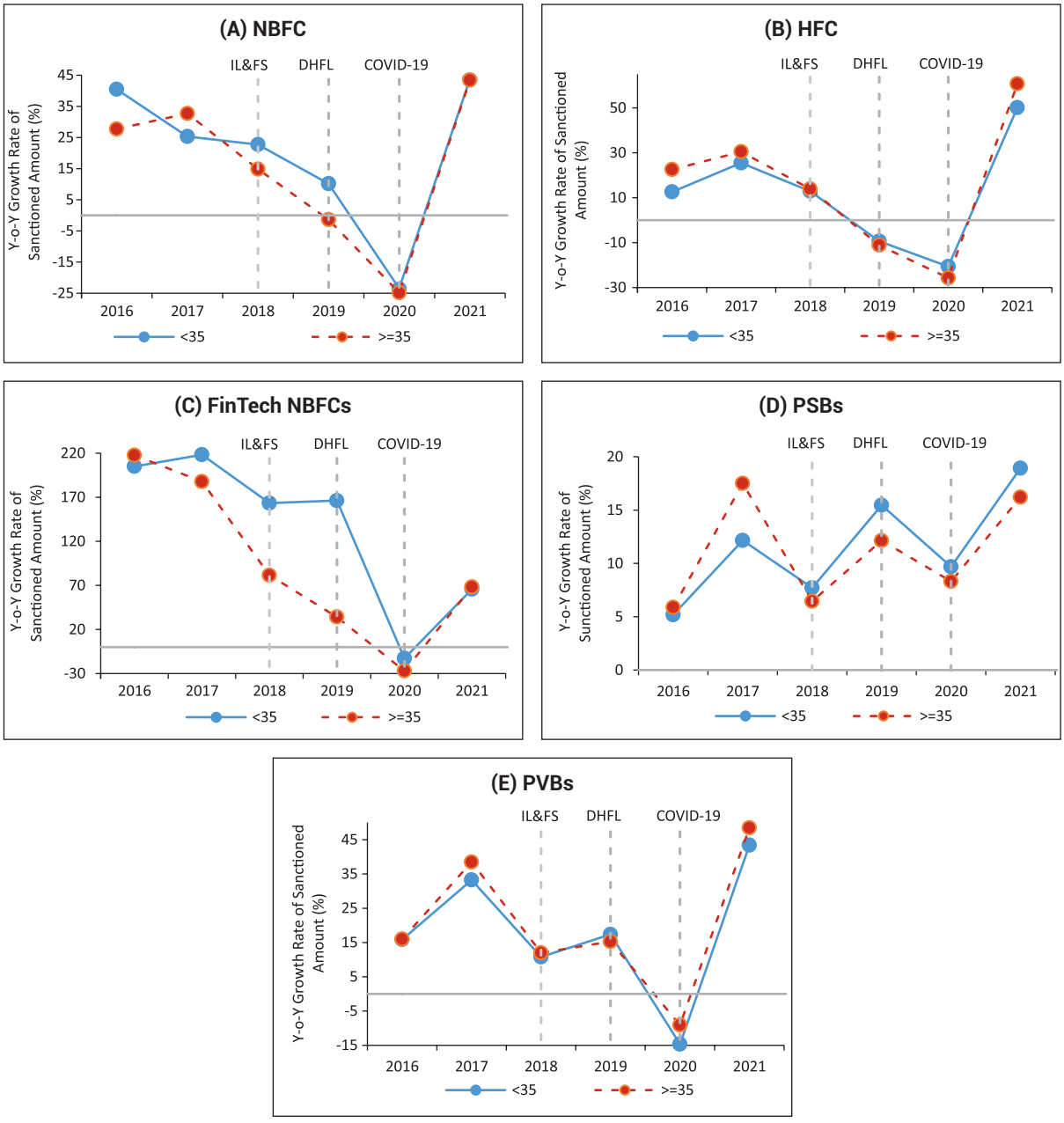


Note: 2022 is year- on-year growth rate for the half year January – June.
Source: CIBIL.

II.8 Fintech NBFC lending to young borrowers[5] has increased 100 times between 2015 and 2021, driven by the rapid adoption of digital platforms and devices amongst the young. This is also seen in the massive year-on-year growth of lending since 2015[6] (Allen *et al.*, 2016;

Chart 2.3

Lending By Borrower Age



Source: CIBIL.

5 Young borrowers are those borrowers with less than 35 years of age.

6 With a lack of credit history and therefore credit scores, young borrowers often find it difficult to access credit from the traditional banking system (Allen *et al.*, 2016). Among the young borrowers, female borrowers are more disadvantaged than male borrowers.

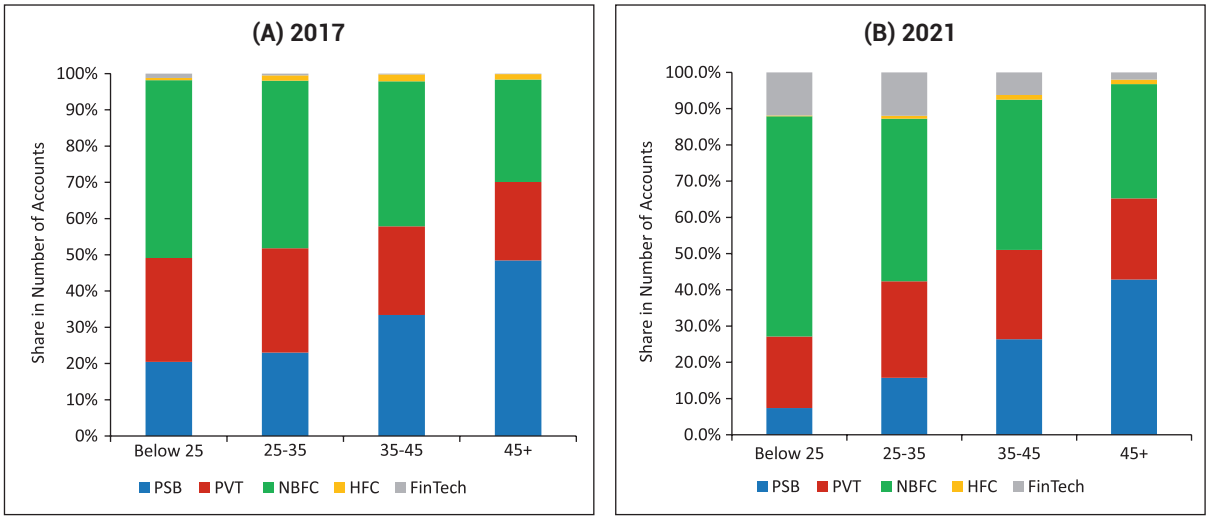
Óskarsdóttir *et al.*, 2019). For public sector and private banks, the growth trend was similar for young and old borrowers while for HFCs, lending generally went to the older households. HFCs, with their focus on mortgage lending cater predominantly to older households as they transition to homeownership. Fintech NBFC growth among young borrowers facilitates credit access to young and new-to-credit borrowers (Chart 2.3).

II.9 Post 2017, NBFCs captured an increasing retail credit market share of young borrowers.[7] Despite their growth in the below 35 segment, PSBs accounted for the largest share in the above 45 segment (Chart 2.4). FinTech NBFC lending expanded in the younger age-group segments in 2021 compared to 2017. The large-scale increase in smartphone usage, particularly among the urban youth, has led FinTech lenders to aggressively lend to this class of borrowers. NBFCs and Fintech lenders together account for nearly 70 per cent of the below-35 age group segment, which is considered the youngest borrowing category, primarily borrowing for personal-use products and less for big ticket purchases, as validated by their small average loan size.

II.10 As reflected in the Reserve Bank policies, lending to rural regions is an important aspect of financial inclusion. Rural areas are underserved by the traditional banking sector. As of March 2022, 30 per cent of all bank branches were in rural areas (34.1 per cent for public sector branches and 20.7 per cent for private bank branches[8]). Several initiatives by the Reserve Bank such as the bank branch expansion regulations have incentivised banks to open brick and mortar branches in underserved locations (Kulkarni *et al.*, 2023; Burgess & Pande, 2005).

Chart 2.4

Share of Different Lenders in Total Accounts by Borrower Age



Source: CIBIL.

[7] Young borrowers are further divided into below-25 and 25-35 bins to show the evolution of these borrowers by various lenders over time.

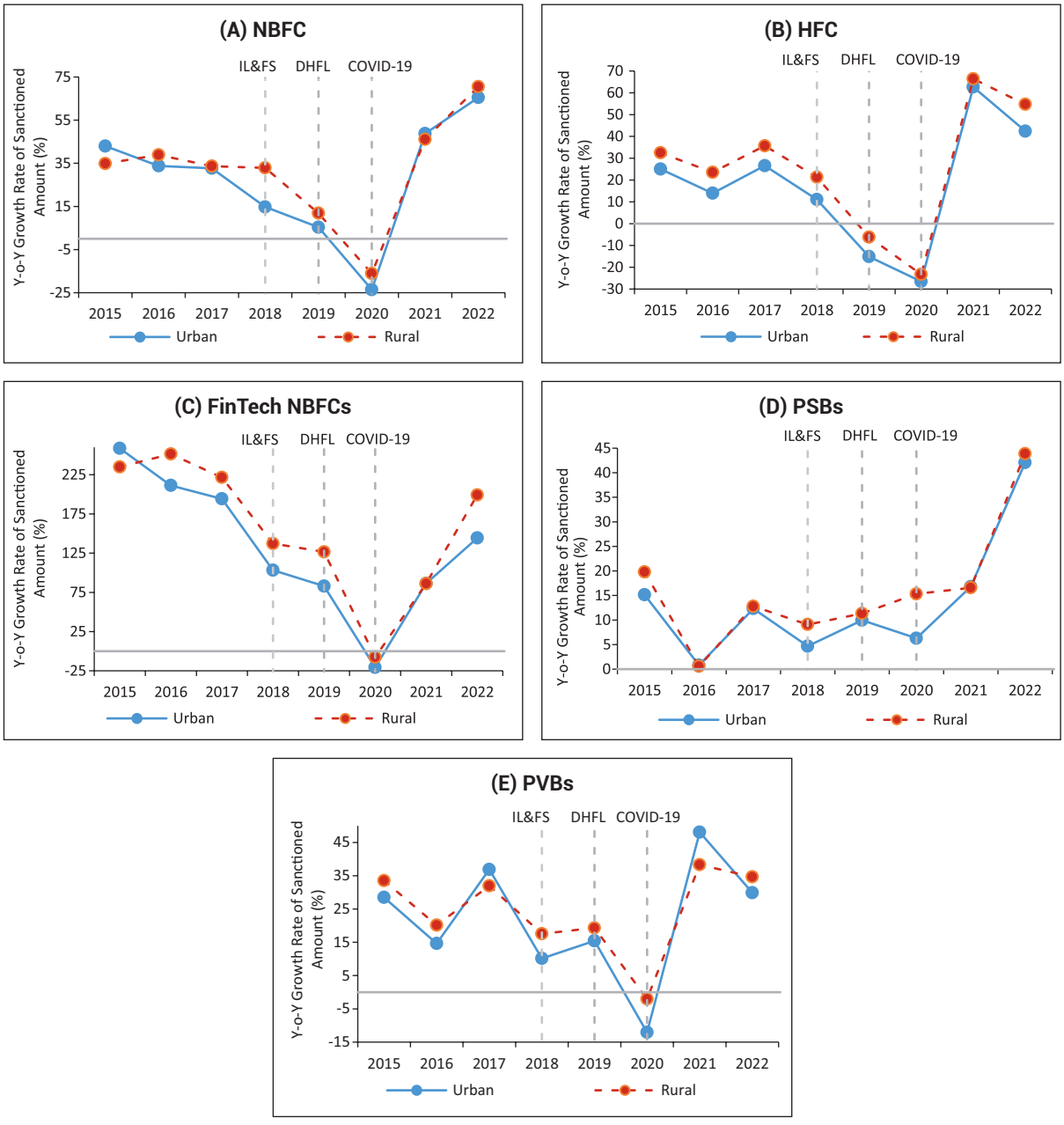
[8] Foreign Banks are not included. Source: RBI, 2022.

More recent initiatives by the government including JAM Yojana (Jan Dhan-Aadhaar-Mobile) and PMJDY (Pradhan Mantri Jan Dhan Yojana) have led to rapid financial inclusion.

II.11 Retail lending grew more in the rural areas relative to the urban areas across lenders, as lenders started tapping the underserved market segment, with the rural-urban differential growth highest for NBFC and Fintech NBFC lenders (Chart 2.5). Despite the recent growth

Chart 2.5

Lending By Region



Note: 2022 is year- on-year growth rate for the half year January – June.
Source: CIBIL.

spurt in credit to rural areas, total retail credit to rural areas was merely 18.8 per cent (`66.52 lakh crore) of the total credit in 2021. Of 57.58 lakh crore sanctioned by NBFCs in 2021, the share of rural credit accounted for only 20.8 per cent (`11.99 lakh crore), clearly highlighting the urban-rural divide in access to credit. Fostering NBFC growth can potentially help narrow the rural-urban credit gap, as NBFCs reach out to rural borrowers through their deep penetration in rural areas.

2.3 Credit Shocks and Household Consumption

II.12 Households' credit needs are high in developing economies like India. A growing economy coupled with the fact that a large fraction of its labour market is young, means that households borrow to consume out of future income (*i.e.*, lifecycle consumption smoothing[9]). Moreover, limited access to alternate sources of funds to cover unanticipated outlays such as medical expenses also increase the demand for credit. In this case, credit cushions the impact of the unanticipated expenses on households' regular consumption. Measuring households' consumption response to loans therefore helps to understand the impact of lending on financial inclusion.

2.3.1 Aggregate Trends in Household Consumption Expenditures

II.13 Household consumption expenditure has grown steadily from ₹ 49 lakh crore in 2012 (current prices) to nearly ₹ 143 lakh crore in 2022 (Table 2.1), amounting to ₹ 83 lakh crore in 2022,

Table 2.1 : Trends in Household Consumption

(Amount in ₹ lakh crore; per cent)

Financial Year	PFCE		PFCE Growth		GDP	PFCE to GDP
	Nominal	Real	Nominal	Real	Nominal	
	(1)	(2)	(3)	(4)	(5)	(6)
2012	49.36	49.28			87.36	56.50
2013	56.51	51.36	14.49	4.21	99.44	56.83
2014	65.16	55.53	15.30	8.11	112.34	58.00
2015	72.82	59.15	11.75	6.52	124.68	58.40
2016	81.73	63.26	12.24	6.95	137.72	59.35
2017	91.76	68.73	12.27	8.66	153.92	59.62
2018	100.97	72.77	10.04	5.86	170.90	59.08
2019	112.57	78.21	11.49	7.48	188.87	59.60
2020	123.07	80.19	9.33	2.53	203.51	60.47
2021	121.32	75.19	-1.42	-6.24	197.46	61.44
2022	142.97	83.05	17.84	10.45	234.71	60.91

Source: National accounts statistics, MoSPI, and CAFRAL calculations.
Real variables are in 2012 prices.

[9] We know through Permanent Income Hypothesis that in order to smoothen consumption over the lifetime, an agent will borrow when young and accumulate savings/wealth and pay off the debt later, and only consume the remaining savings when old/retired. Hence, more options for financial intermediation help relax the financial constraints of consumers and smoothen their consumption.

in real terms. The growth in Personal Final Consumption Expenditure (PFCE) has touched or exceeded 6 per cent year-on-year since FY 2014 except during FY 2019 to FY 2021, which were affected by the pandemic. Overall, the Cumulative Average Growth Rate (CAGR) of real consumption between FY 2012 and FY 2022 was 5.4 per cent. In spite of the variation in year-on-year growth rate over the years, the share of PFCE in GDP has risen from 56.5 per cent in FY 2012 to nearly 60 per cent, and this ratio was maintained even during the pandemic years.

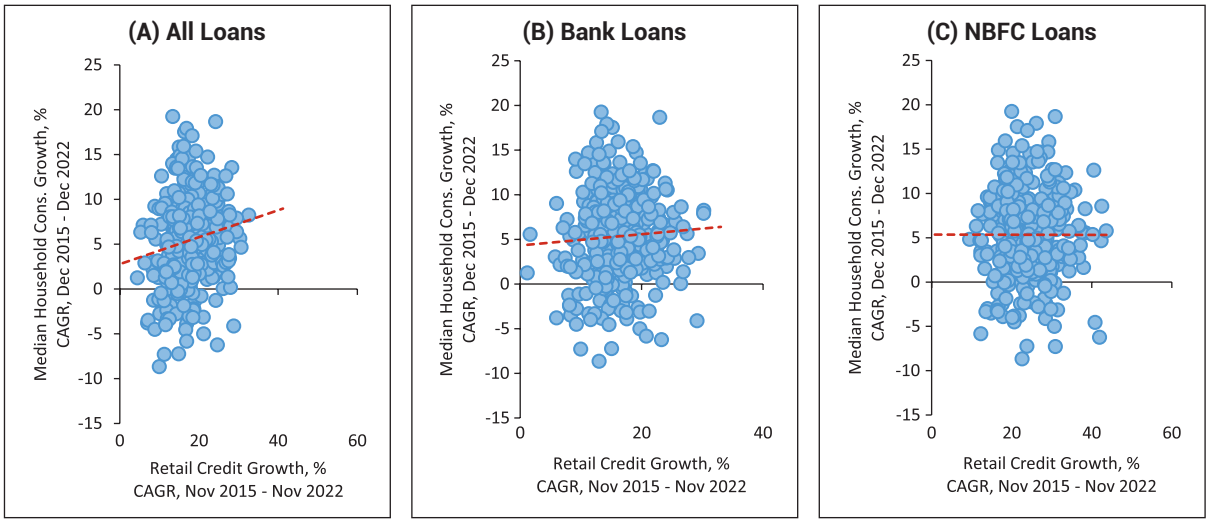
2.3.2 Stylized Facts - Credit and Consumption at the District Level

II.14 To what extent are consumption and credit interlinked? In this part of the analysis, the Credit Information Bureau (India) Limited (CIBIL) credit data is merged with household consumption expenditure data[10] from Consumer Pyramids Households Survey (CPHS) to evaluate this question. Both the datasets are aggregated to the district level at monthly frequency.

II.15 There is a positive association between the growth of credit and consumption expenditure (Chart 2.6). CAGR calculated between May 2015 and May 2022 captures a relatively stable long-term relationship between the two variables. May 2015 was before relatively large shocks had hit the financial and the real sector. Similarly, May 2022 is chosen to avoid capturing purely pandemic driven lending and consumption expenditure patterns. In this instance, the CAGR of total retail credit in the CIBIL data between May 2015 to May 2022 was 15.4 per cent; the median CAGR of household consumption expenditure during the same period was 5.2 per cent in CPHS. The slope of the relationship between consumption expenditure and credit

Chart 2.6

Credit Growth and Consumption Growth



Source: CIBIL, CPHS, and CAFRAL calculations.

[10] Consumption expenditure equals total expenditures minus the expenditures on Equated Monthly Installment (EMI) payments.

growth is positive but less than one, indicating that a one percentage point increase in credit is associated with less than a percentage point increase in consumption expenditure. It is to be noted that the positive correlation is not driven by secular growth in the two variables as the observed positive correlation is in the cross section of districts.

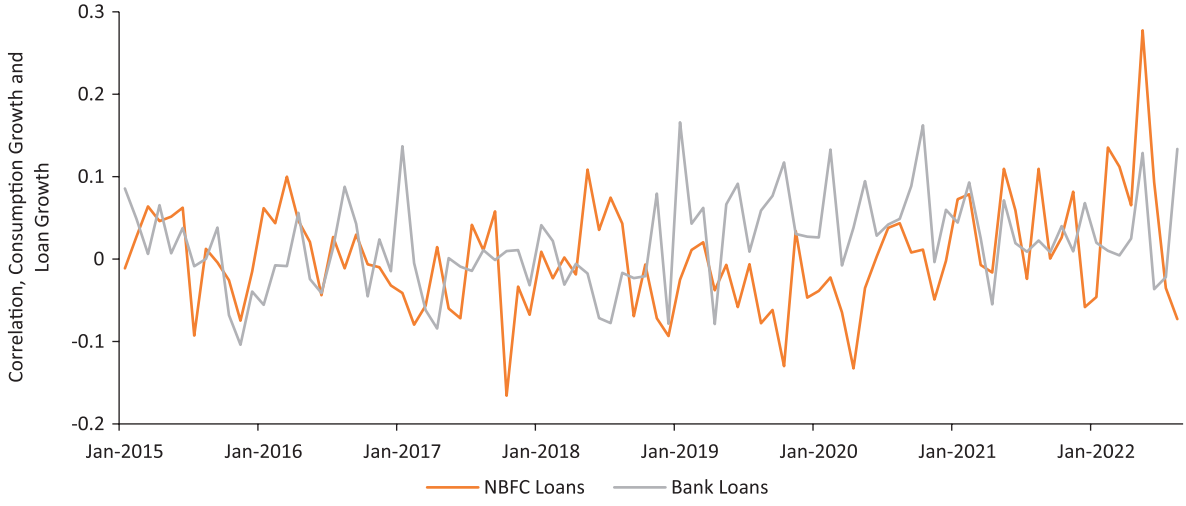
II.16 There is a stronger relationship between bank credit growth and consumption expenditure growth for all credit as compared to that between NBFC credit growth and consumption expenditure growth (Chart 2.6). However, NBFC credit supply shocks generate a stronger consumption response compared to bank credit (Box 2.1). Together, this implies that the raw correlations are impacted by credit demand related factors. NBFCs lending more to distressed or risky borrowers relative to banks can explain the difference.

II.17 The correlation pattern is not a feature of the time period chosen (Chart 2.6). The correlation of year-on-year growth rates across districts is generally positive (Chart 2.7). The average correlation between bank credit growth and consumption expenditure growth is 0.018 whereas the same for NBFC credit growth and consumption expenditure growth is slightly less than zero. The low average correlations, however, mask significant variation across months. In some months the correlation between bank loan growth and consumption growth was over 0.15. The substantial variation around averages are attributed to the two different roles that credit plays – one as a supporter of consumption growth (implies positive correlation) and another as a cushion against anticipated and unanticipated expenses (implies negative correlation).

II.18 Loans also impact inequality in a number of ways (Demirgüç-Kunt & Levine, 2009). In the case of Indian districts, those with higher credit growth are associated with a smaller inequality in the distributions of consumption and income growths for all lender types as well as NBFC

Chart 2.7

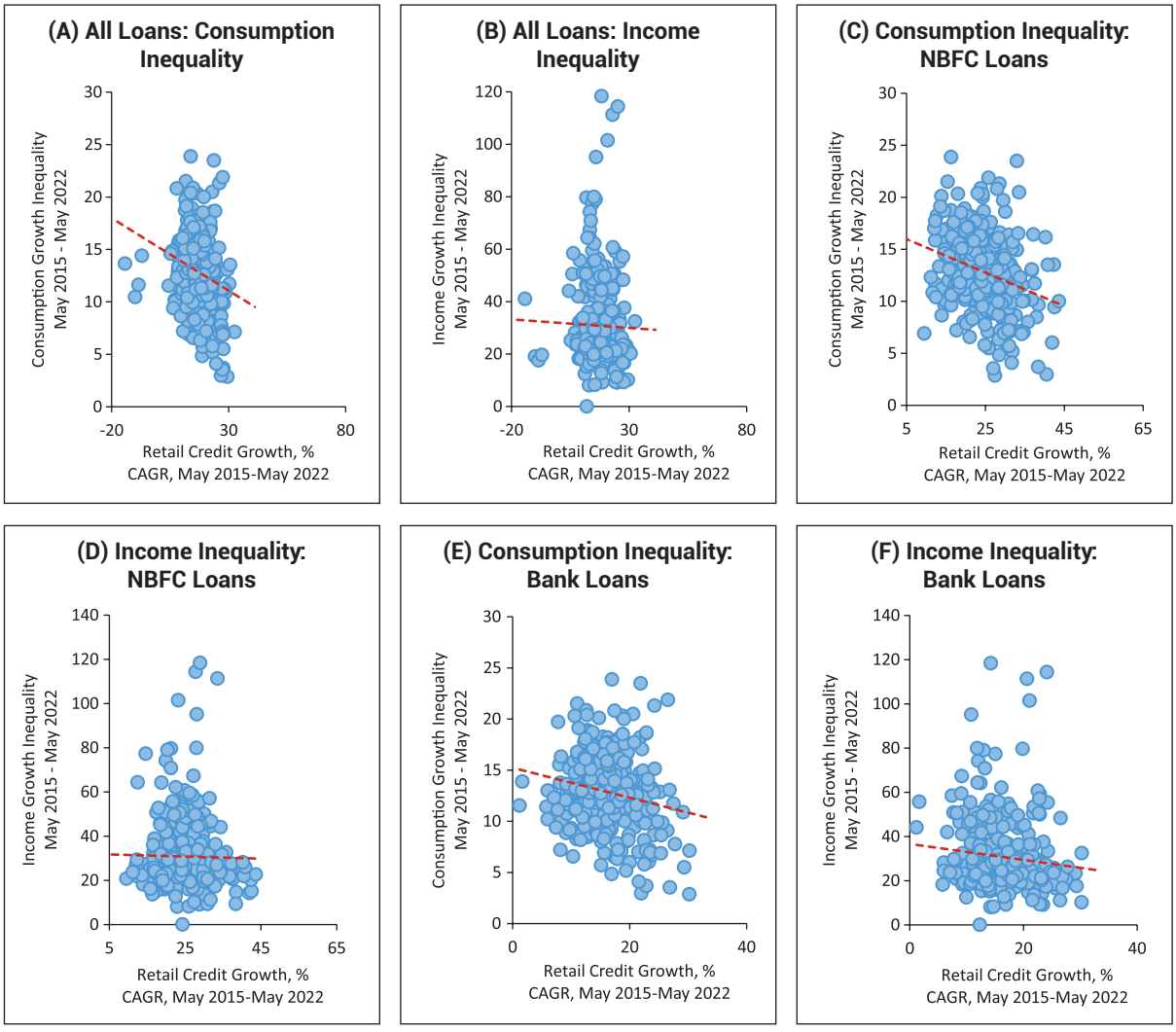
Cross Sectional Correlations of Consumption Growth and Credit Growth



Source: CIBIL, CPHS, and CAFRAL calculations.

Chart 2.8

Consumption and Income Inequalities and Credit



Source: CIBIL, Consumer Pyramids CMIE, and CAFRAL calculations.

and bank loans (Chart 2.8). The difference between the 90th percentile and 10th percentile of consumption growth in a district is plotted against credit growth in that district. The slope of the relationship is negative. The slope is more negative in the case of consumption compared to income especially in the case of NBFC credit. These patterns indicate that positive credit supply shocks impact households by both increasing the level of consumption as well as by reducing inequality.

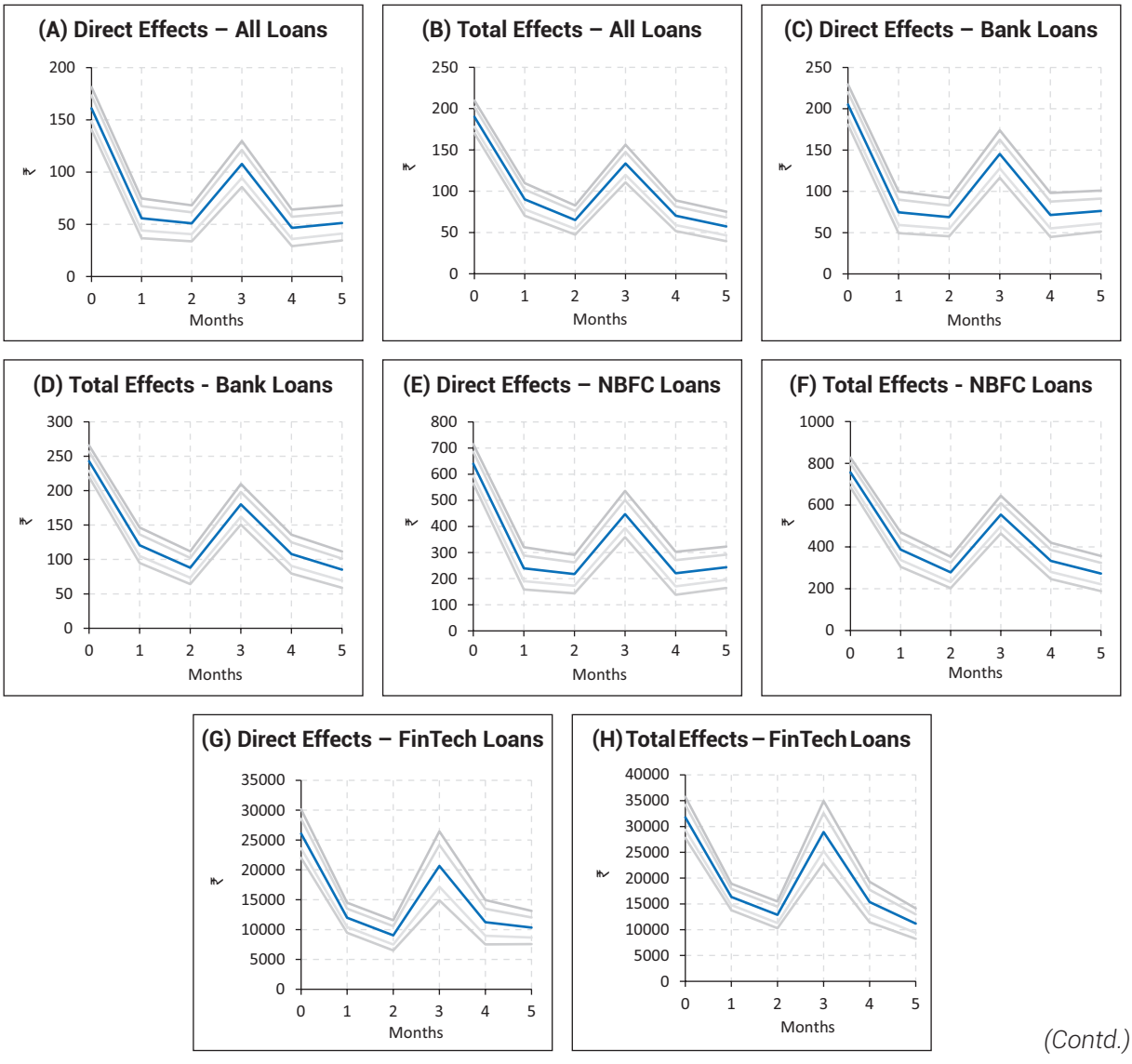
II.19 The cross-sectional and time series analysis of data shows that the relationship between credit and consumption depends on both supply and demand side factors. It is essential, therefore, to isolate the role of credit supply shocks when considering the aggregate impact of credit (Box 2.1).

Box 2.1 : District Credit Shocks and Household Consumption

Households are liquidity constrained and are exposed to unanticipated expenditure shocks. A growing income profile also prompts them to borrow against higher future incomes and thereby equalize consumption across lifespan. When lenders increase their supply of loans, therefore, households' consumption should respond positively. The link between credit supply shocks and household consumption expenditures is therefore expected to be positive in a developing country such as India. We estimate the consumption impact of credit shock using an Instrumental Variable (IV) approach (Appendix A). Household consumption expenditures, which equals total expenditures minus loan servicing payments, is taken from CPHS.

Household level consumption responses are estimated over six months to a ₹100 crore credit at the district level (Chart 1). The estimated impact is broken down in to direct effect and total effect. The former corresponds to the effect of a consumer loan on purchases related to that loan. Total effects, in contrast,

Chart 1 : Dynamic Effects of Credit Shock



(Contd.)

includes indirect second and higher order effects due to changes in local economic activity. For example, higher economic activity due to more loans can lead to increased employment opportunities and income, which spurs further consumption and so on.

Total consumption, which excludes equated monthly payments from household expenditures, increases by ₹190 per household in the month of credit sanction to a ₹100 crore increase in district credit. Nearly 62 per cent (₹118) of the increase is coming from non-durable consumption, followed by durables (₹50) and services (₹22) consumption (Appendix A). Non-consumption expenditure, which comprise of equated monthly instalment payments, increases by ₹122.

More importantly, consumption responses vary by lender (Chart 1). NBFC and FinTech loans generate very high consumption impact compared to other types of loans. The consumption impact of credit is four times larger (₹757) for NBFCs. Two factors drive these estimates. First, NBFCs are better at identifying high-risk credit constrained households who have high consumption responses for a given size of credit. Second, it also reflects compositional effects as NBFC lending is focused on certain loan products (e.g., consumer loans) that imply high consumption impact. The impact of FinTech NBFC loans on consumption are also driven by the same reasons as in the case of NBFCs.

The exceptionally high consumption impact of FinTech NBFC loans is in line with previous research showing qualitatively similar estimates for non-traditional lenders such as microfinance institutions in India (Breza & Kinnan, 2021). FinTech lenders are data-driven and have a comparative advantage in identifying severely constrained borrowers who have a higher consumption response. In addition, FinTech NBFC loans in CIBIL data understates the actual outlay (which determines consumption) to the borrower due to their co-lending arrangements with banks and NBFCs. This amplifies the estimated impact on consumption. Under the co-lending arrangement, FinTechs carry only a fraction of the loans on their books (RBI, 2021).

References:

Breza, E., & Kinnan, C. (2021). Measuring the Equilibrium Impacts of Credit: Evidence from the Indian Microfinance Crisis. *The Quarterly Journal of Economics*, *136*(3), 1447–1497. https://doi.org/10.1093/qje/qjab016

RBI. (2021). *Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps* (p. 151). https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/DIGITALLENDINGF6A90CA76A9B4B3E84AA0EBD24B307F1.PDF

2.3.3 Aggregate Impact of Credit Shocks

II.20 Bank, NBFC, and FinTech NBFC credit had large impacts on household consumption in the months following credit sanction (Box 2.1). According to the CIBIL data, between FY 2015 and 2022, the total outstanding bank credit, NBFC and Fintech NBFC credit were ₹138.4, ₹109, and ₹29.2 lakh crore, respectively. These values are divided by the number of districts to arrive at average district-level credit. It is then multiplied by the estimated total consumption impact over six months to arrive at the household level consumption impact of district credit shocks. The result is multiplied by the total number of households in the country to arrive at an estimate for the aggregate impact of credit.

(Amount in lakh crore; per cent)

Table 2.2 : Aggregate Impact of Credit Shocks

	Direct Effect		Total Effect	
	Value (Lakh crore)	Share	Value (Lakh crore)	Share
Total Consumption (FY 2015-FY 2022)	578.72		578.72	
Bank Loans	31.43	5.43	43.57	7.53
NBFC + FinTech	19.44	3.36	28.99	5.01

Source: CIBIL, Consumer Pyramids CMIE, CAFRAL calculations.

II.21 Credit shocks have a large aggregate impact on consumption, both direct and indirect.[11] From the CIBIL data between 2014-15 to 2021-22, the direct effect of bank credit and NBFC & FinTech credit were 5.4 per cent and 3.4 per cent respectively of the total PFCE between these years (Table 2.2). Similarly, the total effects, including indirect effects, were 7.5 per cent and 5 per cent, respectively.

II.22 The ratio of the total effect to direct effect is marginally higher for NBFCs and FinTech NBFCs (1.49) relative to banks (1.38). Higher direct effects result in larger changes in local employment and incomes, which result in higher indirect effects. In the case of NBFCs and FinTech NBFCs, direct effects are higher than for banks (Box 2.1). The higher order indirect effects, as a result of this, are also much higher for NBFCs and FinTech NBFCs.

2.3.4 Credit Shocks and Consumption - Differences Across Household Groups

II.23 Heterogeneity of consumption responses across four household groups are explored: income; age; rural-urban[12]; and education level. The consumption impact is estimated separately for each household group using a credit supply shock as an instrument. The aggregate estimates mask significant differences across borrowers, particularly, for marginalized borrowers (Box 2.1).

II.24 The consumption responses of the lower income groups are generally lower, as they remain excluded from credit markets (Chart 2.9).[13] Income works as a proxy for liquidity constraints at the household level (Kaplan *et al.*, 2014) and the heterogeneous consumption effects point to the exclusion of the poorest segments of the society from credit markets, due to wealth and collateral constraints.

II.25 For the lowest two income groups, however, bank and NBFC loan coefficients are statistically different from zero, as indicated by the fact that the standard error bars do not cross zero.[14] The NBFC coefficient is higher than bank loan coefficient for all the income groups. However,

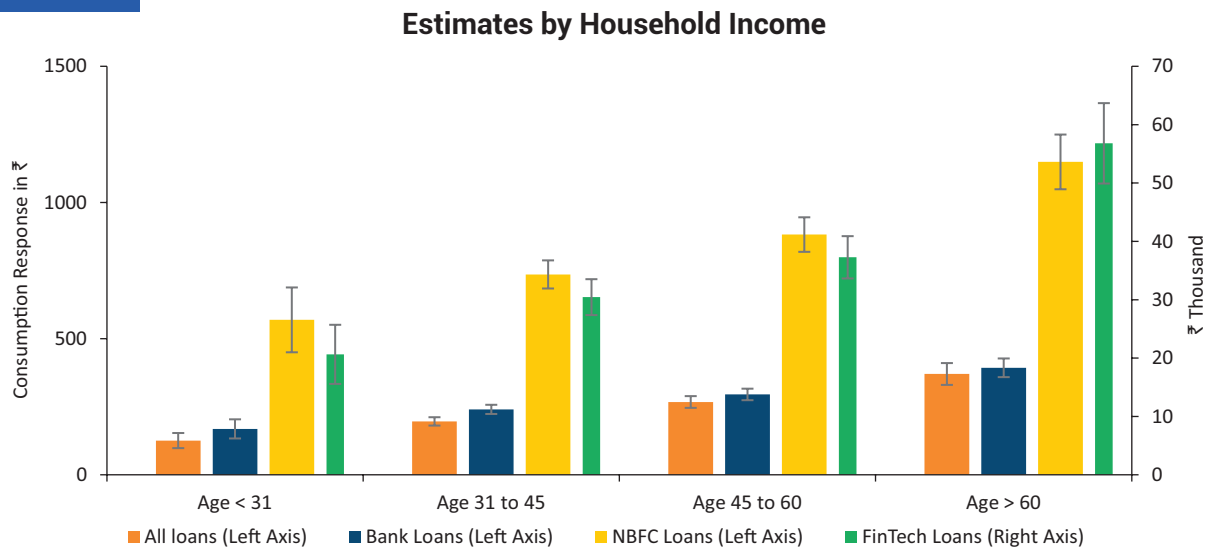
[11] Box 2.1 describes the direct and indirect effects.

[12] It is not possible to obtain finer geographical information (such as whether the household lives in semi-urban or metro areas) in the CPHS data.

[13] Households are classified in to five income groups as in Bhattarai *et al.* (2023).

[14] The standard errors are plotted on top of the coefficient estimates to indicate uncertainty around these estimates. They provide bounds within which the coefficient is expected to be.

Chart 2.9



Source: CIBIL, Consumer Pyramids CMIE, CAFRAL calculations.

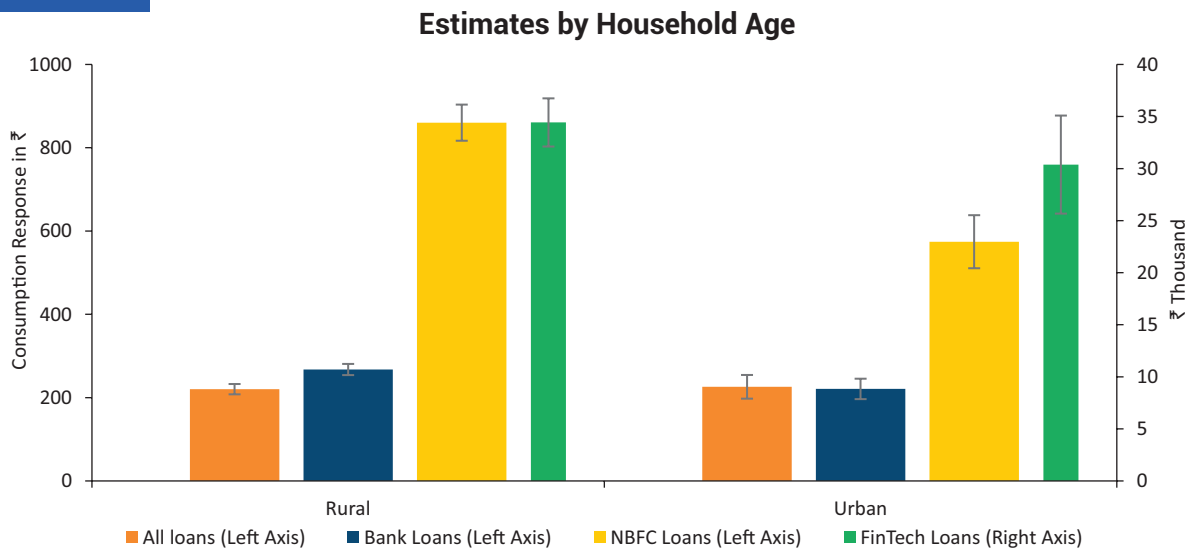
for the lowest two groups, the standard error bars for FinTech NBFC loans include zero, indicating that a zero-impact scenario cannot be ruled out statistically. This indicates that the impact of FinTech credit, given the small industry size relative to other lenders, has a negligible effect on low income households.

II.26 Life-cycle theories of consumption predict that young households borrow to bring forward higher future incomes, but are generally prevented from doing so due to credit constraints. While the consumption response to positive credit shocks for the young[15] is positive, it is lower than that of households older than 45 (Chart 2.10). The positive consumption impact for the young borrowers shows that they make use of credit for their consumption requirements. At the same time, given limited credit histories, only those young borrowers with sufficient collateral or other forms of liquid wealth can access credit. Banks insist on such collateral more than NBFCs and FinTechs which implies that the banks target less risky borrowers who also tend to have lower consumption effects (Kaplan *et al.*, 2014). In contrast, the households older than 45 have higher consumption responses as they are more likely to get credit compared to a young borrower. Overall, the estimates are increasing in age for both bank loans and NBFC loans.

II.27 The RBI has previously used branch expansion policy as a tool to improve financial access in the rural areas. For example, the most recent data from RBI shows that about 30 per cent of all bank branches are in rural areas where over 60 per cent of the population lives.

[15] Households in the CPHS are categorized into four age bins – young, middle, old, and retirees – based on the maximum reported age of the household head in a year. Young is defined as household head aged between 18 and 30, middle aged as those between 31 and 45, old as those with age between 46 and 60, and households with head older than 60 are classified as retirees.

Chart 2.10

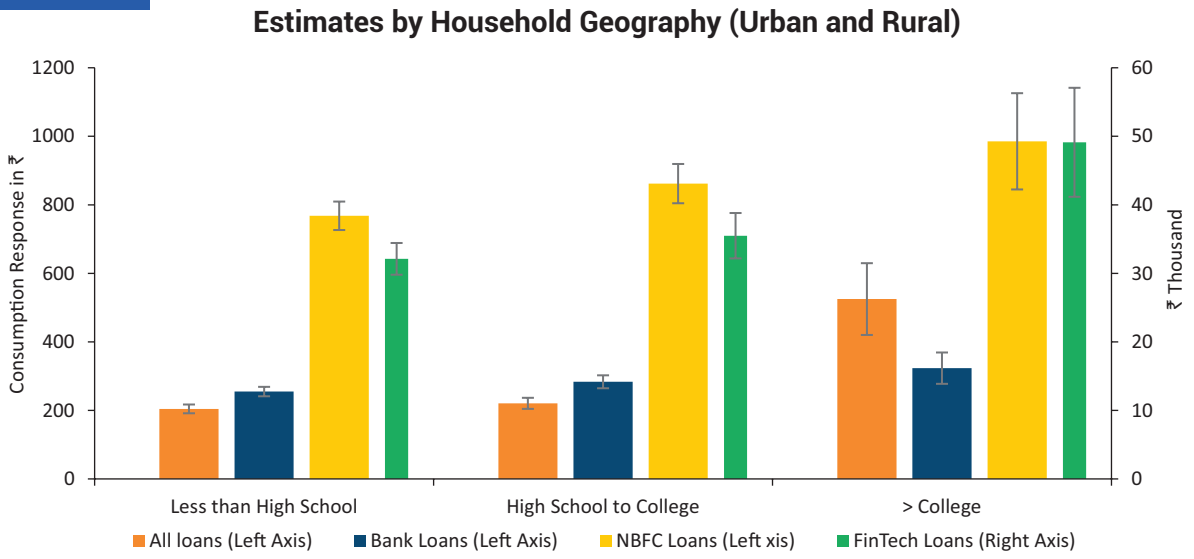


Source: CIBIL, Consumer Pyramids CMIE, CAFRAL calculations.

This lack of access to formal financial institutions amongst rural households also implies constrained access to credit. A credit supply shock leads to large consumption responses in rural compared to urban households (Chart 2.11). Rural consumption response estimate for NBFC loans is nearly double that in the urban areas.

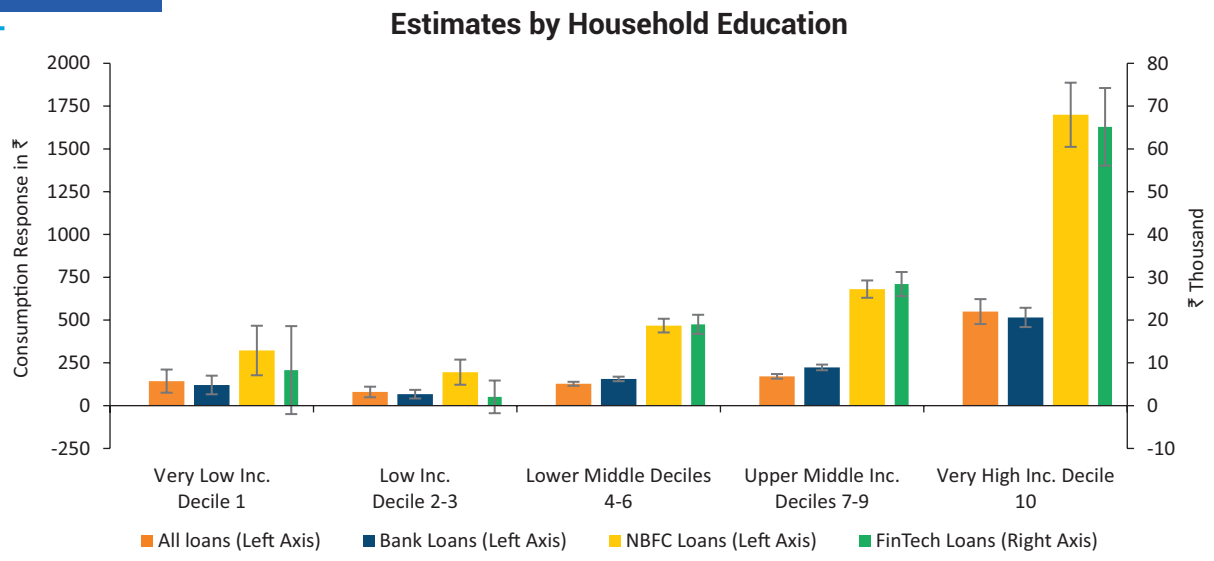
II.28 For households with a degree, the estimate is higher than those with less than high school education (Chart 2.12). NBFC coefficient is, however, high even for households with less than high school education.

Chart 2.11



Source: CIBIL, Consumer Pyramids CMIE, CAFRAL calculations.

Chart 2.12



Source: CIBIL, Consumer Pyramids CMIE, CAFRAL calculations.

II.29 Overall, there is a consistent theme across different cuts of the data on consumption response to NBFCs and FinTech NBFC credit is higher than the consumption response to bank credit. While on the one hand it implies that there is improved financial inclusion, on the other hand the households' exposure to shocks to NBFCs is also high, which highlights a point of fragility. While positive credit shocks can have a large positive impact on consumption, negative credit shocks can similarly have adverse consequences. For instance, in 2019-20 there was a 24 per cent decline in growth of NBFC lending (from ₹5.02 lakh crore in 2019 to ₹3.81 lakh crore in 2020). This would have led to a ₹1,620 lakh decline in PFCE at the national level. The larger consumption responses to FinTech and NBFC loans highlight the need for prudent regulations to protect consumers and avoid financial fragility.

2.4 Consumer protection

II.30 Financial literacy plays a crucial role in ensuring consumer protection as households learn to navigate various financial products and their contract terms. Regulatory attention must be paid to loans that can offer adverse contract terms to borrowers. Predatory lending through deceptive lending practices or onerous loan terms can have detrimental welfare consequences, especially for disadvantaged households. Regulators and policymakers, thus, need to balance encouraging innovation and promoting borrower welfare.

II.31 Such caution is not unwarranted. Retail loans, usually in the form of credit cards, housing or payday loans, can have adverse effects on household balance sheets (Bertrand & Morse, 2011; Melzer, 2011). Furthermore, algorithmic techniques can also make biased lending decisions that can keep worthy borrowers out of formal finance (Bartlett *et al.*, 2022).

II.32 In India, with rapid digitization, it is important to understand the business model of such lenders. The Reserve Bank has been proactive in setting regulations that seek to prevent fraudulent practices in lending. It has conducted campaigns to promote safe digital banking practices and to redress consumer complaints through its ombudsman schemes. From November 2021, NBFCs-D and NBFCs-ND[16] having public consumer interface were directed to appoint an Internal Ombudsman for their internal grievance redressal mechanism to enable proper resolution of complaints from the regulated entity's end.

II.33 In August 2022, the Reserve Bank advised all banks and non-banks to stringently ensure that their third-party agents, who are responsible for the outsourced activities, do not intimidate or harass any borrower in their loan collection activities in the form of public humiliation or intrusion of privacy of the borrower's family, using threat calls to extract the dues, etc. On September 2, 2022, the Reserve Bank specified that all loan disbursals shall be made by regulated entities (banks and non-banks) directly into the borrowers' bank accounts. Similarly, all loan servicing and repayment should be made by the borrower into the regulated entities' bank account without any interference from a third party. This was done to bypass any malpractice by the third party in case of collection or disbursement.

II.34 The RBI also stipulated that any fees or charges liable to the outsourcing agents should be paid by the regulated entities and not the borrowers. The regulated entity needs to pass on details of the recovery agents to the borrowers beforehand. The regulated entities also need to set up a nodal grievance redressal officer to deal with FinTech lending complaints raised by the borrowers. Due diligence is to be conducted before partnering with the lending service provider, considering its data privacy and storage policies, compliance with rules and regulations, and fair conduct with borrowers. A periodic review of these Lending Service Providers (LSPs) shall be conducted. Borrower data collection can only be done with prior consent, and borrowers can deny the consent for using their data. The purpose of obtaining data has to be disclosed. Regulated entities need to ensure proper guidelines for the storage of borrower data. The overarching rationale is to protect consumer and consumer data on digital platforms from being misused by digital lending platforms when they outsource their services (such as collections) to some third-party providers. This circular puts accountability of consumer welfare and data protection as well as any malpractices by third-party providers on registered entities.

2.5 Conclusion

II.35 In addition to catering to prime borrowers, non-bank lenders, given their access to novel credit delivery methods, provide credit to underserved borrower segments that are left behind in the credit access network by traditional banking. This is borne out by a large increase (2.75 times and 124.5 times, respectively, from 2014 to 2019) in the size of the retail lending loan books of NBFCs and FinTech lenders, much larger than the loan growth for traditional

[16] NBFCs-D are NBFCs accepting public deposit and NBFCs-ND are NBFCs not accepting/holding public deposit.

banks. Data-driven underwriting processes and new financial products and credit delivery methods are reaching credit-constrained borrowers. Though rural retail lending has seen strong growth, especially for NBFCs, credit access is still concentrated in urban areas, and much of the population remains underserved.

II.36 Our model shows that NBFC loans have large effects on consumption. Declines in NBFC lending can thus have large aggregate consumption impacts. Consumption responses are secularly increasing in education, and are higher for rural than urban households, and also high for middle-income and middle-aged households. Hence, consumption responses of marginalized borrowers tend to be higher, making them more susceptible to adverse credit shocks.

II.37 It is important to note that banks and NBFCs should not be seen as competitors to each other, but NBFCs are seen as complementary to banks in terms of the provision of credit. The Reserve Bank has prescribed a scheme, known as the Co-Lending Model (CLM), whose objective is to improve the flow of credit to the priority sectors of the economy and make available funds to the ultimate beneficiary at an affordable cost, considering the lower cost of funds from banks and a greater reach of NBFCs.[17]

II.38 Overall, the findings highlighted in this chapter further strengthen the case for regulators and policymakers to adopt a balance between supporting growth and product innovation in the non-bank sector, on the one hand, and mitigating risks and contagion in the traditional banking system, on the other. The quality of the underwriting processes and third-party lending practices among NBFCs and FinTech companies warrant that regulators exercise high vigilance and active and continuous surveillance.

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APPENDIX A: TECHNICAL APPENDIX FOR BOX 2.1

Measuring the impact of loans on consumption is a non-trivial task. One factor that can contaminate the estimate is that loans can flow to areas that see a fall in consumption. For instance, natural disasters can increase loans in that area even as consumption falls. A simple regression framework would bias the estimate downward or can even throw up a negative relationship between the two. Second, district-level credit supply shocks can have second order effects on consumption by changing economic activity in that area. In this context, a simple regression framework would bias the estimate upward.

The main estimating equation uses a regional regression design (Holm *et al.*, 2021; Mian *et al.*, 2013) where household consumption is regressed on the total lending in the district that the household lives in. We also take away the changes that are common within each month for state of residence, religion, caste, education, residence in a big city, for family members and number of children. These demographic variables refine the estimates compared to the raw data scatterplots reported in this chapter. The above specification estimates the total effect. We estimate direct effects by including income as an additional independent variable in the regressions. It captures the notion that additional economic activity generated by an increase in the supply of loans also increases households' income. The estimating equation is:

$$c_{ht} = \beta\, l_{d(h)t} + \sum_{g(h)\in G} \delta_{g(h)t} + \epsilon_{ht}$$

where c_{ht} is consumption of household h in year t, $l_{d(h)t}$ is the total lending in year t in district $d(h)$ that the household h lives in, $g(h)$ is an indicator for whether the household belongs to group g for a set of groups G. The groups include state of origin, religion, caste, education, residence in big city, and dummies for family members and number of kids. The coefficient of interest is β which measures the response of household consumption to district level lending. Because consumption and loans are in ₹ and ₹100 crore respectively, β is interpreted the INR response of household consumption to a ₹100 crore change in district lending.

The IV is generated from regressing total lender-type loans on lender type-year fixed effects (Greenstone *et al.*, 2020). Lender type-year fixed effects capture average loans by that lender across the country in that year and are uncorrelated with district level variables. The fixed effects are then multiplied by *ex-ante* market shares of banks in a given district (shares for 2014 are calculated) to arrive at a lending supply shock IV for that bank in that district. Shocks across lender types are added to arrive at a total loan supply shock for a district. The intuition is that aggregate bank shocks should matter more in markets that are more important for that bank (relevance) but are uncorrelated with local shocks (exogeneity).

The first stage regression is statistically significant with a high F-statistic. This means that the Greenstone instrument is, in effect, a good instrument. It is highly correlated with the district loan variable, which satisfies the relevance condition. The fact that the F-statistic is greater than 10, which is the rule of thumb (Stock *et al.*, 2002), also satisfies the condition that it is not a weak instrument.

The regression equation is estimated for total, non-durable, services, and durable consumptions and for non-consumption expenditures which mainly consist of equated monthly installment payments (Table 1).

Table 1 : Benchmark Estimates

	(1)	(2)	(3)	(4)	(5)	(6)
	All Loans		NBFC Loans		FinTech Loans	
	OLS	IV	OLS	IV	OLS	IV
Panel A: Total Consumption						
Loans (Billion ₹)	17.572*** (0.871)	190.101*** (12.060)	129.318*** (5.437)	756.592*** (43.213)	26.757 (74.583)	31768.239*** (2417.545)
Observations	7,380,850	7,378,389	7,380,850	7,378,389	5,916,682	5,916,552
R-squared	0.32	-	0.32	-	0.30	-
Panel B: Non-Dumble Consumption						
Loans (Billion ₹)	10.050*** (0.491)	117.667*** (6.426)	74.729*** (3.196)	468.307*** (23.154)	52.857 (38.298)	17302.572*** (1283.781)
Observations	7,380,850	7,378,389	7,380,850	7,378,389	5,916,682	5,916,552
R-squared	0.41	-	0.41	-	0.40	-
Panel C: Seroices Consumption						
Loans (Billion ₹)	2.423*** (0.200)	22.158*** (2.182)	21.145*** (1.206)	88.188*** (8.238)	-145.370*** (16.617)	3411.435*** (423.834)
Observations	7,380,850	7,378,389	7,380,850	7,378,389	5,916,682	5,916,552
R-squared	0.29	-	0.29	-	0.28	-
Panel D: Dumble Consumption						
Loans (Billion ₹)	5.099*** (0.369)	50.276*** (7.868)	33.444*** (2.215)	200.097*** (30.537)	119.269** (37.169)	11054.232*** (1606.706)
Observations	7,380,850	7,378,389	7,380,850	7,378,389	5,916,682	5,916,552
R-squared	0.08		0.08		0.07	
Panel E: Non-Consumption Expenditures						
Loans (Billion ₹)	11.456*** (0.572)	122.116** (43.659)	71.725*** (3.838)	486.015** (173.346)	738.445*** (47.782)	16847.753*** (4582.945)
Observations	7,380,850	7,378,389	7,380,850	7,378,389	5,916,682	5,916,552
R-squared	0.05	-	0.05	-	0.05	-

Standard errors in parentheses.

*p < 0.05,**p < 0.01,*** p < 0.001

Total Vs Direct Effects of Credit Shock

The direct effects of credit on consumption are lower than the total effects on account of the fact that credit shocks change the scale of economic activity. For instance, indirect effects can arise out of increased employment and therefore increased incomes following a positive credit supply event. In the case of total loans, the direct effect of ₹100 crore credit on household consumption is ₹161, while for bank and NBFC + FinTech loans it is ₹205 and ₹520 respectively (Table 2).

Table 2 : Total *vs* Direct Effects of Credit on Consumption

	Total Effect	Direct Effect
All Loans	190.101***	160.993***
	(12.060)	(12.347)
Bank Loans	242.790***	205.135***
	(13.975)	(14.788)
NBFC + FinTech Loans	630.224***	519.902***
	(44.100)	(46.537)

CHAPTER III

THE DIGITAL REVOLUTION AND DIGITAL LENDING*

India is witnessing rapid digitalisation with the implementation of the India Stack. Consequently, digital lending and in particular FinTech lending has grown rapidly. The introduction of Unified Payment Interface (UPI) has provided FinTech with a seamless digital infrastructure, accelerating its expansion and creating new possibilities for financial inclusion across the country. However, regulation of digital lending must be tailored to facilitate growth as well as maintain stability.

3.1 Introduction

III.1 The digital revolution has fundamentally changed various aspects of the economy, affecting businesses, households, and governments. Many low to middle-income economies use digital payment platforms to reach underserved and vulnerable populations, bringing them under the banking network and the formal economy. Digitalization is poised to grow even further worldwide with a projected three-fold increase to USD 10 trillion by 2026, with 2 out of 3 transactions predicted to be through non-cash modes (Patra, 2023).

III.2 India has been a torchbearer of the fifth technological wave driven by the information and communication revolution. The introduction of the India Stack, a unified software platform, brings together identity, data, and payments nationwide under one umbrella and plays an essential role in heralding our population into the digital age. The introduction of the Jan Dhan Yojna, AADHAAR, and Mobile number (JAM trinity), along with the Unified Payment Interface (UPI), has changed the landscape of Indian banking. UPI, India's premier digital payments interface launched in 2016, has since evolved into one of the world's most successful payment platforms, facilitating seamless Person to Person (P2P) and Person to Merchant (P2M) transactions. The UPI revolution in India has shown that if technology is created by keeping in mind the needs of the common person, it will have widespread acceptance.

III.3 Growth in digital lending is an important consequence of the digital revolution. Electronic platforms that match lenders to borrowers create and facilitate credit activity in digital lending. Activities that are part of the lending process, including the assessment of credit, loan approvals, loan disbursements, and loan repayment, are handled electronically, lowering lenders' costs and allowing them to cater to unserved and underserved customers. In India, non-banking financial companies such as FinTech lenders have been at the forefront of the digital lending boom. While digitalization and the resulting digital lending boom has helped both traditional banks and NBFCs enter previously unexplored markets, it has been

* This chapter has been prepared by a team comprising Nirupama Kulkarni, Vidhya Soundararajan, Yogeshwar Bharat, Advait Moharir, and Rumana Patel.

instrumental for the recent spurt in FinTech lending. A case in point is the concurrent growth of UPI that has facilitated the rapid expansion of FinTech lenders since 2016.

III.4 The COVID-19 pandemic further fuelled digitalization as stringent lockdowns on mobility pushed people online and consumers resorted to digital transactions for their day-to-day activities. Consequently, digital lending soared. As favourable demographic characteristics boost the proliferation of mobile phone usage, improvements in access to mobile data, a growing start-up culture, especially in the FinTech industry, and the demand for credit among consumers increases, the market will only grow further.

III.5 Despite the optimism, rapid expansion in digital lending has raised concerns regarding data privacy issues, cyber risks, usurious interest rates, unethical recovery practices, and concentration risks. For the market to continue to grow, all attempts need to be made to secure digital transactions from multiple risks and protect the rights of the involved parties. Digital finance has been instrumental in making significant strides towards financial inclusion. Any of the above issues can result in erosion of consumer confidence amongst the most vulnerable population in engaging in digital transactions and frustrate the advances made towards financial inclusion. It is, therefore, paramount to understand these issues and risks and develop the regulatory framework and capabilities to tackle them at the source.

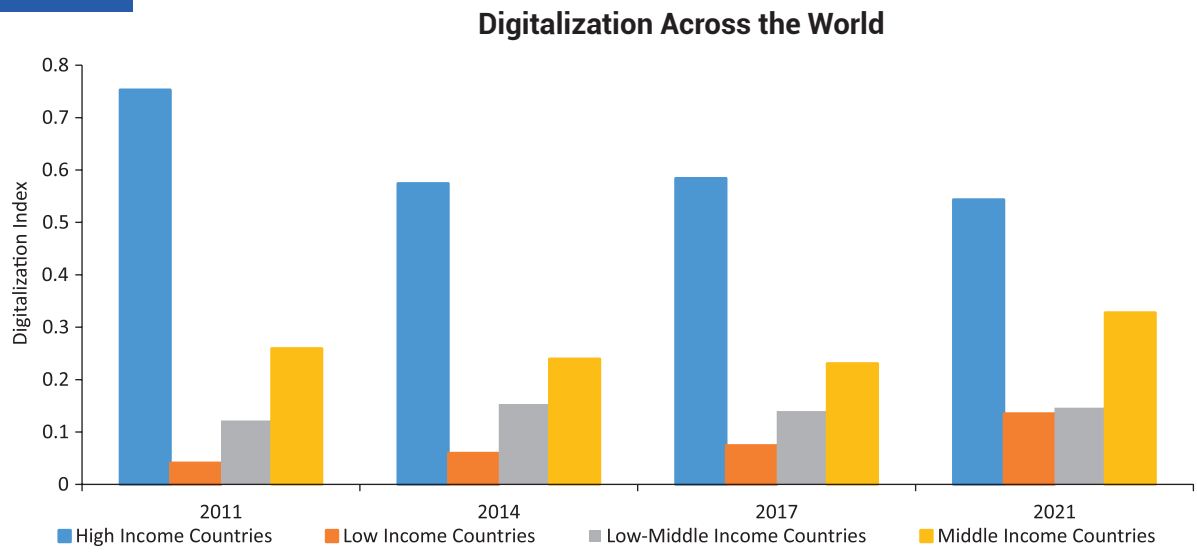
III.6 This chapter studies how rapid digitalization has shaped the NBFC sector, particularly FinTech lending. The following section reviews the growth in digitalization globally and in India. Section 3.3 links FinTech growth to digitalization. Section 3.4 studies the transformational role of UPI in fostering FinTech lending, with a focus on the opportunity provided by the COVID-19 pandemic for FinTech lenders. In Section 3.5, we scope the broad landscape of the risks in digital lending and document the regulatory framework to address these issues. Section 3.6 concludes with some medium-term perspectives.

3.2 Growth in Digitalization: India vis-*à*-vis the World

III.7 In the past decade, digitalization has increased globally with more pronounced growth in low- to middle-income countries recently (Chart 3.1). While digitalization levels continue to remain high in high-income countries, their growth has stagnated. In developing economies, the share of adults making or receiving digital payments has risen rapidly from 35 per cent to 57 per cent between 2014 and 2021 (World Bank, 2021). Growth in digitalization is an opportunity to increase bank account ownership. Women, poor adults, the less educated, and those outside the labour market constitute the major share of underbanked and unbanked individuals. Digitalisation has targeted these vulnerable groups, bringing them into one formal financial networks (GPFI, 2014).

III.8 Against this global backdrop, India has been a pioneer in the digital revolution. India's digital consumer base is the second largest in the world and growing at the third fastest rate amongst major economies (Chart 3.2). As per the report by the Internet and Mobile

Chart 3.1

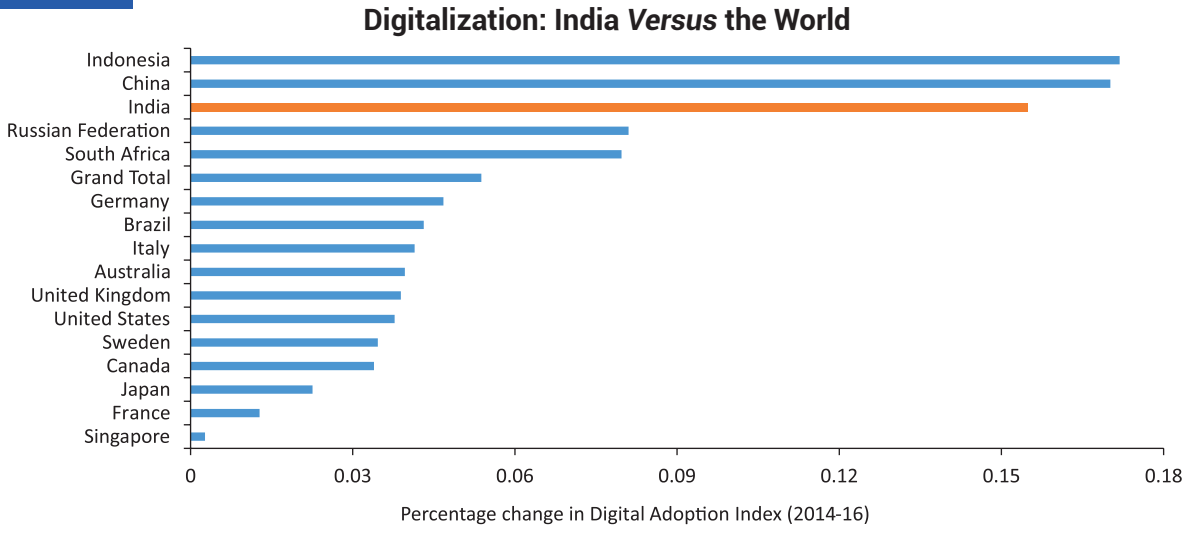


Note: Based on the digital adoption index from World Bank.
Source: Global Findex Database 2021, World Bank and CAFRAL calculations.

Association of India (IAMAI), in 2022, there were a total of 759 million active Internet users with equal division across rural and urban areas, though gender gaps continue to persist. Overall, one-third of Indian households use internet in some form, including a quarter of the households in the bottom 40 per cent of income group.

III.9 The Government of India's inclusive digital model is narrowing the digital divide within the country and bringing the benefits of technology to all segments of people. Between 2014 to

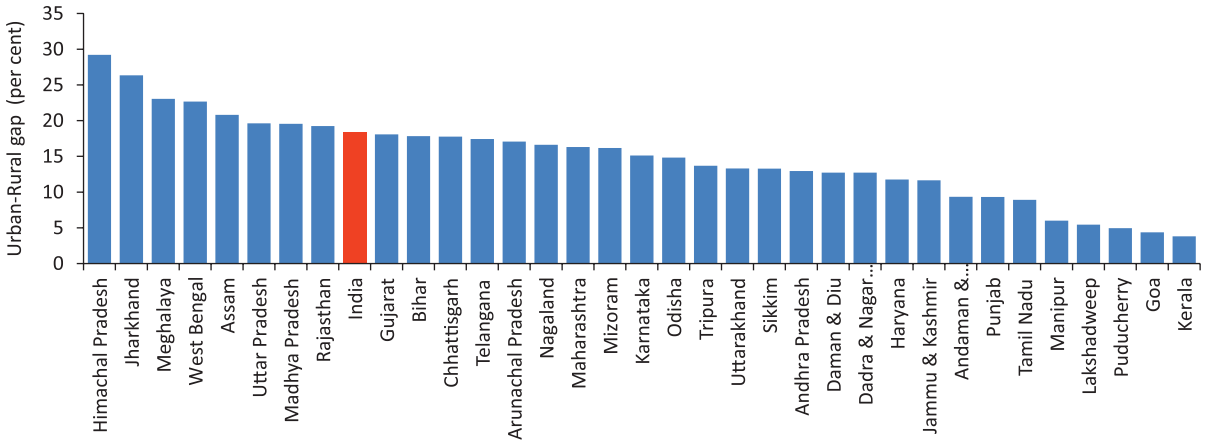
Chart 3.2



Note: Each bar represents the growth in the World Bank digital adoption index between 2014 to 2016.
Source: CAFRAL calculations based on Digital Adoption Index 2014 and 2016, World Bank.

Chart 3.3

Digital Divide Across States in India



Note: The graph shows the per cent difference between the share of urban and rural respondents who have ever used internet.
Source: NFHS (2019-21) and CAFRAL Calculations.

2019, approximately 45 per cent of the new internet subscribers came from states whose per capita GDP is lower than India's average GDP per capita (Ministry of Electronics & IT, 2019). However, there still exists a rural-urban divide in digital payments since cash is still prevalent in rural areas. Despite the success of UPI, it has been mostly limited to urban centres (The Times of India, August 5, 2020). The digital divide between urban and rural India is approximately 18 per cent (Chart 3.3). However, the digital divide in India is narrowing fast as the growth in UPI of the less affluent states exceeds that of their more affluent counterparts (Financial Express, October 28, 2020).

III.10 Increased penetration of smart phone usage is an important factor facilitating digitalization. The number of smartphones increased nearly seven-fold from 100 million in 2014 to 700 million in 2021 (RBI, 2021). Access to high-speed internet has also been an important factor in household access to mobile phones. The entry of a new telco 4G-only mobile network operator in 2016, ensured that access to high-speed internet and mobile data usage increased from 154 MB/month in 2015 to nearly 15.8 GB/month in 2021 (TRAI 2023; IMF 2023). A conducive regulatory environment has also ensured that the telecom market is competitive and affordable. The Telecom Regulatory Authority of India (TRAI) introduced the Prohibition of Discriminatory Tariffs for Data Services Regulations in 2016 preventing telecom service providers from charging differential rates for data services, ensuring broad access. There were nearly 865.90 million Internet subscribers and 832.20 million broadband connections as of December 2022.

3.2.1 Developments in India Stack

III.11 The establishment and growth of the India Stack has been key to the diffusion of digitalisation across the country. Consisting of three overlapping and integrated layers, namely, data, payments and identity, the stack first emerged with the introduction of Aadhar in 2009 as a unique identifier. Many landmark developments have occurred since, including payment systems like UPI and a centralized document repository in the form of Digilocker, and most recently, the Account Aggregator framework in 2021 (Table 3.1).

Table 3.1: Details on the India Stack

Sr. No.	Name	Definition	Year of Launch	Operating Body
		Identity Layer		
1	Aadhaar	A 12-digit unique identification number that is linked to biometric (fingerprints, iris, face) demographic (name, age, gender, address) and optional contact details (email, phone number)	2009	Unique Identification Authority of India (UIDAI)
2	DigiLocker	Digitalisation service that provides an account in cloud to every Aadhaar holder to access authentic documents.	2015	Ministry of Electronics and Information Technology (MeitY)
3	GSTM	A unique 15-digit identifier assigned to businesses and individuals who are registered under the GST regime in India. It is used to track and manage the tax liabilities and compliance of registered taxpayers under the GST system.	2017	The Goods and Services Tax Network (GSTN)
4	Udyam	A registration system for MSMEs in India, to make it easier for MSMEs to access government schemes and benefits.	2020	The Ministry of Micro, Small and Medium Enterprises (MSMEs)
		Payment Layer		
1	UPI	Unified Payments Interface is an instant real-time payment system	2016	National Payments Corporation of India (NPCI)
2	BBPS (Bharat Bill Payment System)	Integrated bill payment system providing a centralized platform for the payment of telephone bills, utility bills, etc.	2016	National Payments Corporation of India (NPCI)
		Data Layer		
1	Account Aggregator	Enables consented access and sharing any person's digital financial information in a secure manner among financial institutions regulated by Financial Sector Regulators, viz., RBI, Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), Pension Fund Regulatory and Development Authority (PFRDA)	2021	Reserve Bank of India (RBI)

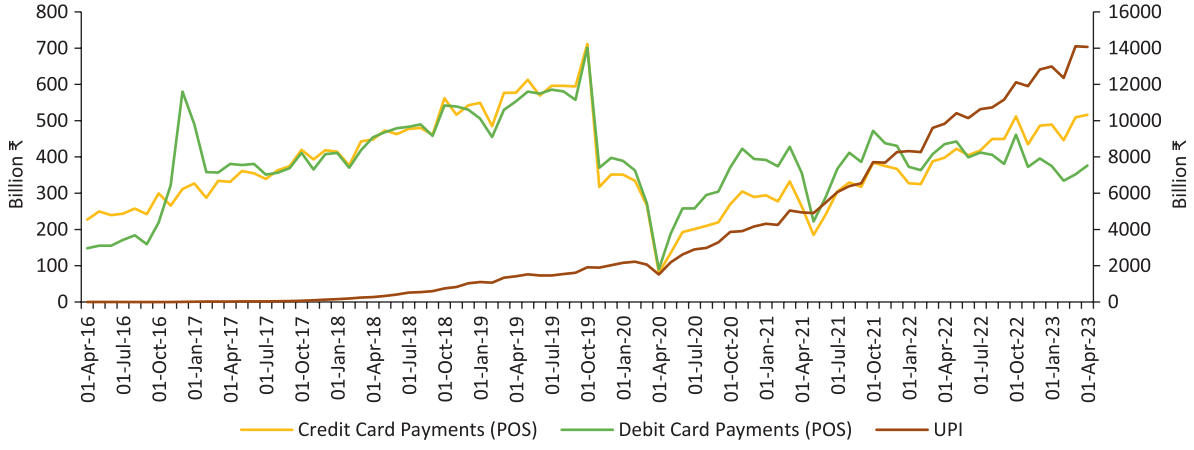
Source: IndiaStack website, IMF.

III.12 Digital payments have also been growing steadily in India over time. Credit and credit debit card usage has shown constant growth before the pandemic. Before the pandemic, credit card POS payments showed a CAGR of 13.5 per cent, while debit card POS showed a CAGR of 25 per cent (Chart 3.4).[1] Transactions for both dipped sharply during the pandemic but rebounded strongly post pandemic, with 43 per cent CAGR for Debit Card POS and 51 per cent CAGR for Credit Card POS.[2] Post-pandemic, cards in circulation crossed the 1 billion mark.[3] These numbers underscore the resiliency of the credit and debit card market despite the pandemic shock, partly attributable to the Jan Dhan accounts, which are issued with debit cards.

III.13 Another significant development is the introduction of RuPay — an indigenous card-based payment solution — in 2014. Before RuPay, access to card-based payments was a privilege enjoyed by customers of top banks, and excluded a significant share of the population, as banks prioritized uptake among urban consumers. However, with the launch of RuPay, debit card ownership has diffused considerably. Over 1,240 banks, including private sector banks, public sector banks, small finance banks, cooperative banks, and regional rural banks, can now issue RuPay cards to their customers. With its wide acceptability and issuance as a baseline product to the customers of all tiers, banks are embarking rapidly on the journey of "one nation, one card for the billions". RuPay has also shown robust growth in its volume of transactions in the past 5 years, recording a CAGR of approximately 40 per cent between FY 2017 to FY 2022 (Bharat Interface for Money, 2022).

Chart 3.4

Trends in Digitalization in India



Note: LHS axis shows trends in Credit Card and Debit Card payments, while RHS axis shows trends in UPI payments. Data for all variables is monthly.
Source: NPCI, CEIC.

[1] Authors calculation and period is from April 2016 to March 2020.

[2] Authors calculation and period is from April 2020 to April 2023.

[3] Credit cards increased from 62.8 million to 78.7 million whereas debit cards increased from 906 million to 922 million. https://www.npci.org.in/what-we-do/upi/product-statistics.

III.14 The introduction of UPI has revolutionized the digital space. UPI usage has exponentially increased since its inception in 2016, with its growth outpacing all other modes of digital payments. UPI is an instant, real-time payment network built, owned, and operated by the National Payments Corporation of India (NPCI). This payment system is built as an interoperable protocol and allows third-party vendors to build apps to provide payments as a service to all customers of participating banks. Due to interoperability, customers with an account in Bank "A" can use a payments app built by PSP "X" to send money from their account in one bank to self or other party accounts of any other bank or PSP participating in UPI via QR codes, mobile numbers, or other identifiers, with instant settlement of payments (NPCI, 2016).

III.15 UPI is used by multiple stakeholders, including individuals, micro, small, and medium enterprises (MSMEs), and especially smaller merchants. It is easily accessible through mobile devices, provides convenient payment initiation methods, such as users registered mobile numbers, QR codes, etc., and ensures universal interoperability between financial institutions. These design choices have helped enhance digital and financial literacy and included the portion of the population that was formerly underserved or unserved by financial institutions.

III.16 There were over 8.68 billion transactions per month on the UPI network, with over 300 million unique users and close to 400 participating banks, as of March 2023. Since the inception of UPI, its transactions have taken over the aggregate of credit and debit card transactions by the financial year 2018 showing its broad level of acceptance and penetration among consumers (Chart 3.4). The size of the value of transactions has grown at a whopping CAGR of 163 per cent from the financial year 2018 to the financial year 2023, and the volume of transactions has grown at a CAGR of 56 per cent. Additionally, the average size of transactions has also risen from ₹120 in the financial year 2018 to ₹1660 in the financial year 2023.[4] This increase is fuelled by well-established payment front-end solutions provided by PhonePe, Google Pay, and Paytm, as they accounted for 94 per cent of transactions by volume and 96 per cent by value for the month of March 2023. The contribution of UPI transactions in total digital transactions by volume has increased from 4 per cent in FY 2018 to 52 per cent in FY 2022 (Bharat Interface for Money, 2022). The rise in UPI transactions has led India to become a global leader in real-time transactions (ACI Worldwide, 2023).

III.17 Additionally, in June 2022, the RBI proposed linking RuPay credit cards to the UPI platform for payment purposes. This has the potential to be a game-changing move in digital payments as it offers the benefit of both credit card and UPI, along with an opportunity to increase credit card penetration in India.

[4] https://www.npci.org.in/what-we-do/upi/product-statistics

3.2.2 Digitalization During the COVID-19 Pandemic

III.18 Globally, the COVID-19 pandemic fuelled the acceleration of digitalisation, especially in low and middle-income countries (Chart 3.1), as households faced mobility restrictions and were pushed online. The share of adults making digital payments increased post-pandemic, with 8 per cent of adults in developing economies, (World Bank, 2021).

III.19 Mirroring global trends, India, too, saw a sharp rise in digitalisation post COVID-19: internet users grew from 30 per cent in 2019 to 46 per cent in 2021. Two-thirds of adults who made a digital merchant payment did so for the first time after the onset of the pandemic. Smartphone penetration, too, has shot up, growing from 23 per cent in 2016 to 54 per cent in 2020 (World Bank, 2021). As the pandemic progressed, millions of Indians have engaged in online transactions, including e-commerce and digital payments.

3.3 Digitalization and FinTech Lenders

III.20 An important consequence of the digital revolution has been the growth in digital lending (IMF and World Bank 2019; Feyen ***et al.*** 2021). FinTech lenders have been instrumental in the rapid expansion of digital lending. Globally, the scale of FinTech credit was USD 223 billion in 2019, with China, USA, and the UK as the biggest markets.

III.21 In India, NBFCs have been at the forefront of digital lending with traditional banks playing a smaller role. Data on a representative sample of banks and NBFCs shows that the share of digital lending to overall lending was 60.53 per cent for NBFCs as opposed to a smaller 5.53 per cent for banks in FY 2020. This growth is noteworthy considering the proportion of digital lending in banks and NBFCs was merely 0.33 per cent and 0.53 per cent, respectively, in 2016 (RBI, 2021).

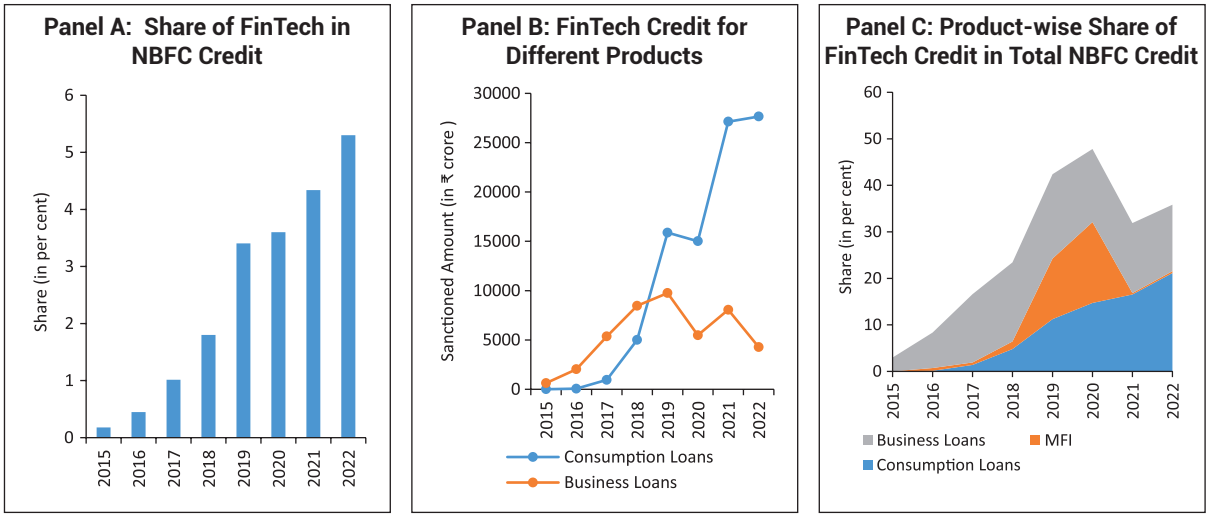
III.22 Within the NBFCs, FinTech lenders have captured a substantial share of the consumer and retail market (Chart 3.5A). The rapid expansion in FinTech lending has led to the birth of a number of FinTech start-ups. Of the 14,000 newly founded start-ups between 2016 and 2021, close to half belonged to the FinTech industry.[5] FinTech lending is projected to exceed traditional bank lending by 2030 (Patra, 2023).

III.23 The growth in FinTech lending due to digitalization has also facilitated financial inclusion. Traditional banking relies on face-to-face interactions and requires significant investment in physical infrastructure, which increases costs and limits customer reach. FinTech lenders rely on alternate sources of digital information and can deliver services at significantly lower costs, enabling financial inclusion of hitherto unserved households. FinTech lenders have also leveraged digitalization to provide superior customer experience by reducing the turnaround

[5] https://www.g20.org/content/dam/gtwenty/gtwenty_new/document/1st%20FMCBG%20Chair%20Summary.pdf

Chart 3.5

FinTech vis-*à*-vis NBFCs



Source: CIBIL.

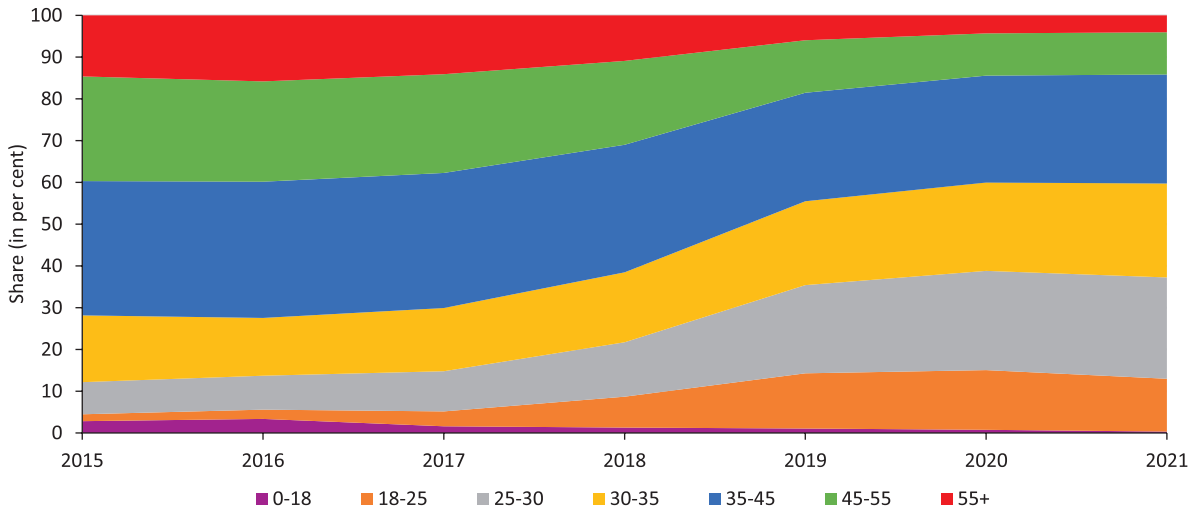
time for credit applications. As the digital divide narrows across regions, these lenders can increasingly help reduce geographic disparities in credit disbursement.

III.24 FinTech has widened the range of products available to customers and expanded its distribution channels. Across 80+ application stores (from January 01, 2021, to February 28, 2021), nearly 1100 lending apps were available for Indian Android users (RBI, 2021). While smartphones were the initial catalysts for the growth in digitalization, many digital apps can now be downloaded on feature-based phones, further expanding FinTech lenders' reach. A case in point is UPI for feature phones introduced by the Reserve Bank, benefitting nearly 400 million users (RBI, 2022). These finance apps can often work with slow data connections and limited storage, allowing access even in remote rural areas.

III.25 Increased smartphone penetration has been instrumental in fostering FinTech growth in India. Mobile usage has been particularly pronounced amongst the young. With a median age of 28, India is home to one of the youngest populations in the world. India's demographic dividend implies that it also has a significant share of "digital natives" – people who were born and raised in the information age. This has yielded a young, digitally literate workforce which is abreast of rapidly changing technology, and comfortable with using it in their day-to-day lives. Sustained economic growth over the last two decades has also created an aspirational class of consumers. This has led to a boom in real estate investment, and consequently a rise in borrowing. Hence, a young, technologically savvy and aspirational workforce has been key in driving the digital revolution in India. FinTech lenders have increasingly tapped into this market and the share of lending in the below 35 years' age category has been steadily increasing (Chart 3.6)

Chart 3.6

FinTech Lending by Borrowers' Age



Source: CIBIL.

III.26 A number of initiatives targeting financial inclusion have also ensured digital lending has widespread access across customer segments. The Pradhan Mantri Jan Dhan Yojana (PMJDY) laid the foundations of financial inclusion by ensuring that close to 50 crore Indians have a bank account. The beneficiaries are automatically eligible for a MUDRA loan, making them eligible to receive loans upto ₹ 10 lakh. This scheme helps rural households that face high credit demand but have been historically underbanked, get access to formal credit.

III.27 Coincident developments in Artificial Intelligence (AI) have helped make existing mechanisms like credit scoring — especially for FinTech and digital lenders — more accurate, while also providing new innovative markers of borrower creditworthiness. Finally, big data analytics and cloud computing have enabled the storage, and processing of large and granular data, allowing firms, businesses, and individuals to uncover insightful patterns, with better accuracy. While these methods can be used across lenders, they have been increasingly used by the nimbler FinTech lenders.

3.4 Salient Features Enabling FinTech Lending

III.28 The primary factors enabling FinTech growth are information and communication technology (ICT) and financial infrastructure (World Bank, 2022). While ICT determines usage of digital payment services, financial infrastructure such as credit information systems determines usage of digital lending services. The development of India Stack has been a vital catalyst in the recent uptick in FinTech activity. For consumers, providing for proof of identity and fulfilling the know-your-customer regulatory requirements have become faster. With facilities like eKYC that ensures easy verification and Aadhaar that serves as a unique identifier, the path

to increasing access to digital lending has become considerably smoother. The more recent introduction of Digilocker allows consumers to store and share a wide range of compliance documents in the electronic document wallet, with Aadhar and PAN serving as personal and business identifiers respectively.

III.29 IndiaStack, crucially, brings together data, payments, and identity layers of India's digital infrastructure. This opens up new avenues for borrowers and lenders, in securing access, and in enabling last mile delivery among FinTechs. The RBI's Account Aggregator framework is a pioneering step which helps in reducing information barriers between institutions and individuals. By allowing consumers to manage all consent agreements in one place, institutions now have access to granular financial data, allowing for efficient allocation of credit. Collectively, these services have allowed customers to avail credit through digital lenders by downloading lending apps without having to go through long wait times and multi-pronged verification processes.

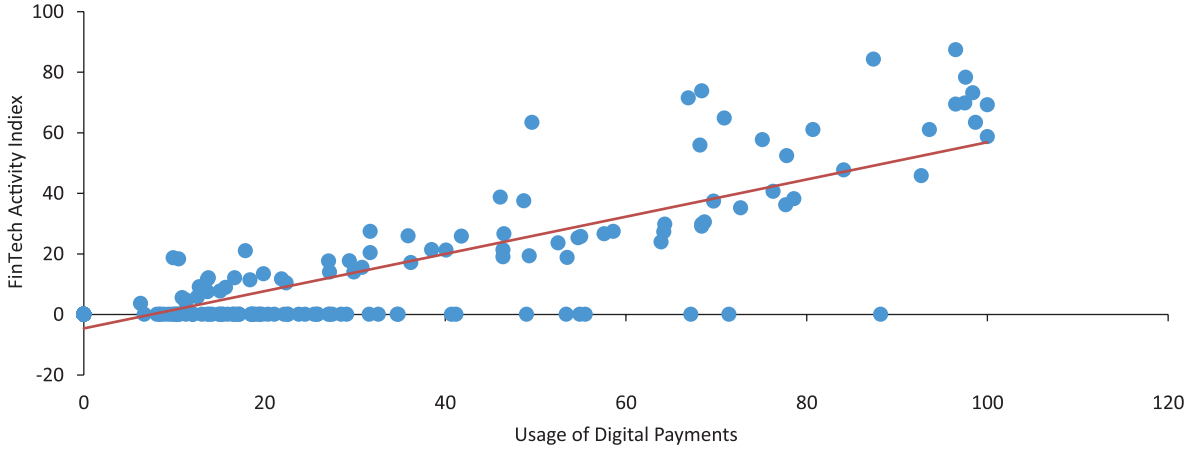
3.4.1 UPI and the Rapid Expansion of FinTech in India

III.30 Innovative payment systems are an important antecedent to the emergence of the FinTech sector across countries. Globally, countries with high usage of digital payments also exhibit high FinTech activity (Chart 3.7).

III.31 A central factor determining the pickup in FinTech lending in India has been the introduction of UPI, which has enabled an almost-universal system of digital payments and eased many logistical and geographical barriers to credit flow (Alok, Ghosh, and Kulkarni, 2023). Barring the short-lived decline in FinTech lending after the COVID-19 pandemic in March 2020, UPI and FinTech lending growth have both been rising in tandem (Chart 3.8A). State-

Chart 3.7

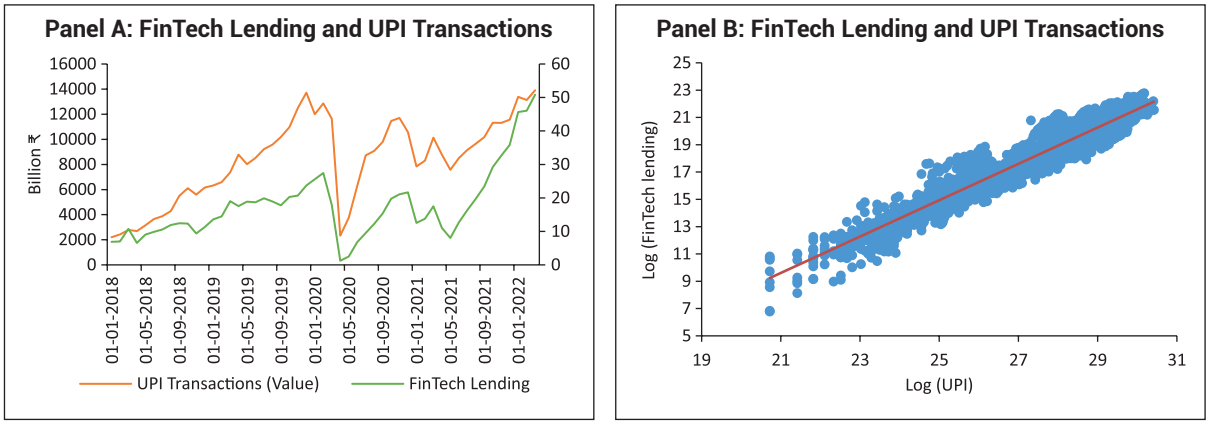
FinTech and Digitization : World



Note: Horizontal axis shows index of usage of digital payments, while vertical axis shows FinTech Activity Index. Each point represents a country.
Source: World Bank, CAFRAL calculations.

Chart 3.8

FinTech and Digitalization : India



Note: Panel A shows trends in UPI transactions (LHS) and FinTech Lending (RHS). All values are in billion INR. Panel B shows the scatter of log UPI transactions against log FinTech lending, with state-year level data. All data for both panels are from the period 2018-22.
Source: NPCI, CIBIL.

wise comparison shows a similar positive association between UPI and FinTech lending (Chart 3.8B). Systematic regression analysis quantifies these point estimates: a 10 per cent increase in UPI transactions per capita is associated with a 4.6 per cent increase FinTech lending per capita (Box 3.1). While lending at scheduled commercial banks also exhibits a similar increase as they too have switched to digital lending platform, the effects are more muted.

Box 3.1: UPI and Digital Lending

Given the strong complementarities between the growth in UPI and the growth in FinTech lending, the natural question arises: Did UPI help accelerate FinTech lending? The monthly UPI transactions data from 30 states and union territories over the period 2018-2022 and sector-wise lending data from CIBIL help answer this question. Specifically, the relationship between UPI and FinTech versus scheduled commercial bank (SCB) lending is explored in a panel regression (Appendix A).

Regression results regression results are broken into two parts: (i) ***elasticity*** of per capita FinTech lending, and per capita SCB lending due to a 1 per cent increase in per capita UPI transactions; and (ii) the response of FinTech and SCB lending ***growth*** to a 1 per cent increase in UPI transaction growth. The inclusion of SCB lending serves as a baseline helps compare a new and upcoming form of lending which is primarily digital in nature, to a pre-existing, traditional method operating predominantly in-person.

Regressions results indicate that FinTech lending is strongly related to UPI growth. Comparatively, the relationship between SCB lending and UPI growth is weaker. A 10 per cent increase in per capita UPI transactions is associated with 4.6 per cent rise in per capita FinTech lending, and only a 1.5 per cent increase in per capita SCB lending. The relationship is even stronger when the speed of growth is considered: a 10 per cent ***increase*** in the UPI growth rate is associated with an almost 8.1 per cent increase in FinTech growth, compared to a 6.9 per cent corresponding rise in SCB lending growth.

(Contd.)

This is likely attributable to the complementarities between the UPI and FinTech. UPI uptake has allowed lenders to access alternate data to determine creditworthiness, and the FinTech sector is more likely to do this as it operates primarily within the digital realm (Buchak ***et al.***, 2018; Zhabska, 2023; Alok, Ghosh, and Kulkarni, 2023). UPI transactions also reduces the effective distance between borrowers and lenders, eliminating frictions and increasing banks' willingness to lend. Overall, the results indicate a stronger relationship between UPI and FinTech lending, relative to lending from scheduled commercial banks.

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III.32 Various other technologies have evolved that allow lenders to base lend based on alternative sources of information. For example, the Reserve Bank Innovation Hub, a division of the RBI, has developed a public tech platform for frictionless lending that would facilitate the easy flow of important data to lenders. While the platform itself is not a facility for lending or granting credit, it aggregates information from various sources enabling lenders to use the information in their lending decisions.

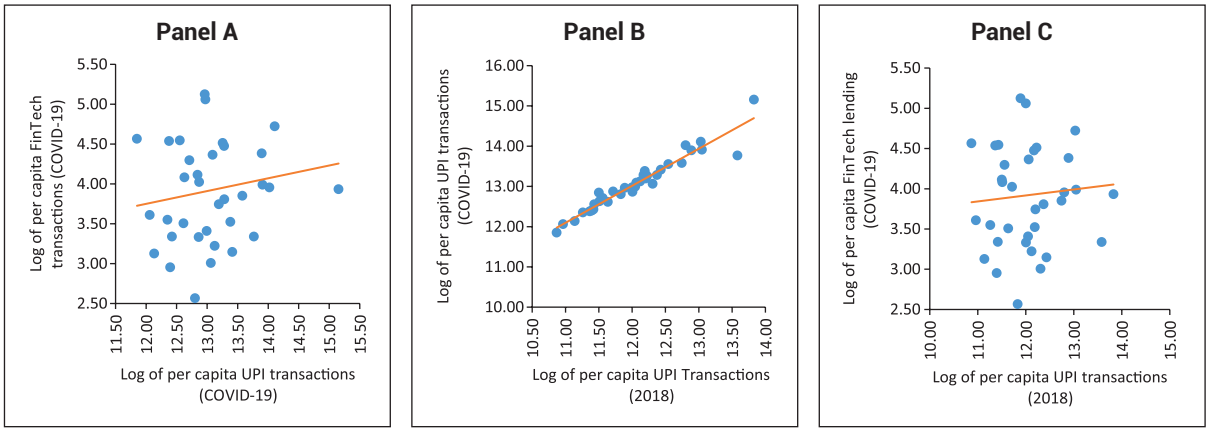
3.4.2 COVID-19: An opportunity for FinTechs

III.33 In response to the COVID-19 pandemic, governments across the world imposed lockdowns and stringent mobility restrictions to contain the spread of the virus. Consumers and businesses were forced to move online, and digital activity increased globally. Consequently, consumers' ease with digital payments increased and FinTech lenders seized the opportunity to expand their operations. FinTech lenders, already at the forefront of the digital lending revolution, could exploit the inherent advantages of limited manual intervention and face-to-face interactions to cater to a range of consumers.

III.34 FinTech growth in the first half (H1 2020) was particularly stark in emerging market and developing economies (EMDEs) compared to the advanced economies (AEs). While FinTech in EMDEs grew by 12 per cent, they grew at a marginally slower pace of 10 per cent in AEs (CCAF, World Bank and World Economic Forum, 2020). These broad cross-country trends parallel similar growth of FinTech lending within India. UPI growth picked up during the pandemic (Chart 3.9A). Districts with greater UPI growth also saw greater growth in FinTech lending (Chart 3.9A). UPI growth across districts mirrors pre-pandemic trends (Chart 3.9B) and is positively associated with districts that saw greater FinTech growth (Chart 3.9C).

Chart 3.9

UPI and FinTech Growth During COVID-19

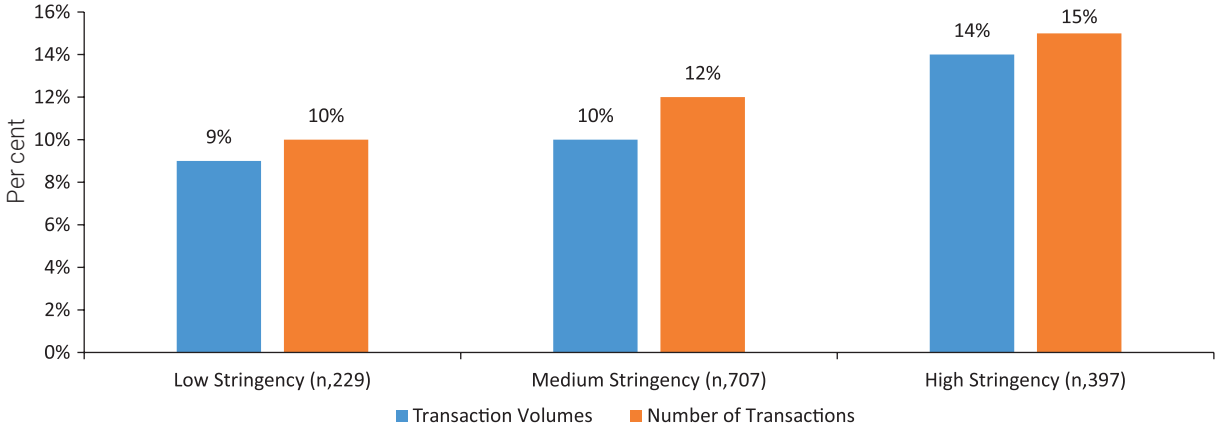


Note: Y-axis in panel A is the growth in FinTech for the COVID period, and for the pre-COVID period in panels B and C. COVID period is the period from February 2020 to April 2022 (inclusive), and the pre-COVID period is the period from Janhuary 2018 to December 2018. Each observation represents a state.
Source: CIBIL, NPCI and CAFRAL calculations.

III.35 Another important factor determining FinTech growth were the lockdown measures in the wake of the pandemic. Globally, FinTech activity grew the most in countries with the most stringent lockdown restrictions (Chart 3.10). India, too, shows similar differential growth in FinTech lending compared to bank lending, though with some nuanced differences. In India, with the onset of the pandemic and consequent nationwide lockdowns, retail lending declined. As the mobility restrictions were differentially eased across regions, we start to see recovery in lending growth though at differential paces. Regions with the most restrictions (red districts) see more muted recovery compared to the regions with the least restrictions

Chart 3.10

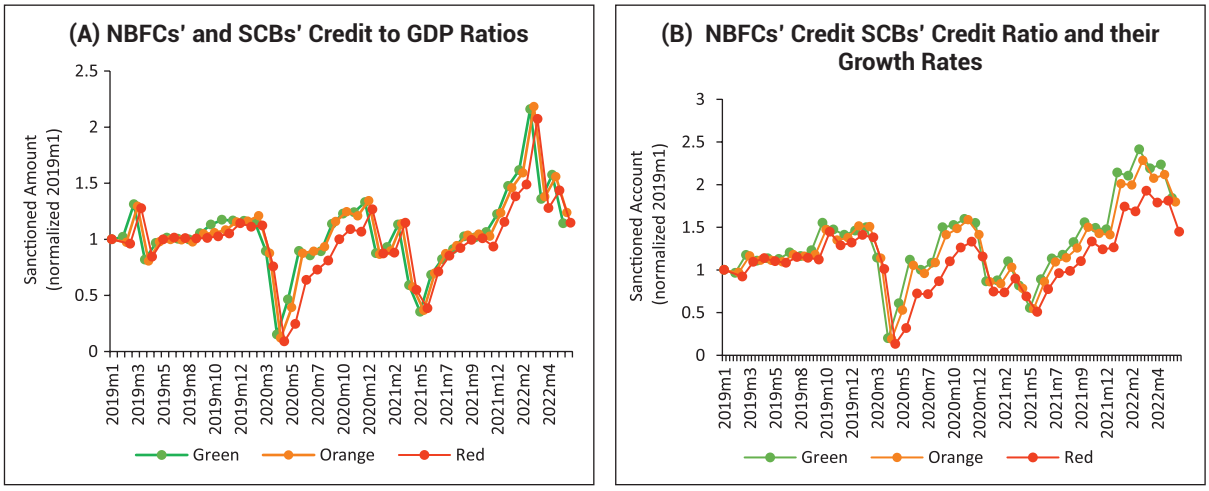
FinTechs Across Country-level Lockdown Stringency (per cent change, year-on-year H1)



Note: Percentage change by lockdown stringency.
Source: CCAF, World Bank and World Economic Forum. (2020).

Chart 3.11

Loans Sanctioned by COVID-19 Restriction Zones



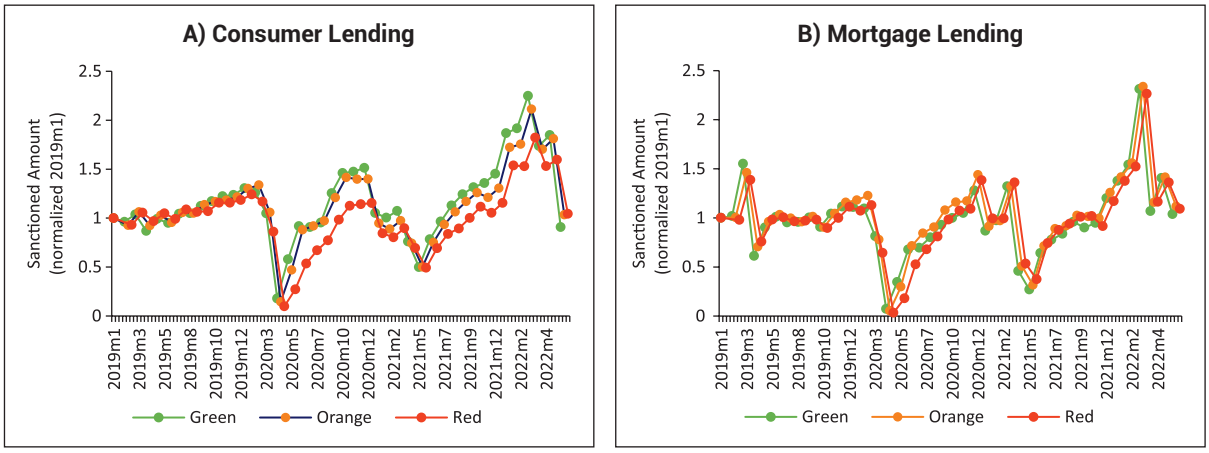
Note: The amount numbers are normalised using Jan, 2019 as base value.
Source: CIBIL, CAFRAL Calculations.

(green districts). District-wise classifications as red, orange, and green based on mobility restrictions is from Beyer, Jain, and Sinha (2023).

III.36 Lockdowns limited face-to-face interactions, affecting lending differentially across product categories. The differential trends across regions are evident in consumer lending. However, growth in mortgage lending is similar across regions (Chart 3.12). As opposed to mortgage loans that are secured by the underlying collateral, lenders need to rely on additional information to gauge creditworthiness of borrowers of consumer loans. Plausibly, limited face-to-face interactions explains the sharper drop in consumer loans compared to mortgages. The

Chart 3.12

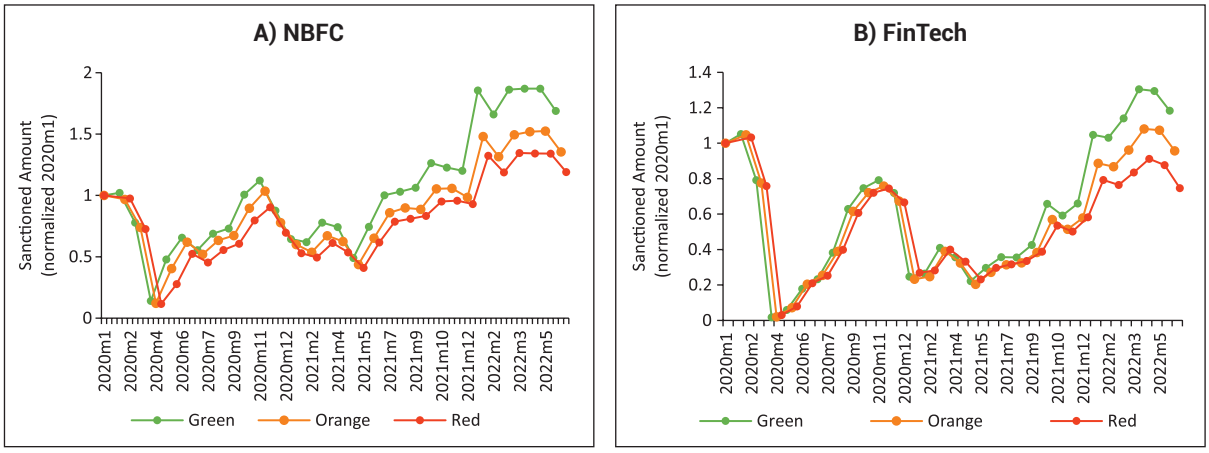
Differential Trends in Consumer Loans and Mortgages During the COVID-19 Pandemic



Note: The amount numbers are normalised using Jan, 2019 as base value.
Source: CIBIL.

Chart 3.13

NBFCs vis-à-vis FinTech lenders: Consumer Loans During the COVID-19 Pandemic



Note: The amount numbers are normalised using Jan, 2020 as base value.
Source: CIBIL.

differential decline in consumer loans shows up only for NBFCs. FinTech loans, on the other hand, grew at similar rates during the lockdown periods reflecting their ability to harness alternative sources of digital information to gauge creditworthiness (Chart 3.13).

III.37 However, systematic analysis of the data indicates that districts with more stringent lockdowns saw a higher relative growth in FinTech lending compared to remaining NBFCs and scheduled commercial banks (Box 3.2) as FinTech lenders seized the opportunity to differentially increase their relative market in regions faced with severe mobility restrictions.

Box 3.2: FinTech Lending During the COVID-19 Pandemic

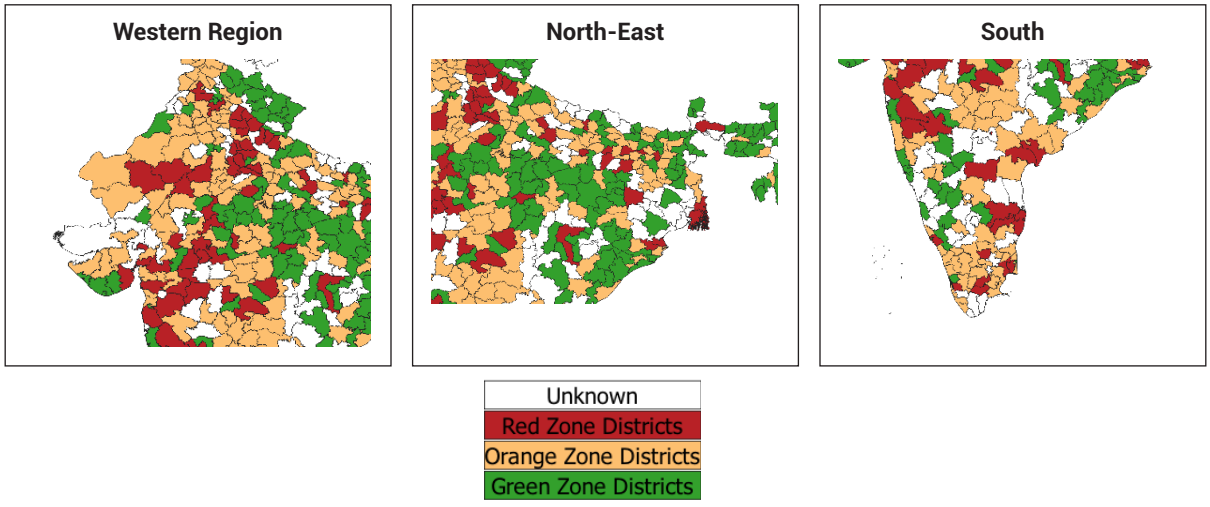
COVID-19 induced lockdowns allowed FinTech players to expand lending activity as consumers switched to digital modes. The question arises: do regions with more stringent lockdown measures see greater growth in FinTech lending relative to traditional banks. Importantly, do the effects from temporary lockdowns persist over the longer-term?

GoI imposed mobility restrictions with varying degrees of stringency and classified regions as "Red", "Orange", and "Green", in decreasing order of mobility restrictions (Chart 1). Exploiting the geographic variation in mobility districts across the country, the variation in growth of FinTech lending relative to remaining lenders is examined for the period from January 2019 to July 2022 (Appendix B).

Regression analysis yields interesting insights. Across lenders, there is an overall decline in lending both in the number of loans and the volume of lending for the post-pandemic period from March 2020 to July 2022. The decline is greatest in districts with the most stringent restrictions on mobility. These results are not surprising, considering the steep decline in economic activity in these districts during the pandemic (Beyer, Jain, and Sinha, 2020). FinTech lenders, on the other hand, see a *relative* increase in growth rates,

(Contd.)

Chart 1: COVID-19 Mobility Restrictions: Zonal Classification



the largest being in districts classified as red. The differential trends are starker for subprime lending compared to prime lending.

These results point to FinTech lenders grasping the opportunity created by the lockdown to increase their relative lending activity in districts with the most mobility restrictions. FinTech lenders' reliance on technology allowed borrowers, especially the subprime borrowers to access credit, during a period of hardship induced by the pandemic. These findings underscore the role of FinTech lenders as a complement to traditional bank lending, especially during distress periods such as the COVID-19 pandemic.

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3.5 Risks and Regulatory Approach to Consumer Protection in Digital Lending

III.38 While digital lending has taken off, its rapid expansion has raised concerns on issues such as usurious interest rates, unethical recovery practices, data privacy issues, and concentration risk.

3.5.1 Data and Cyber Risks

III.39 A large amount of data is being generated and collected by digital financial companies. These data, if used in an unregulated manner, could compromise consumer safety, lead to identity theft and frauds, manipulation using targeted advertisements, and more fundamentally disrupt banking operations. Digital lending can particularly exacerbate these risks as customers share personal and sensitive information over these lending apps.

3.5.1.1 Sources of Risks

III.40 Many apps are increasingly asking consumers for critical information such as location, camera, contacts, making phone calls, audio, and the like. There are many avenues for misusing this information that can compromise consumer safety and privacy. However, some of these information may be genuinely useful. For example, camera and location access may be important to verify the identity and the location of a borrower. Therefore, the way forward to protect consumers is in formulating better standards for data storages, privacy, cyber security and fraud.

III.41 There are various IT and infrastructure gaps that also need to be filled in maintaining and securing these data. Risks here arise from various sources. There could be poor access control policies that may allow unauthorized users to access customer data. Threat actors who initially have low-priority access could gain elevated access to sensitive resources to exfiltrate data or perform unauthorized actions. There could also be poor infrastructure related issues such as unsecured cloud servers and open ports that can make data vulnerable.

III.42 Often borrowers are not aware of the total costs of borrowing. Information on the charges and fees are not clearly communicated to them upfront. Interest amounts are not charged as arrears but in advance. There are hidden fees and charges or "teaser" rates that leave the borrowers confused. Money does not always go into the bank account of borrowers, but to third parties.

III.43 Another concern is that there are many fake/illegal apps in the marketplace. Users downloading a lending app cannot verify whether it is legal or not. These apps pose to be legal and collect information which they could use maliciously. Similarly, there are fake customer care call scams that collect personal and sensitive information from users and misuse them.

III.44 Credit Information Company (CIC) data have been shared in an unconstrained fashion. Examples of this include an NBFC sharing information with a Lending Service Providers (LSP) who acts as a customer sourcing partner, or an NBFC sharing information with another NBFC who is not a co-lender. Such "marketing" of CIC data needs to be regulated.

III.45 Vulnerability to cyber-attacks and loss of data privacy can result in the loss of trust of individuals in engaging in digital transactions. To the extent that digitalization has led us thus far towards financial inclusion, cyber risks can hurt these efforts. While these attacks are a worry for the general population, it can hurt the poor and the marginalized even more as these groups may be particularly vulnerable due to their lack of awareness about cyber security, and their rights on data privacy.

III.46 Another important concern is the matter of loan recovery process. There are many instances of third parties harassing borrowers regarding the recovery of loans and bothering consumers at odd hours, and by using physical and violent means. Many times, the identity of the recovery agent is not published ***apriori*** to the borrowers.

3.5.1.2 Regulatory Landscape: Balancing Innovation and Risks

III.47 The RBI has been proactive in encouraging innovations in the lending, open banking, and Peer-2-Peer lending platforms space. For example, RBI created a Regulatory Sandbox where by new products and services can be tested in a controlled manner. RBI also conducts Global hackathons whereby it invites participants to identify and develop solutions to emerging finance issues. Both the sandbox and the hackathon have among other things focused on digital financial transactions. Further, the Reserve Bank Innovation Hub (RBIH) sets up and promotes innovation in the financial sector in house and in collaboration with various policy institutions, academicians, the industry, and technology bodies. With the growing importance of FinTech, the RBI also set up a FinTech Department from January 2022. The digitalization of the Kisan Credit Card (KCC) by the RBI (launched earlier in 1998) is another step towards enabling the ease of digital lending (Thathoo,2022).

III.48 The focus now is on balancing innovation and mitigating cyber security risks. Many supervisory processes, complemented with activities like simulated phishing, cyber reconnaissance and other cyber exercises has helped obtain a holistic view of cyber risks. Still, cyber risks are thought to outpace regulations. In 2016, RBI published a principles-based Cyber Security Framework to be adhered to (RBI, 2016). The regulatory landscape for protecting data and cyber risks are emerging.

III.49 The RBI, in a circular in September 2022, provides various guidelines for digital lending in an attempt to protect consumers' data and privacy, and to prevent systemic risks. The foremost guideline states that the loan repayments should be done by the borrower in the regulated entity (RE)'s (banks or NBFCs) bank account rather than those of the third parties, namely, the LSPs and Digital Lending Apps (DLA). It is the onus of the RE to make sure money does not go into the bank account of any third party. Any fees payable to the third parties should be paid by the REs and not by the borrower. The borrower should be clearly informed of the Annualized Percentage Rate (APR), the all-inclusive cost of the loan, upfront. A Key Fact Statement (KFS) should be provided by the RE to the borrower in the prescribed format stating clearly the details of the lending contract, including the APR.

III.50 The REs should communicate the list of LSPs and DLAs they engage with on their website. This is to ensure that borrowers recognize these legitimate apps on marketplace platforms. The REs should also make sure that the relevant DLAs display the details of their product features accurately so that borrowers are aware of them, and that the DLAs provide links to the REs' websites that provide more details on the products. All loans, short term, unsecured/ secured credits or deferred payments, need to be reported to the CIC.

III.51 It is also the responsibility of the REs to make sure that the borrowers are aware of the recovery agent who is authorized to approach the borrower for loan recovery. If there is any change in the recovery details, borrowers should be updated on this.

III.52 The RBI guidelines also state that any data obtained from the borrowers by the DLAs should be after obtaining consent from the borrowers. Sharing borrowers' information with third party is not permitted unless explicit permission is taken from them. REs should ensure that LSPs and DLAs should not store data that are not required for their operations. REs should clearly decide the type, and the length of duration for which data can be stored. They should also clearly lay out the restrictions on data use and the protocol for data destruction.

III.53 In terms of infrastructural requirements, RBI guidelines state that data can only be stored in servers within India. REs shall ensure that they and the LSPs engaged by them comply with various technology standards/ requirements on cybersecurity stipulated by RBI and other agencies.

III.54 Grievance redressal is another aspect of the RBI guidelines. The REs and the LSPs should ensure that there is a nodal grievance redressal officer to whom borrowers can file complaints to with respect to various aspects of fintech and digital lending. The contact details of these officers should be prominently displayed in the websites of the REs and LSPs. Complaints that are unresolved within 30 days can be escalated to the Complaint Management System under the RBI's ombudsman scheme.

3.5.2 Other Risks

III.55 Concentration risk and regulatory fuzziness are concerns in the context where BigTech companies are entering the digital lending space. Bigtech companies are increasingly nudging and urging their customers to avail financial products (Bains, P., 2022). These companies have the advantage of a pre-existing consumer base with whom they already have a relationship with. When these companies enter the financial lending space, they create various types of risks. Without being exhaustive, we list a few below. First, because of their pre-existing advantages in data ownership and access, there is a fear of market dominance by these companies, thereby increasing concentration risk. These companies could cross-subsidize from their core business in the short term and gain market share in the FinTech sector. This could pose an issue in the long term where a few players would dominate that market in an oligopolistic setup and exercise market power. Second, governance structures in large tech companies could be complicated and this could prevent regulators from accurately assessing risks in these companies. In purely financial companies, regulators have access to the board and top management, and to contrast that, board members are also in a relatively influential position to reach out to financial regulators. This equation gets fuzzy with the Big Tech firms coming into the financial space. Third, with companies increasingly engaging in financial lending as a tertiary activity, there could be a higher risk of funds moving across subsidiary companies.

III.56 The finance ministers and the central bank governors of G20 group of countries expressed concern that the financial services industries have become worryingly reliant on Big Tech. The concern is that reliance on BigTech could inturn affect the resilience of the financial services sector. The potential misuse of data by the BigTech is another worry. The Financial Stability Board, the international body that oversees world's financial systems has also echoed this

concern (Financial Stability Board (FSB), 2022). With the recognition of these risks, there is an expectation that the future consultative processes by the FSB would bring in more clarity and the way forward in managing these risks. The FSB released a consultative report "Enhancing Third Party Risk Management and Oversight" in June 2023, providing a toolkit to help financial institutions and authorities address emerging challenges stemming from the increased reliance on Fintechs and BigTechs, and to help reduce fragmentation in the financial services sector. The G20 New Delhi leaders' declaration in September 2023 strongly supported the toolkit and the measures taken by the FSB. The declaration also welcomed FSB's initiative to achieve convergence in cyber incident reporting, and looks forward to FSB's work on developing a Format for Incident Reporting Exchange (FIRE) with appropriate timelines.

3.6 Conclusion

III.57 There are concerns about the spill over of losses from the online lending activities to the traditional banking sector. The stronger the linkages between the traditional lending and online lending sectors, the larger the spill over. Currently, the share of the digital lending in the overall credit pie is small and does not immediately warrant panic. However, the sector has been growing non-linearly, thanks to the ease of scalability in platforms. Therefore, it might be important to assess the potential stability risks digital lending would pose to the larger economy in the near future as it grows. Further, since the poor and the marginalized are an important market group segment that digital lending targets, any losses in digital lending has important implications for credit availability and financial inclusion for this group.

III.58 That said, the era of digitalization has opened up new opportunities for India's financial sector. These include improved efficiency due to reduction of informational asymmetry, increased lending due to the elimination of geographical barriers and access to new and alternate data to determine creditworthiness. The biggest gain however, is the rise of the FinTech sector. With smartphone and internet connectivity diffusing rapidly across the country, and the growth of a young aspirational consumer base, the FinTech industry has the potential to reach traditionally underbanked communities and enable financial inclusion.

III.59 The rapid uptake of UPI shows how digitalization can complement traditional banking. The strong relationship between UPI and FinTech lending, especially during COVID-19 is testimony to the potential of digitalization. The FinTech sector can potentially emerge as a substitute for traditional banking in the near future. The emergence of the digital era, however, also brings with it new challenges. Digitalisation also allows borrowers to conduct transactions rapidly in real time, potentially allowing for both quick expansion and rapid withdrawal of deposits, increasing volatility in the banking system and amplifying systemic risk (Koont, Santos, and Zingales 2023). Hence, the expansion of digitalization needs to be accompanied by quick and nimble regulation that promotes access and growth while ensuring financial stability.

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APPENDIX A: TABLES FOR BOX 3.1

To assess the impact of UPI on FinTech lending, the following panel specifications are estimated:

$$Log\ y_{it} = \beta_1 * Log\ upi_{it} + \delta_{1_i} + \theta_{1_t} + \varepsilon_{1_{it}}$$

$$\Delta Log\ Y_{it} = \beta_2 * \Delta Log\ UPI_{it} + \delta_{2_i} + \theta_{2_t} + \varepsilon_{2_{it}}$$

where Y_{it} is lending by the FinTech sector/lending by scheduled commercial banks (SCB) for state i in month t, while Y_{it} is its per capita counterpart. Similarly upi_{it} is the per-capita counterpart of UPI transactions for a given state over a month. $\varepsilon_{1_{it}}$ and $\varepsilon_{2_{it}}$ are the zero-mean, idiosyncratic error terms. SCB data consists of combined lending by public and private sector banks. Both specifications include state and time fixed effects, which control for variations in characteristics across states, as well as changes over time. All standard errors are clustered at the state level.

Table 1: UPI and FinTech Lending (Panel regression)

Variables	(1)	(2)
	Log (Per capita FinTech lending)	**Δ Log (FinTech lending)**
Log (Per capita UPI)	0.468**	
	(0.196)	
Δ Log (UPI)		0.806**
		(0.384)
Observations	1,558	1,526
R-squared	0.908	0.465
State FE	Yes	Yes
Time FE	Yes	Yes

Table 2: UPI and SCB Lending (Panel regression)

Variables	(1)	(2)
	Log (Per capita SCB lending)	**Δ Log (SCB lending)**
Log (Per capita UPI)	0.157***	
	(0.0365)	
Δ Log (UPI)		0.692***
		(0.162)
Observations	1,558	1,526
R-squared	0.974	0.856
State FE	Yes	Yes
Time FE	Yes	Yes

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust standard errors in parentheses. Results in Column (1) of both tables are equivalent to a log-log regression of the corresponding level variables.

Notes on variables: UPI (Transaction value in billion ₹), FinTech lending (Sanctioned amount in billion ₹), SCB Lending (Sanctioned amount in billion ₹). Data is from CIBIL and NPCI.

APPENDIX B: TABLES FOR BOX 3.1

GoI imposed mobility restrictions with varying degrees of stringency and classified regions as "Red", "Orange", and "Green", in decreasing order of mobility restrictions (see Chart 1). The main hypothesis is that the COVID-19 induced lockdown allowed FinTech players to increase lending activity as consumers switched to digital modes.

Exploiting the geographic variation in mobility districts across the country, the variation in growth of FinTech lending is examined. The empirical specification using a differences-in-differences strategy is:

$$y_{ilt} = \beta_0 + \beta_1 \times Red_i \times Post_t + \beta_2 \times Orange_i \times Post_t$$
$$+\beta_3 \times FinTech \times Red_i \times Post_t + \beta_4 \times FinTech \times Orange_i \times Post_t$$
$$+\beta_5 \times FinTech \times Post_t + \beta_6 \times FinTech \times Orange_i + \beta_6 \times FinTech \times Red_i$$
$$+ \beta_7 \times X_{it} + \delta_i + \gamma_t + \epsilon_{ilt}$$

where, y_{it} is the $\Delta Log\ (Loan_i)$, the annual change in total loan amount or quantity disbursed in a district i for the period 2019 to 2021 by lender l. Red_i and $Orange_i$ are indicators for whether a district falls under the respective zonal classifications in May 2020. $FinTech$ is an indicator for whether the loan is from an NBFC-FinTech lender. $Post_t$ is an indicator variable for the COVID-19 period starting March 2020. δ_i and y_{it} are district and state-time fixed effects, respectively. Standard errors are clustered at the district-level. Data is for the period 2019 to 2022. The coefficient of interest β_1 (β_2) show the change in the dependent variable in the COVID-19 period relative to the pre-period for the districts classified as red (orange) relative to the control group, which are the districts classified as green.

Table 1: All Borrowers

	(1)	(2)
	Amount	**Account**
Post × Orange	-0.21***	-0.22***
	(0.01)	(0.00)
Post × Red	-0.41***	-0.46***
	(0.01)	(0.01)
Post × Orange × FinTech	0.15***	0.17***
	(0.01)	(0.01)
Post × Red × FinTech	0.21***	0.31***
	(0.01)	(0.01)
Observations	1613894	1613902
R2	0.71	0.75

Table 2: Prime Borrowers		
	(1)	(2)
	Amount	**Account**
Post × Orange	-0.16***	-0.13***
	(0.01)	(0.01)
Post × Red	-0.36***	-0.28***
	(0.01)	(0.01)
Post × Orange × FinTech	0.07***	0.05***
	(0.01)	(0.01)
Post × Red × FinTech	0.09***	0.07***
	(0.01)	(0.01)
Observations	1131976	1132018
R2	0.52	0.62

Table 3: Subprime Borrowers		
	(1)	(2)
	Amount	**Account**
Post × Orange	-0.18***	-0.20***
	(0.01)	(0.00)
Post × Red	-0.41***	-0.48***
	(0.01)	(0.01)
Post × Orange × FinTech	0.11***	0.13***
	(0.01)	(0.01)
Post × Red × FinTech	0.19***	0.29***
	(0.01)	(0.01)
Observations	1581221	1581231
R2	0.71	0.74

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust standard errors in parentheses. Remaining interaction terms are included in the regression, but not shown for clarity.

Both volume and number of loans was declined most in districts with the most severe lockdowns, that is which were classified as in the red zone during the pandemic relative to the control group, the districts classified as in green zones (Table 1, columns 1 and 2). However, relative to the overall loan decline, FinTech lenders saw a relatively stronger growth in Red and Orange districts compared to the green districts (omitted group). In all, the results indicate that despite the overall decline in lending, FinTech lenders were able to differentially increase their market share in the districts with the most stringent lockdowns.

Estimates using same specification for the subprime and prime borrowers are reported in Tables 2 and 3. Interestingly the relative increase in lending for FinTech borrowers is only 25% higher for subprime borrowers compared to 46% higher for subprime borrowers.

Overall, these results point to FinTech lenders seizing the opportunity created by the lockdown to increase their lending activity. One could argue that pandemic induced changes in the districts facing more severe lockdowns is driving the differential growth in FinTech lending. However, economic activity fell in these districts (Beyer, Jain, and Sinha, 2020) biasing the results towards zero. Thus, alternative hypotheses cannot explain these results. FinTech lenders' reliance on technology allowed both prime and below prime borrowers to access credit, especially during a period of hardship induced by the pandemic.

CHAPTER IV

NBFC LINKAGES, SYSTEMIC RISK AND MONETARY TRANSMISSION*

Interlinkages between Non-Banking Financial Companies (NBFCs) and the traditional banking sector pose systemic risks. The NBFC sector, traditionally associated with increased risk-taking relative to the formal banking sector, experienced an improvement in liquidity starting in 2018 and a steady increase in funding from banks. Bolstered by fiscal and monetary support, these buffers cushioned the impact of the COVID-19 pandemic on NBFCs. Increased integration with the banking sector in the post-pandemic period underscores the need for close monitoring to prevent systemic fallouts. NBFCs are shown to mute monetary transmission in the short run but amplify it in the long run.

4.1 Introduction

IV.1 The non-bank financial sector both complements and competes with the traditional banking sector, and their relationship has evolved through different phases of transformation post the global financial crisis (GFC). While NBFCs experienced massive growth, this growth has not occurred in isolation. These entities heavily rely on scheduled commercial banks for funding, a requirement that has intensified over the past decade. Concurrently, banks have primarily extended their lending to larger NBFCs, resulting in increased cross-lending within the sector. The expansion of NBFCs has not only contributed to financial inclusion but also led to integration with the broader financial sector, which may have systemic implications in the current decade.

IV.2 Following the market correction prompted by the Infrastructure Leasing & Financial Service (IL&FS) default and a brief pause due to the COVID-19 pandemic, bank financing for NBFCs has begun to rise again. This raises concerns about systemic contagion and underscores the need for tighter preventive measures to mitigate potential systemic fallout.

IV.3 The remainder of this chapter is structured as follows: Section 4.2 examines the growing interconnectedness between the NBFC sector and the rest of the financial sector. Section 4.3 assesses the systemic risk posed by the NBFC sector, differentiating it from firm-specific risk, and predicts future systemic risk based on current NBFC characteristics. Section 4.4 discusses NBFCs and monetary policy transmission. Section 4.5 concludes.

* This chapter has been prepared by a team comprising Nirvana Mitra, Gautham Udupa, Kaushalendra Kishore, Tanya Agrawal, Tanisha Agrawal and Siddharth Verma.

4.2 Growing Interlinkages Between Banks and NBFCs

IV.4 NBFCs borrow predominantly from the markets and from banks. Bank borrowing constituted nearly 36 per cent of total borrowings as of H1:2022-23 (Table 4.1). Amongst the banks, public sector banks are the largest lenders, followed by private sector and foreign banks (Chart 4.1A). Bank exposure to NBFCs has grown, mainly in the form of direct lending (Chart 4.2A). Bank lending through debentures and commercial papers form a much smaller component, but has seen a marginal uptick in Q3:2021-22 (Chart 4.2B).

4.3 Systemic Risk

IV.5 Although current ratios post-2017 show lower liquidity risk, they are not a good gauge for systemic risk – the risk which arises due to externalities that individual firms do not take into account in their decision-making process, and an unraveling of which can have deleterious effects on the real economy.

> "…*There is no commonly accepted definition of systemic risk. The precise meaning of systemic risk is ambiguous; it can mean different things to different people and different definitions have been attempted. The European Central Bank, for example, defines systemic risks as "risk that financial instability becomes so widespread that it impairs the functioning of a financial system to the point where economic growth and welfare suffer materially*" …"
>
> ~ Dr. K.C. Chakrabarty, Deputy Governor (Reserve Bank of India)[1]

IV.6 The International Monetary Fund (IMF), Financial Stability Board (FSB) and Bank for International Settlements (BIS) define systemic risk as a risk of disruption to financial services

(Amount in ₹ crore)

Table 4.1: Sources of Borrowings of NBFCs

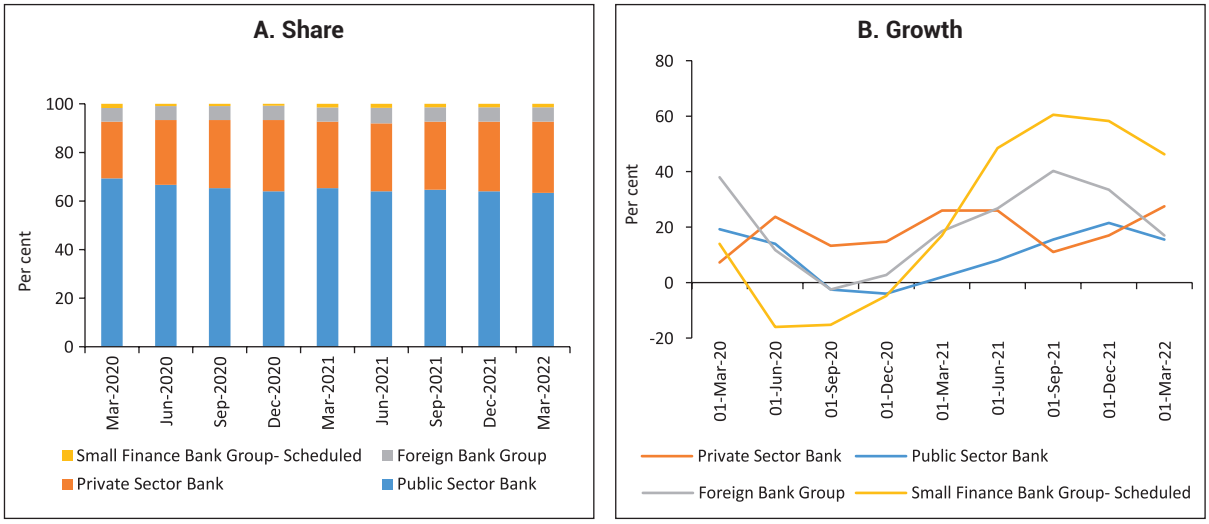
Items	At end-March 2021	At end-March 2022	At end-September 2022	Percentage Variation	
				2020-21	2021-22
1. Debentures	9,82,576	10,06,496	10,09,804	8.4	2.4
2. Bank Borrowings	7,75,099	9,04,715	9,23,732	11.5	16.7
3. Borrowings from FIs	57,355	66,418	70,875	-9.7	15.8
4. Inter-corporate Borrowings	77,840	86,663	95,573	-0.6	11.3
5. Commercial Paper	72,597	70,117	72,340	8.6	-3.4
6. Borrowings from Government	19,129	18,804	18,857	2	-1.7
7. Subordinated Debts	68,984	70,863	67,640	-6.9	2.7
8. Other Borrowings	2,98,099	3,27,015	3,25,874	-10.3	9.7
9. Total Borrowings	23,51,679	25,51,092	25,84,696	5.2	8.5

Source: Reserve Bank of India.

[1] at the International Seminar on 'Operationalizing Tools for Macro-Financial Surveillance: Country Experiences' on April 3, 2012.

Chart 4.1

Bank Lending to NBFCs, Group-wise



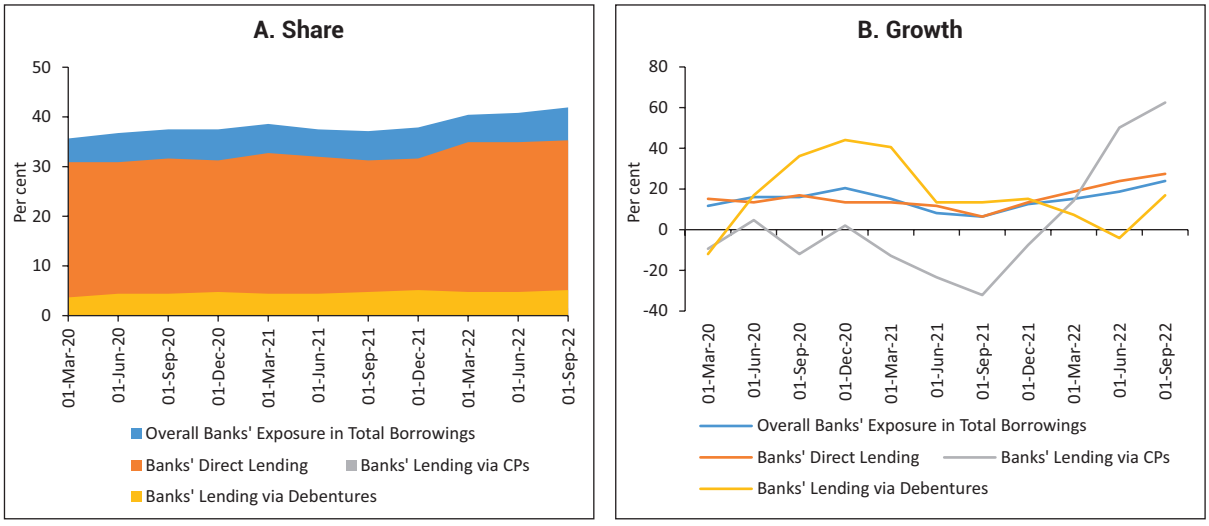
Source: Reserve Bank of India.

that is caused by an impairment of all or parts of the financial system and has the potential to have serious negative consequences for the real economy.

IV.7 Systemic risk builds up in periods of tranquil financial conditions due to increased risk-taking and tends to aggravate the effect of a shock through negative spillovers such as fire sales across firms during crisis. Individual firm-level risk measures such as value-at-risk (VaR), used widely in policy making, captures the maximum possible loss of a firm with some pre-defined probability, based on past performance. For example, $VaR_{q=5\%}$ is the maximum loss the firm is likely to incur in a given period with 5 per cent probability. It does not consider the effect of one firm's loss on others. It is therefore not a good indicator for systemic risk.

Chart 4.2

Instruments to Bank Lending to NBFCs



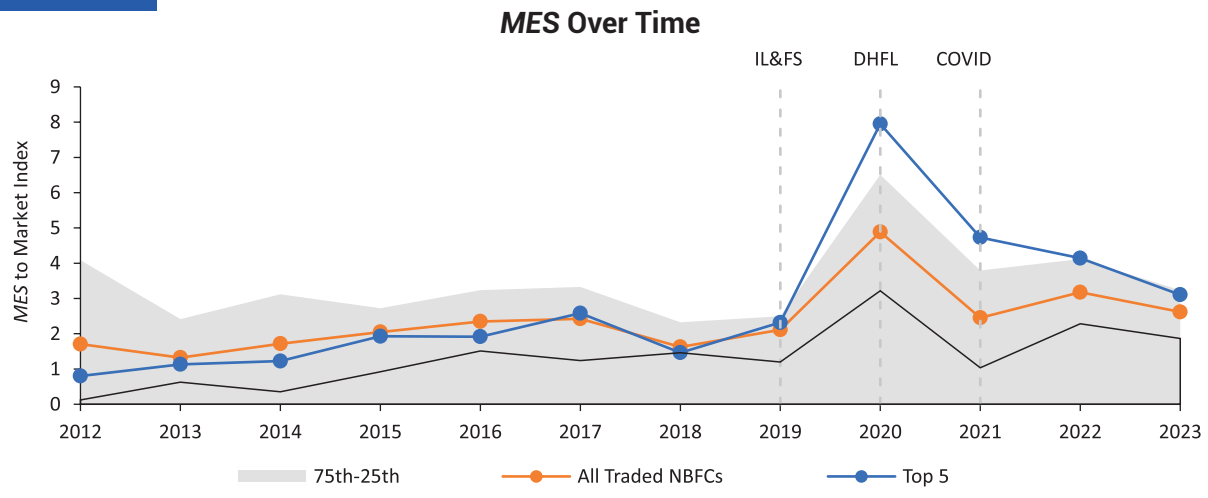
Source: Reserve Bank of India.

IV.8 Two measures of systemic risk are: (1) MES (Acharya et al., 2017); and (2) $CoVaR$ (Adrian & Brunnermeier, 2016)

IV.9 Both measures are market-based and can be computed by using minimal and easily available firm-level information. Marginal Expected Shortfall (MES_i) is used to predict Systemic Expected Shortfall (SES_i), defined as the propensity of an individual firm i to be under-capitalized if the whole financial system is under-capitalized. SES is typically observed during a financial crisis when the entire financial system is undercapitalized. MES_i, on the other hand, is defined as the expected market return on capital in 5 per cent of the worst days of overall stock market performance over a given period of time. We use the distribution of the growth rate of the market value of capital for a firm i as a proxy for market return to compute MES_i. It captures the co-movement of returns across firms during a crisis.

IV.10 In the pre-pandemic period, the median MES across all traded NBFCs started to rise in the year 2013 (the calendar year 2014) and peaked in 2017 (Chart 4.3, orange line). It stayed subdued in 2018, due to the market discipline induced by the IL&FS default, but rose marginally in 2019. This fall in the measure is reflective of the robust balance sheet improvement of the NBFC sector post-2018 (FY 2017). The median MES_i was the highest during the COVID-19 crisis (about 5 per cent) in the 2020-21, reflecting highly adverse financial conditions and increased retail and firm delinquency expectations with systemic implications. Active monetary accommodation and government actions[2,3] resulted in lower MES in 2021. However, the median MES started to increase again in 2022, but shows a drop in the current fiscal year.

Chart 4.3



Note: The figure plots the different percentiles (25th, 50th and 75th) of calculated *MES to market index*, of all publicly traded NBFCs and HFCs.
Source: Prowess, NIFTY, CAFRAL calculations.

[2] The Government of India (GoI) announced collateral free lending programs for MSMEs with 100 per-cent credit guarantee, partial credit guarantees for stressed MSMEs, partial credit guarantees for loans extended by the public sector banks to the NBFCs and HFCs, alongside other measures.

[3] The Reserve Bank other than conventional monetary policy measure of lowering policy rates, announced regulatory measures wherein all regulated lenders were allowed to grant moratorium on outstanding term loans for a period of six months.

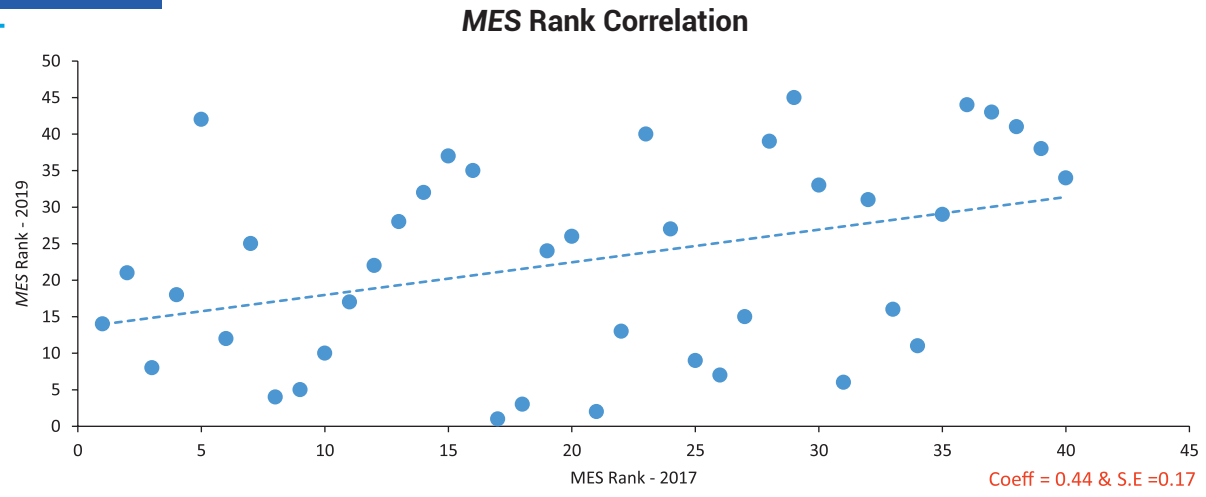
IV.11 Due to relatively lower stock market trading volumes of the NBFC sector in general, market prices may not entirely reflect their fundamentals. This is not the case for the NBFC-ULs (upper layers) identified by the Reserve Bank based on size and other parameters. For the 5 publicly traded companies in this category, evolution of the median *MES*, tracks the median of all traded firms up to 2018 (Chart 4.3, blue line). It was higher in 2019 and rises to 8 per cent in FY 2019 due to the COVID-19 shock. Their *MES* shows a sharp decline in the post-pandemic period. As of 2022, the firm at the 75th percentile of the *MES* distribution remains well above the pre-COVID-19 lows of systemic risk observed in FY 2018, and the median measure of the top 5 firms is at the 75th percentile mark.

IV.12 *MES* rankings across years are positively correlated, implying that the risky firms in 2017 were equally risky in 2019, indicating consistency of the systemic risk measure (Chart 4.4).

IV.13 If *MES* is a robust predictor of crisis, we expect its relationship with *SES*, as measured by stock market return during a crisis, after controlling for individual firm leverage, to be negative. The relationship between the pre-crisis *MES* and *SES* during the IL&FS default (April 2018 to March 2019) is however positive (Chart 4.5A). The same relationship for the COVID-19 crisis is negative confirming that firms with a high *MES* are the ones that are most affected when the entire system is undercapitalized.

IV.14 The market index did not show much of a decline in the IL&FS period and the decline was not protracted during the COVID-19 pandemic period to have resulted in a full-blown financial crisis. Though the *MES* was higher at the onset of the pandemic, the stock market recovered quickly owing to cheap money and a plethora of fiscal guarantees. The fact that *MES*[4] predicts the *SES* with the correct sign even for a case of sharp decline and recovery as in the pandemic,

Chart 4.4

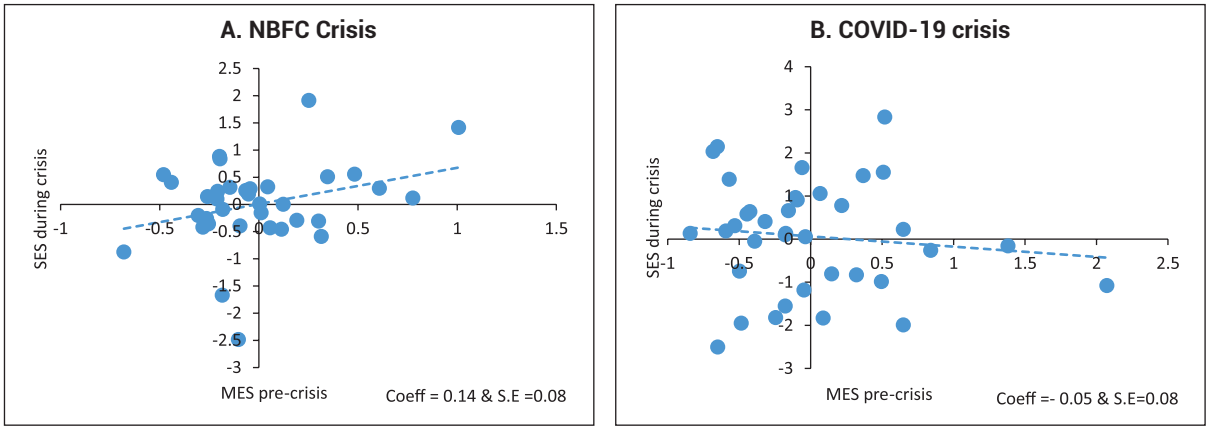


Note: The ranks are created based on the calculated *MES* values. Higher ranked NBFCs would imply relatively riskier ones with larger *MES* values.
Source: Prowess, CAFRAL calculations.

[4] *MES* does not control for the macroeconomic state variables of the economy. Business cycle indicators such as repo rate, VIX, etc. are well-known predictors of asset price movements, and can have implications for systemic risk.

Chart 4.5

MES* as a Predictor of *SES



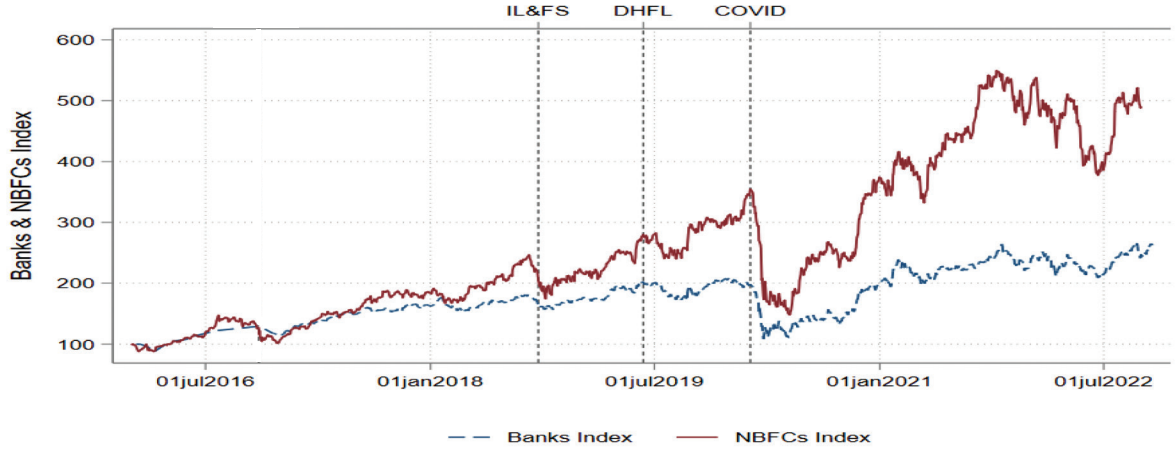
Note: NBFC *crisis* period is Apr'18 -Mar'19 and COVID-19 *crisis* period is Feb'20 - Mar'21. *MES* is average stock return during the worst 5 per cent days of *ex-ante* crisis periods: Jan'17 - Feb'18 (Panel (A)) and during Sep'18 - Oct'19 (Panel (B)).
Source: Prowess, CAFRAL Calculations.

indicates the usefulness of the measure as a regulatory tool to identify systemically risky firms.

IV.15 The NBFC index and the bank NIFTY index are positively correlated, reflecting that banks are one of the most important sources of funding for the NBFCs (Chart 4.6). Banks, which are heavily regulated, are mostly reluctant to lend to smaller NBFCs. The bigger NBFCs, however, borrow from banks and in turn lend to the smaller NBFCs, to exploit this regulatory arbitrage. Due to this increasing interconnectedness, any risk that emanates in the banking sector can impact the NBFCs directly. The increasing within sector interconnectedness for the NBFCs

Chart 4.6

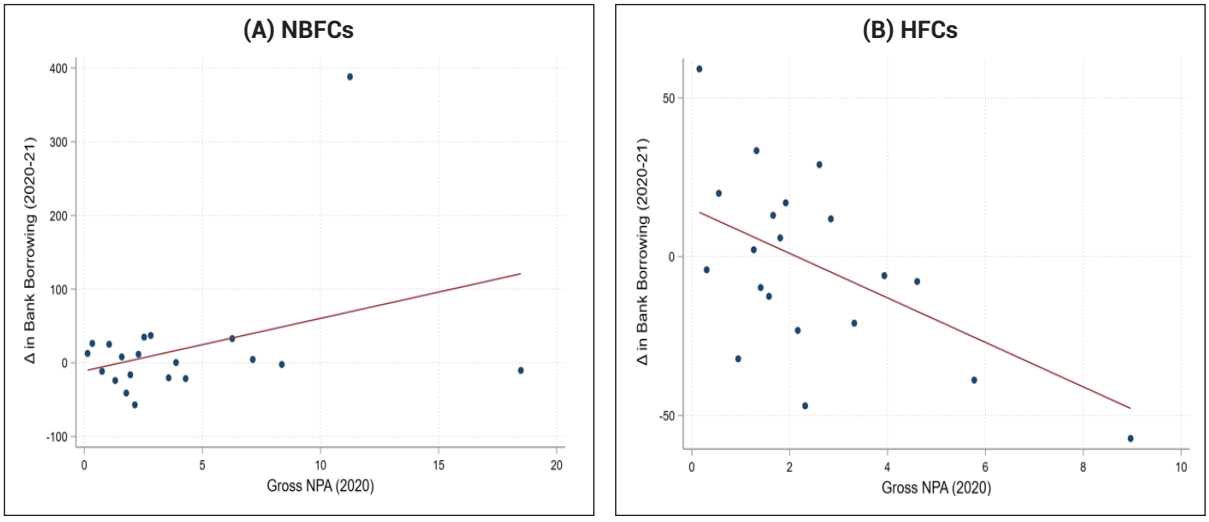
Stock Price Index for NBFCs and Banks



Note: The Bank's Index is the market NIFTY Bank Index. NBFC index is created as the weighted average of stock prices of all publicly traded NBFCs.
Source: Prowess, CAFRAL calculations.

Chart 4.7

Bank Borrowings and NPAs



Source: Prowess, CAFRAL Calculations.

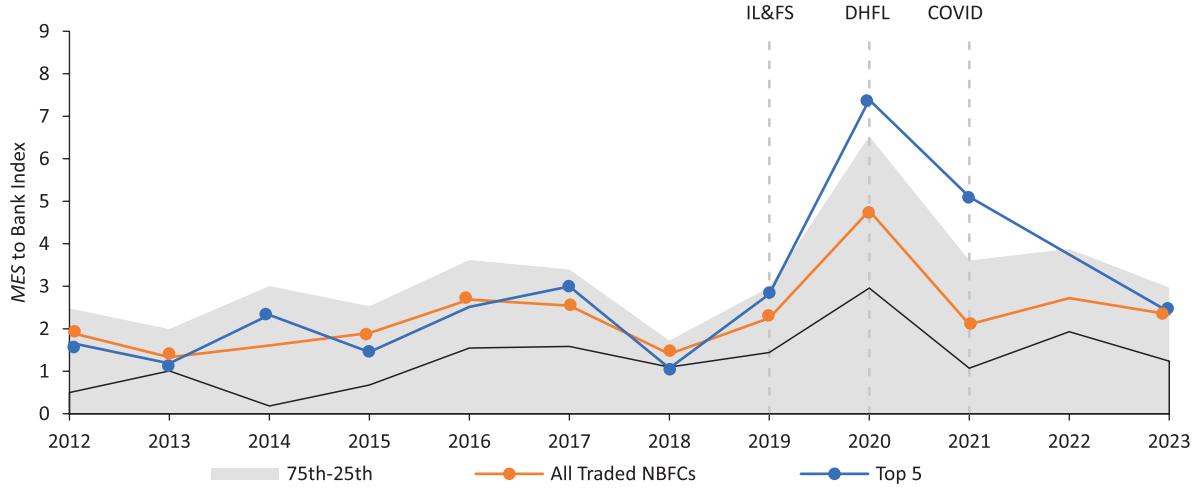
also mean that even relatively smaller and seemingly systemically unimportant firms can have systemic implications.

IV.16 The bank-NBFC interconnectedness can be seen from the fact that NBFCs with higher gross NPAs in 2020 borrowed more from banks in 2021 and the evidence presented before (Chart 4.7A and Section 4.1 respectively). This is however not true for the HFCs in general (Chart 4.7B).

IV.17 The median *MES* for all traded firms with bank NIFTY as the base started increasing from the 2013-14, indicative of the increased dependence on banks for funding, but declined from 2018 due to the repercussions from the IL&FS crisis (Chart 4.8). The measure dropped in

Chart 4.8

***MES* With Respect to Bank**



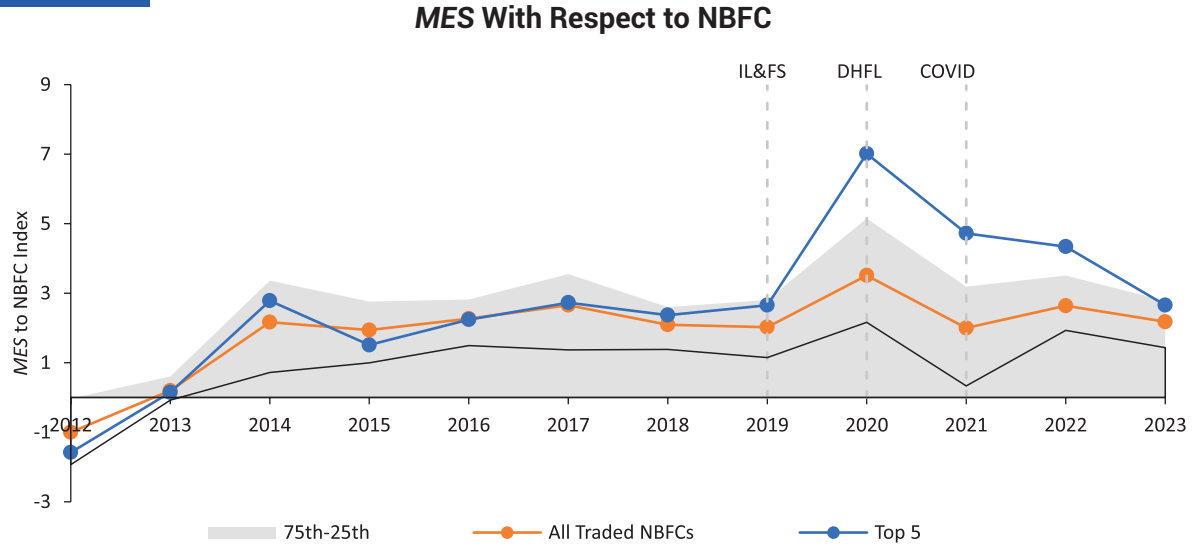
Source: Prowess, CAFRAL calculations.

the fiscal year 2020-21 but firms in the 75th percentile of the distribution has higher MES than in the pre-pandemic period (Chart 4.8, red line). The median MES for the traded firms in the upper layer remains more sensitive to shocks as expected. It peaked in FY 2020 due to COVID-19 but declined below the 75th percentile firm in recent times.

IV.18 With the NBFC index[5] as the base, MES is higher on average over the entire pre-pandemic period for all the traded firms, as well as that of the top 5 (Chart 4.9). This shows that NBFCs lend and borrow among themselves. The rise in the measure is not as sharp for the top 5 firms as in the case of the bank and market-based measures, but systemic risk for the top 5 firms has stayed higher for longer in this case. Recent data shows that the measure has dropped to the 75th percentile mark for all traded firms.

IV.19 $\Delta CoVaR_t$ captures the marginal contribution of a particular firm (in a non-causal sense) to overall systemic risk. $\Delta CoVaR_t$ is defined as the expected loss in the q^{th} tail of the market returns distribution conditional on the firm's risk increasing from normal times (defined as its $VaR_{q=5\%}$ mark in returns from assets distribution) to a crisis (defined as its $VaR_{q=5\%}$ mark) (Adrian & Brunnermeier, 2016). We use a measure of pseudo asset returns[6] for firms to compute $\Delta CoVaR_t$. We report the time-varying version of $\Delta CoVaR_t$[7] that controls for lagged macro variables (VIX-India, change in the interest rate on 3-month T-bills, and liquidity spread, defined as the difference between the repo rate and the T-bill rate). This helps in identification of systemically risky firms without the confounding effect of business cycle fluctuations in the economy.

Chart 4.9



Source: Prowess, CAFRAL calculations.

5 CAFRAL calculated.

6 Pseudo asset returns is defined as growth in $X_t = Market\ Value\ of\ Equity_t + Total\ Debt_t$.

7 We use subscript t for the time-varying version.

IV.20 While $\Delta CoVaR_t$ captures the loss of an individual firm during market distress, $VaR_{q=x\%}$ is based on the firm's own performance independent of market performance. Intuitively, $VaR_{q=5\%} < VaR_{q=50\%}$. The extent of loss in the left 5 per cent tail of the distribution is much higher than at the median.

IV.21 $\Delta CoVaR_t$ for all the traded firms with the NIFTY index as the base did go down (indicating higher risk) a bit from 2014 like the MES, but this measure being computed using weekly data shows little deviation over time[8] (Chart 4.10, red line). This reflects that apart from isolated stock market events, protracted systemic events that may have at least week-long impact on the median traded NBFC performance did not take place during our sample period. The measure drops during the pandemic, but again with limited magnitude (orange line from 2001-23).

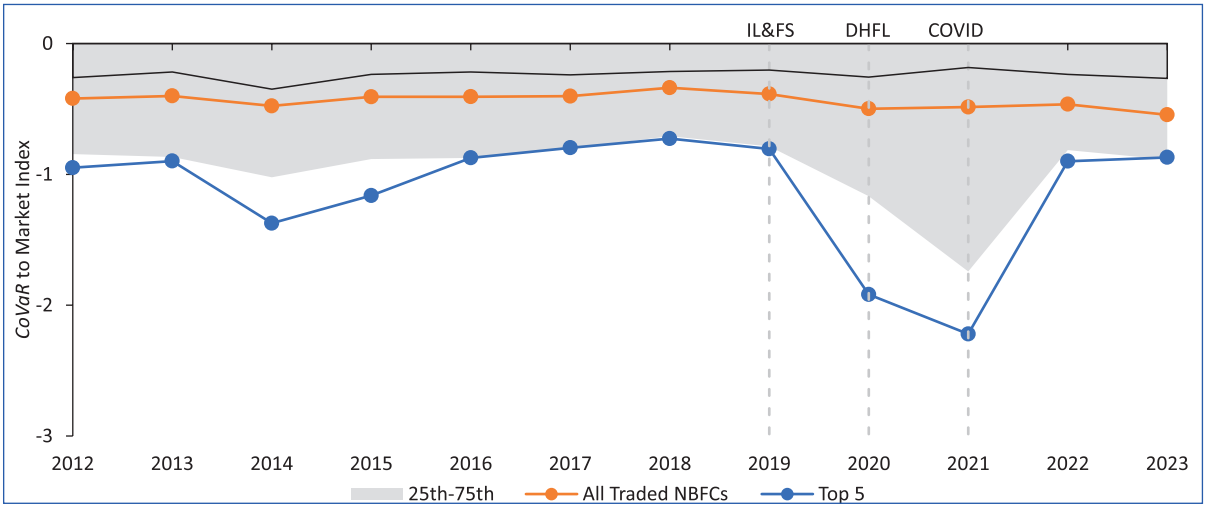
IV.22 $\Delta CoVaR$ for the top 5 firms shows much more variation in spite of using weekly averages to compute it. For them, the measure stays lower than the 25th percentile mark and is the lowest during the pandemic, confirming their systemic importance.

IV.23 The magnitude of the index computed with NBFC as the base is lower (more negative) on average for all years in the sample. This is true for the case with all traded firms as well as the top 5 (Chart 4.12). This captures the interconnectedness among the traded firms within the NBFC sector. The magnitude of the measure with bank as the base (Chart 4.11) is similar to that of the market NIFTY based index and moves in a similar manner.

IV.24 The positive correlation between the $\Delta CoVaR_t$ ranks across years indicates the consistency of the systemic risk measure (Chart 4.13). A firm that was risky in 2017 was almost as risky in 2019.

Chart 4.10

***CoVaR* Over Time**

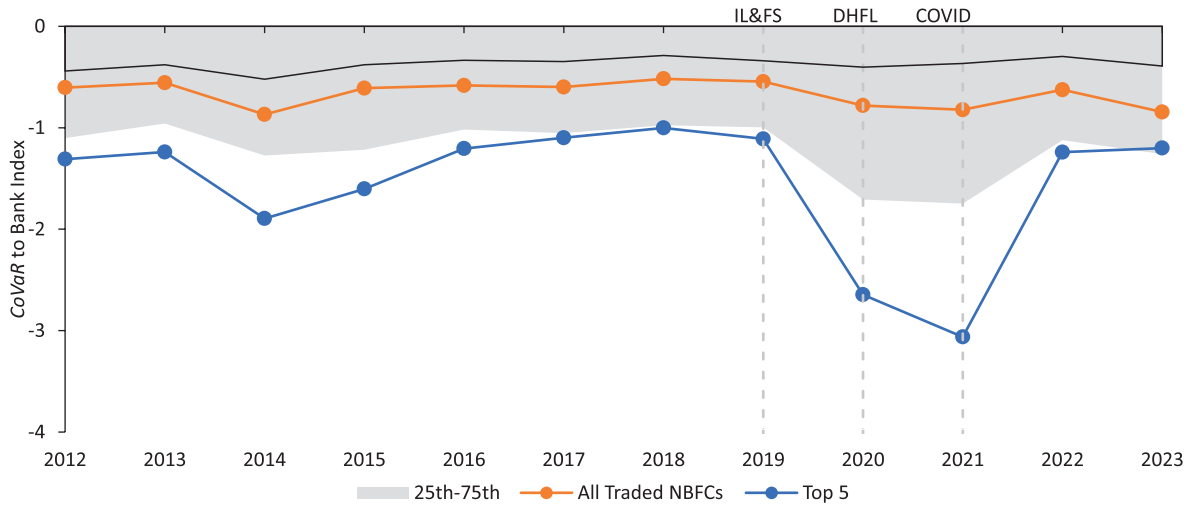


Source: Prowess, CAFRAL calculations.

[8] The chart reports the median of the worst realization of the systemic risk measure across all firms.

Chart 4.11

***CoVaR* With Respect to Banking Sector Over Time**

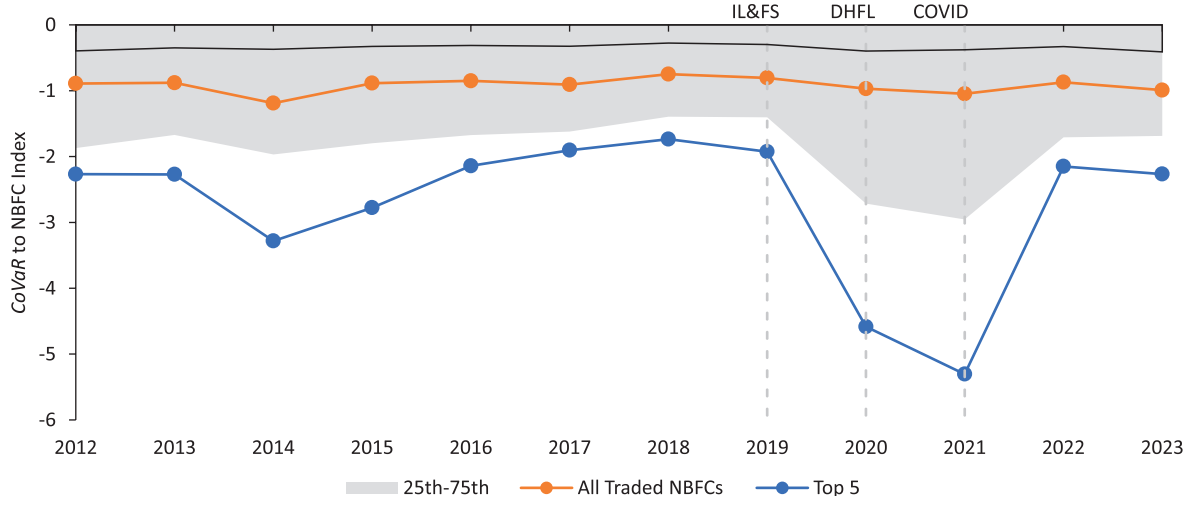


Source: Prowess, CAFRAL calculations.

IV.25 Forward $\Delta CoVaR$ is a useful tool for regulatory action because this links $\Delta CoVaR_t$ to observed firm-level characteristics that are related to systemic risk 1 or 2 years in the future. This relationship addresses the inherent procyclicality[9] of systemic risk measures. Regulation can be implemented in a forward-looking way using this measure to prevent future unraveling of systemic risk.

Chart 4.12

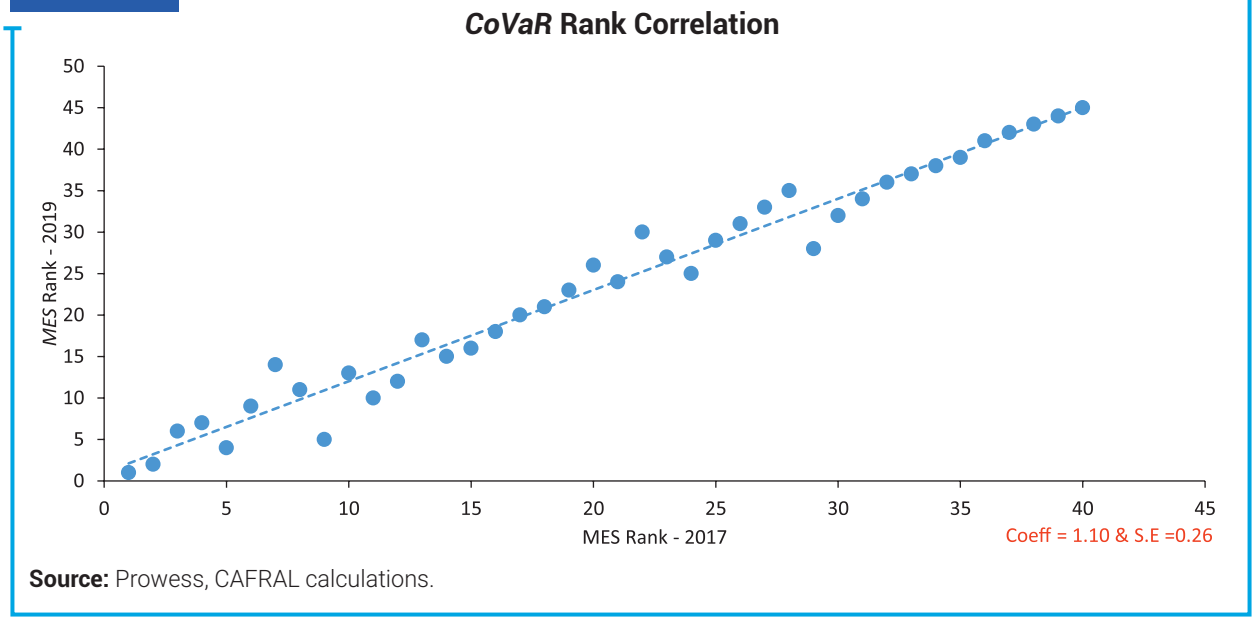
***CoVaR* With Respect to NBFC Sector Over Time**



Source: Prowess, CAFRAL calculations.

[9] Contemporaneous measures of systemic risk (MES and $\Delta CoVaR_t$) cannot be used to predict risk build-up in the system. They help identify systemically risky firms, but may not be useful in preventing risk taking through prior preventive policy measures. They capture if risk in the system is already high and does not attribute it to firm-level observables.

Chart 4.13



Source: Prowess, CAFRAL calculations.

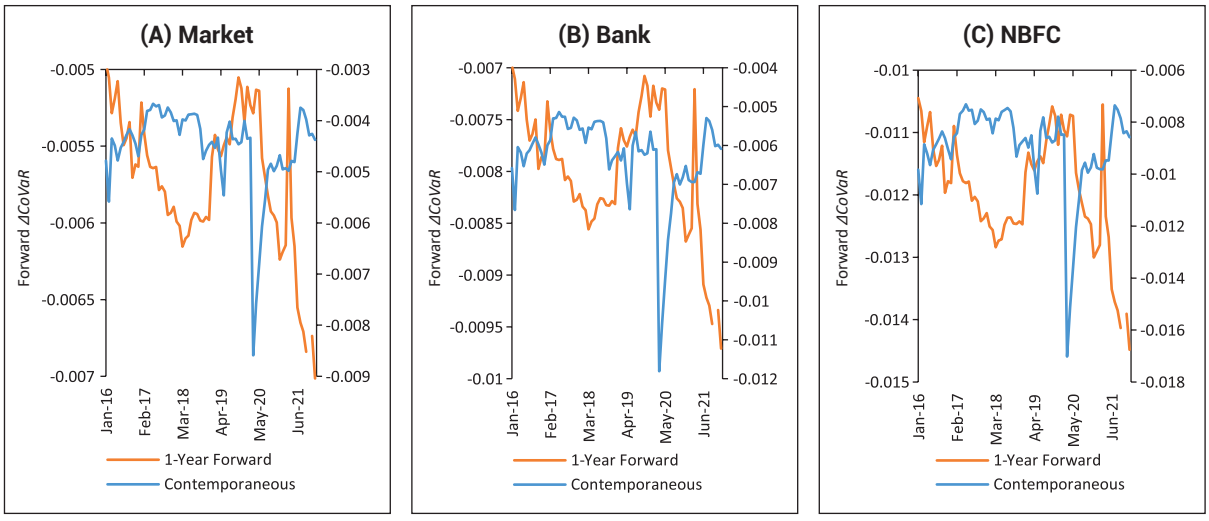
IV.26 Using firm level characteristics: VaR_t, market-to-book value of an NBFC, stock market returns volatility and log value of book equity (proxy for size), as predictors for systemic risk 1 or 2 years ahead, we find the following: for all the traded NBFCs, a lower VaR_t (higher individual risk) indicates lower 1-year forward $\Delta CoVaR_t$ (higher systemic risk). Individual risk at the firm level translates to systemic risk 1 year ahead (Appendix A: Table 2). For the 2-year ahead case, a lower VaR_t in the current period indicates lower systemic risk (in all three cases with market, banks or the NBFCs as the system), which may be indicative of loading/unloading of systemically riskier ventures in the following 2-year horizon as a response to lower/higher current riskiness at the firm level.

IV.27 A higher market-to-book value implies higher systemic risk 1-year ahead when the bank index is used as the base. This indicates that overvaluation of the NBFCs may lead to increased interconnectedness with the banks. However, this is absent in the 2-year ahead case indicating strong market correction.

IV.28 Bigger NBFCs as measured by their log of book value of equity are riskier both at the 1- and 2-year horizon. We also find that over both the horizons higher leverage and maturity mismatch is associated with lower systemic risk. This can be explained by the fact that these firms may have received lower funding from both the traditional and non-traditional sources and are more likely to have de-levered and cleaned up their balance sheets in the horizons under consideration (Chart 4.5). Size of the firm on the other hand, being a much slower moving characteristic cannot respond to risk correction mechanisms as would the other indicators reflect. For the top 5 firms (NBFC-UL and traded), the results remain by and large similar (Appendix A: Table 3).The predicted values of forward $\Delta CoVaR$ using data until 2015 (Chart 4.14A, B, C, orange line) shows an increase in systemic risk during the period of NBFC

Chart 4.14

Out-of-Sample Forward $\Delta CoVaR$



Source: Prowess, CAFRAL calculations.

boom but the risk starts to decline in the post 2018 period due to the reduced funding for NBFCs and HFCs with unhealthy balance sheets.

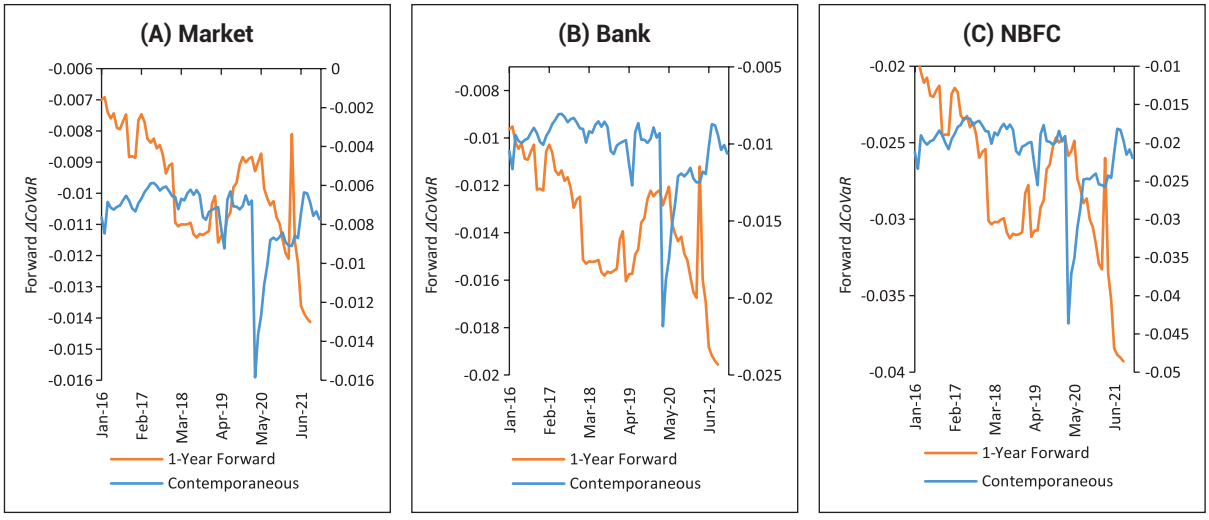
IV.29 This also shows up in the reduced built-up risk during the pandemic. Resilient balance sheets of the traded NBFCs also contributed to preventing a financial crisis emanating from the NBFC sector during the pandemic, in spite of a riskier borrower base and a sharp rise in delinquencies. For the top 5 NBFCs, riskiness shows upward trend throughout the sample period, unlike the traded firms where riskiness in the post 2018 period had reduced by much more (Chart 4.15). This also aligns with the fact that for these firms, funding was less of an issue.

IV.30 On average, the forward $\Delta CoVaR_t$ for the NBFCs with the NBFC index as the base is lowest, followed by that with bank NIFTY as the base and market (Chart 4.14C, 4.15C, Chart 4.14B, 4.15B and Chart 4.14A, 4.15A respectively). This is intuitive, as NBFCs may not be integrated with the entire financial system as much, but within sector interconnectedness is high, and can prove risky for the whole system as the sector gains importance.

IV.31 Finally, systemic risk shows an increasing trend in the post pandemic period both for the average traded firm and the top 5 NBFCs. For the bigger firms the magnitude of the computed systemic risk is also much higher than the median traded firms. This corroborates to the fact that the post-pandemic regulatory actions that fostered a conducive lending environment, coupled with the increase in aggregate demand, have led to further revival in bank funding to the NBFCs. This time, data shows that it is not only the healthier NBFCs that have increased access to the borrowing. Regulators will have to be cautious and create checks and balances, for this pattern may have systemic implications in the medium term.

Chart 4.15

Out-of-Sample Forward ΔCoVaR (Top 5)

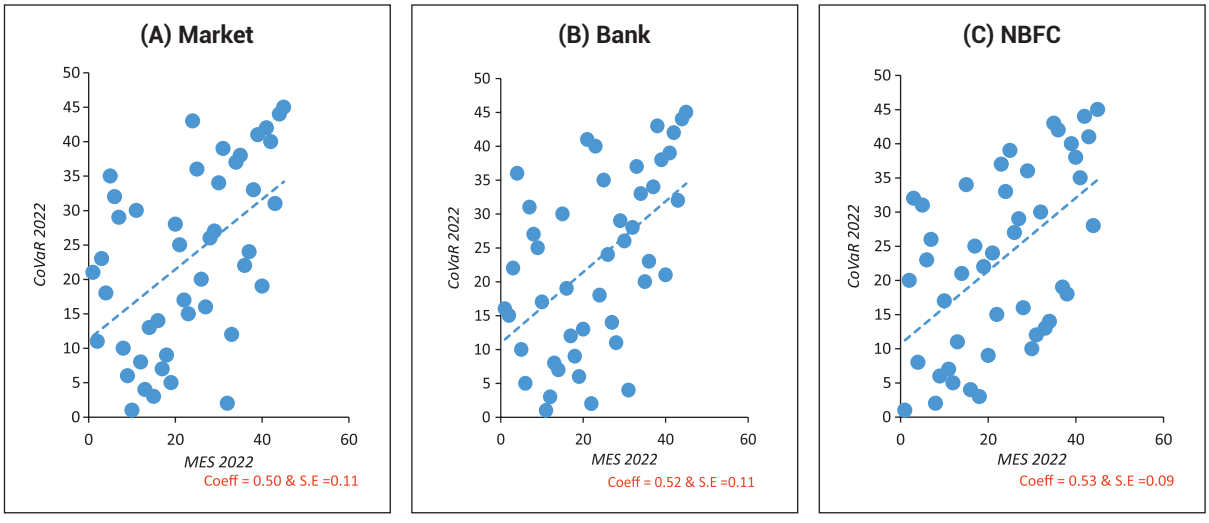


Source: Prowess, CAFRAL calculations.

IV.32 The *MES* and *CoVaR* rankings for NBFCs for any particular period of time are positively correlated. This indicates that both measures capture a similar extent of co-movement of systemic risk rankings in all the three cases considered above: when the market index is used as a base (Chart 4.16 A), when the bank index is used as a base (Chart 4.16 B) and, when the NBFC index is used as a base (Chart 4.16 C).

Chart 4.16

MES vs CoVaR



Source: Prowess, CAFRAL calculations.

4.4 NBFCs and Monetary Policy Transmission

IV.33 The conduct of monetary policy in India has undergone significant changes, both on the institutional side and on the operational side, to adapt to the various challenges faced by policy makers. Broadly, the institutional history can be classified into seven ages, ranging from a regime synced to Five-Year Plans post-independence to the more modern institution of Monetary Policy Committee (MPC) with a flexible inflation targeting mandate (Das, 2020). On the operational side, periodic regulatory changes have been made to improve transmission to bank deposit and lending rates.

4.4.1. Institutional Setting

IV.34 India adopted the current institutional regime in 2016 which has an explicit flexible inflation targeting mandate. The new regime was implemented based on the recommendations of the Report of the Expert Committee to Revise and Strengthen the Monetary Policy Framework chaired by Dr. Urjit Patel. The committee revisited evidence on monetary policy transmission to key indicators and recommended several changes to the conduct of monetary policy.

IV.35 A key recommendation regarding the formulation of monetary policy was to improve transparency in interest rate setting and to improve how expectations about future path of interest rates is communicated. The Committee recommended, in line with best international practices, setting up of a monetary policy committee with representation from the Reserve Bank of India and from the expert community. Under the regime, the MPC has been mandated to maintain consumer price inflation at 4 per cent with a two-percentage-point tolerance band on either side.

IV.36 The Committee also deliberated on the channels through which monetary policy decisions and interest rates transmit to the real economy. It recognized four channels for monetary transmission: (i) interest rate channel, (ii) credit channel, (iii) exchange rate channel, and (iv) asset price channel. The channels can operate at different levels of efficiency across countries based on how developed the financial markets. For example, the interest rate and asset price channels can be weak if equity, debt and housing markets are not well developed. Similarly, exchange rate channel is stronger in countries with fully floating exchange rates.

IV.37 In the context of emerging markets such as India, credit channel is key given that the financial system is bank-dominated. The ownership of financial assets that are linked to market conditions are limited to a certain category of households, which could limit the scope of the asset price channel.

IV.38 For India, the transmission to market rates are instantaneous at the short end (Prabu & Partha Ray, 2019). This is found to be true for both government and corporate bonds. This leads to a desired impact in the sense that contractionary monetary policy shocks lead to contraction in firm investments (Garg et al., 2022). However, transmission to the longer end of the yield curve has been found to be incomplete (Patra, 2022).

IV.39 The credit channel operates through banks, and is often also called the bank lending channel. A contractionary monetary policy shock, for example, affects bank credit flows both by impacting banks' cost of funding (a credit supply effect) and by impacting collateral valuation (a demand side balance sheet effect). In India, banks dominate credit flows especially to small and medium scale firms and to households. As of March 2022, banking sector's assets were over 6.5 times the NBFC assets.

IV.40 The RBI has periodically revised banking regulations to improve transmission taking into account the significance of the bank lending channel as well as the muted transmission in this sector. The consensus among policy makers has been that a transparent mechanism for loan pricing must be in place to improve transmission.

IV.41 In this regard, a key regulatory tool has been the benchmarks used by banks to price their loans. While the period up to September 2019 was characterised by internal benchmarks left to the banks for the pricing of loans, there was a mandated shift towards external benchmarks for select categories of loans in October 2019 to strengthen transmission and impart transparency to the lending rates (Table 4.2). In addition, to remove discretionary incentives, regulations have been put in place to prevent re-pricing of loan spreads in the absence of a credit event as well to transfer changes in the external benchmark to lending rates in a time-bound manner.

IV.42 A key feature of all the regimes before the external benchmark regime has been that banks were allowed to decide on an internal benchmark rate that applied to all their loans. The BPLR regime and the BRS regime, which gave banks considerable flexibility in determining an internal benchmark rate, resulted in a level of opacity in the determination of bank lending rates (RBI, 2017). Moreover, the transmission was subdued for existing borrowers relative to new borrowers during these regimes.

IV.43 The subsequent regimes sought to resolve this issue of muted transmission to bank loans. The MCLR regime, which was a result of this shift and is an internal benchmark like its predecessors, was introduced to remove discretion on the side of banks in setting the benchmark rate. It provided a formula for computing the benchmark rate that included four components: i. marginal cost of funds, ii. negative carry on account of CRR, iii. operating costs, and iv. term premium. However, the shift towards the new regime was found to be slow on account of the fact that migration of existing loan contracts had to be done on mutual

Table 4.2 : Lending Rate Benchmarks Over Time

Date	Benchmark Rate
Pre-2010	Prime Lending Rate (PLR) and Benchmark Prime Lending Rate (BPLR)
July 2010	Base rate system (BRS)
April 2016	Marginal cost of lending rate (MCLR)
October 2019	External benchmark (repo rate, three-month T-bill rate, six-month T-bill rate or any other benchmark market interest rates published by FBIL)

Source: Janak Raj committee report, October 2017 (RBI, 2017) and CAFRAL.

agreement and the banks tended to offer higher spreads than earlier on the new contract. While monetary policy transmission was better under the MCLR regime than under the previous internal-benchmark-based regimes, it was still sluggish and marked by opacity.

IV.44 The current external benchmark regime was introduced to tackle the final remaining frictions that subdued transmission to bank deposit and lending rates. The key feature of the new regime is that banks have to adhere to any of the specified benchmarks: (i) repo rate; (ii) three-month T-bill rate; (iii) six-month T-bill rate or; (iv) any other benchmark market interest rates published by FBIL. In addition, banks can not alter the spreads on existing loans unless there is a significant credit event, and the changes to lending rates must be passed on within three months after the policy decision. The transmission is therefore quicker relative to prior regimes and the current regime has been found to be more impactful than in the past (Kumar & Sachdeva, 2021).

4.4.2. Other Challenges to Monetary Policy Transmission and the Role of NBFCs

IV.45 The discussion above highlights the rationale followed by the RBI in using banking regulations to improve credit channel of monetary transmission. While these actions target credit channel on the banking side, new challenges have arisen even as other existing market frictions remain.

IV.46 Important impediments include the existence of a large informal credit network and the interaction of market liquidity conditions associated with specific periods with monetary policy actions. Informal lending networks are generally disconnected from formal banking or non-banking institutions. In addition to high prevailing interest rates in this segment, the rates are not sensitive to changes in monetary policy rates.

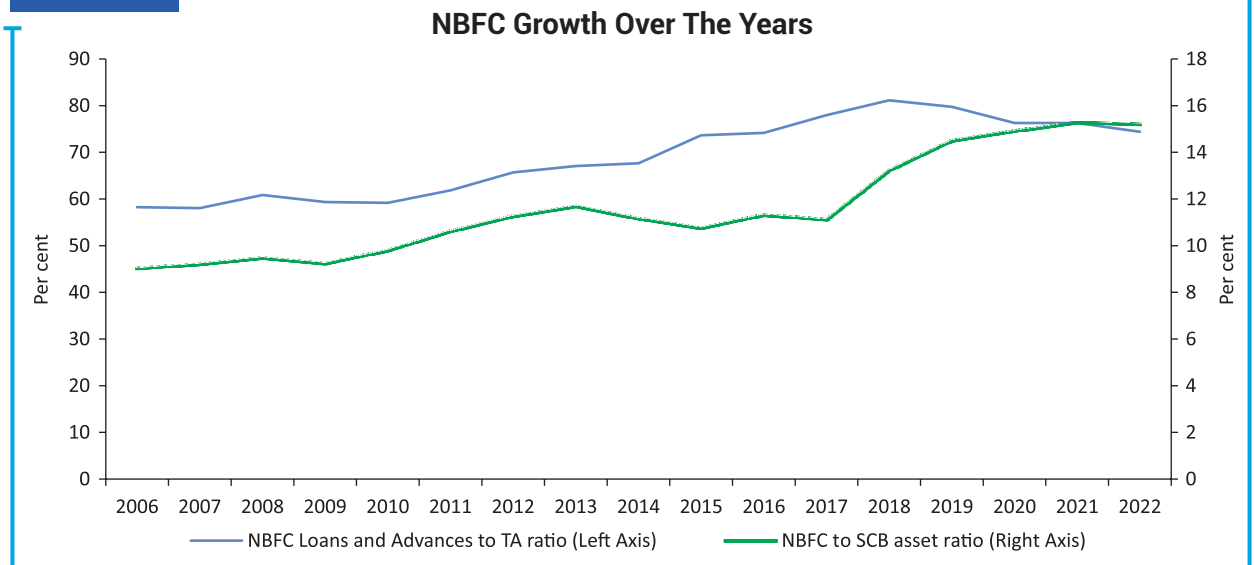
IV.47 From this perspective, NBFCs play contrasting roles in altering monetary transmission. On the one hand, they bring more borrowers to formal financial institutional network. While this enhances the reach of the "credit channel", on the other hand, the ground impact depends on whether NBFCs improve or hinder transmission.

4.4.2.1 The Role of NBFCs

IV.48 The increasing role of NBFCs in recent years has brought in focus globally their role into monetary transmission. Unlike banks, they are not directly connected to central banks' reserves. However, there is an indirect link between the two given that policy rates transmit to financial markets and banks, and a significant part of NBFC funding comes from these sources.

IV.49 In spite of a large traditional banking sector, a large part of Indian firms and households access informal financial markets. Lack of formal documentation and pledge-able collateral, which are generally required to make bank loans especially to new borrowers, generates hindrances. The NBFCs are bringing such economic agents into formal credit, and their role in the providing credit is growing over time (Chart 4.17). Importantly, an increasing fraction of their assets, as much as 80 per cent in 2018, is going into the real sector in the form of loans

Chart 4.17



Source: RBI and CAFRAL calculations.

and advances. Understanding the role of NBFCs in transmitting monetary policy decisions therefore becomes important in the conduct of monetary policy.

IV.50 Academic research on the role of NBFCs in monetary transmission is evolving and is limited to the US. Current evidence shows that a mix of the US institutional factors and features of financial markets lead to NBFCs subduing monetary transmission (Agarwal et al., 2022; Xiao, 2020). Following a contractionary monetary policy action, NBFCs face higher demand for credit as bank credit supply falls. Whether the NBFCs are able to meet this demand, which would hinder monetary transmission, depends on their ability to: i. raise cheap finance, and ii. avoid transmitting policy changes to the borrower. The former depends on the transmission of policy rates to financial markets. In contrast, the ability to shield borrowers from policy rate changes depends on a host of factors including the level of competition they face in local markets and the ability to vary their markups.

IV.51 Globally, it is found that imperfect passthrough to financial markets and demand shift following a contractionary policy decision implies that NBFCs subdue transmission (Xiao, 2020). In addition, country-specific features such as Mortgage Servicing Rights (MSRs) can also lead to subdued impact (Agarwal et al., 2022). MSRs are rights to collect monthly installments of mortgages originated by a particular entity which has then been packed and sold to a secondary lender. This is a concern in countries with developed secondary mortgage markets. When primary mortgages contracts are floating rate but the secondary market rates are fixed, the entity collecting the monthly repayments absorbs the difference. In particular, mortgage payments rise even as the secondary investor gets the same payments. Mortgage originators, typically NBFCs, can then use the higher cash flows to finance the higher demand for credit.

IV.52 In the context of India too, the role of NBFCs has come under scrutiny of late (Patra, 2022). A key concern is the first of the two factors listed above – the continued ability of NBFCs to raise cheap finance even as monetary policy contracts. A smooth term structure is therefore essential to ensure that the transmission is effective.

4.4.2.2 Evidence from India

IV.53 A mix of annual and quarterly time series data between FY 2005-06 to FY 2022-23 are used to understand the role of NBFCs in monetary transmission in India. The estimation is conducted in two stages. In the first stage, unanticipated monetary shocks are extracted from repo rate decisions using quarterly VAR model including real GDP, GDP deflator, and the repo rate[10] (IMF, 2016). It is done to avoid endogeneity, as repo rate decisions are based on expected future economic activity and inflation. In the second stage, NBFC balance sheets effects of these orthogonalized monetary shocks are analysed using local projection method[11] (Jordà, 2005).

IV.54 There is strong evidence that NBFC (non-deposit taking and systemically important entities i.e. NBFC-ND-SIs are analysed) balance sheets contract in the long run following a monetary contraction (Chart 4.18). The impact is muted in the 12 months following the contraction and peaks three years following the contraction.[12]

4.4.2.2.1 Effects on NBFC Assets

IV.55 Further analysis of the components of NBFC assets is consistent with increased risk taking following a monetary policy contraction. As banks cut down lending, NBFCs cater to the increased demand but mainly to the risky borrowers. The conduct of monetary policy has to take this increased risk in the system into account.

IV.56 The impact on the NBFC balance sheet is divided into four components: (i) loans and advances, (ii) investments, (iii) other assets, and (iv) capital market exposure. The first component constitutes the single largest component of the balance sheet (Chart 4.17).

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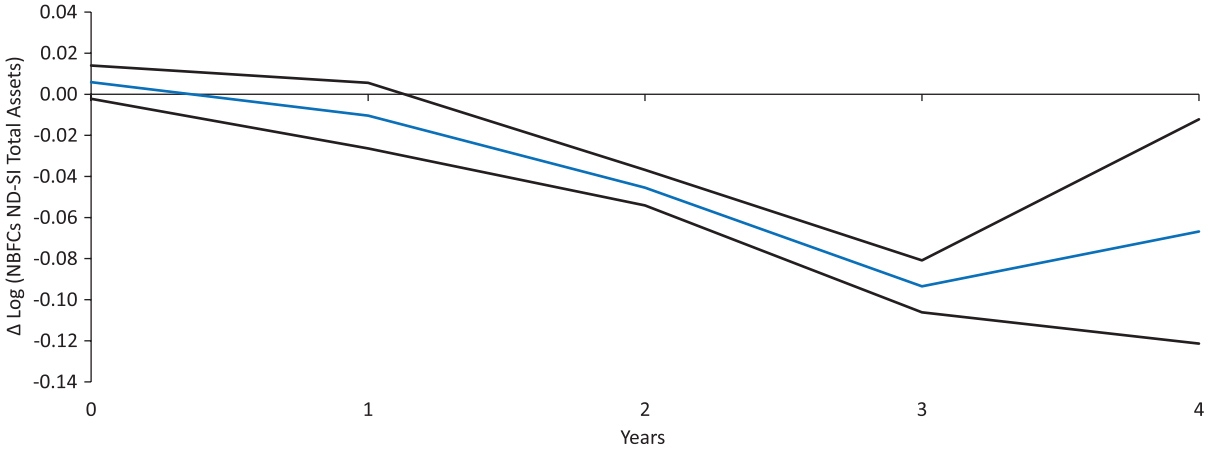
[10] The monetary policy measure in the impulse response are the orthogonal innovations generated from a three- way VAR between real GDP (in logs), the GDP deflator (in logs), and the repo rate. Real GDP is ordered first in the VAR and repo rate is ordered last. The orthogonal innovations are then used as shocks in the local projections with Total Assets of NBFCs ND-SI as the dependent variable. Johansen test for cointegration is conducted with the option of unrestricted constant trend. Based on the results, the number of cointegrating equations is 1 between the three variables. Portmanteau (Q) test conducted for white noise on the orthogonalized residual estimated from the three-way VAR is unable to reject the null that the variable follows a white noise.

[11] Recent research has shown that lag-augmented local projections are robust to highly persistent data and the estimation of impulse responses at long horizons (Montiel Olea & Plagborg-Møller, 2021). The dependent variables are in log changes. Each ***h*** step-ahead impulse response is given by β_0^h using the equation: $\log(Y_{t+h}) - \log(Y_{t-1}) = \alpha + \sum_{i=0}^{3} \beta_i^h (Orthogonalized\ Residual\ of\ Repo)_{t-i} + \sum_{j=1}^{3} \gamma_j \log(Y_{t-j}) + \varepsilon$, where Y is the dependent variable. The results are robust to including dummies for demonetisation, COVID pandemic, and the ILFS default episode.

[12] The timelines of the impulse response are similar to the ones estimated in a recent paper (Holm ***et al.***, 2021) for household consumption in Norwegian data.

Chart 4.18

Response of Log NBFCs ND-SI Total Assets to 100 basis point increase in the repo rate

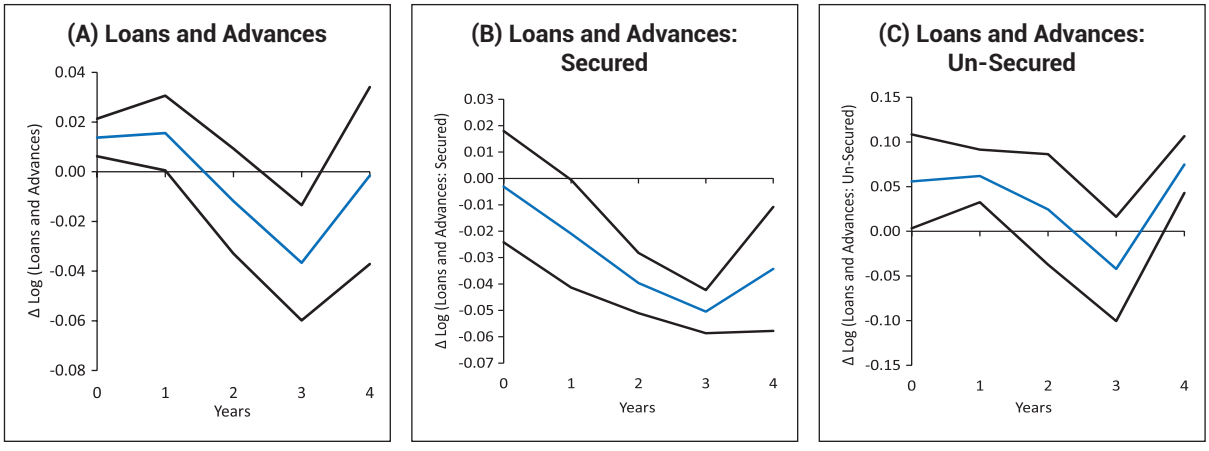


Note: Black lines in the chart represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

IV.57 Loans and advances fall less than the total shrinkage in balance sheet (Chart 4.19). It falls slowly (only in year 3 following the policy decision) and the impact in the initial two years is in fact positive. As a result, the share of this component increases in the overall balance sheet. Interestingly, there is evidence that the loans and advances part of NBFC balance sheet becomes more risky following a contractionary monetary policy shock. Unsecured loans drive the initial increase in loans and advances and the impact on this sub-component is not negative throughout the estimation horizon. In contrast, the secured loans fall considerably faster and the estimated coefficient is negative throughout.

Chart 4.19

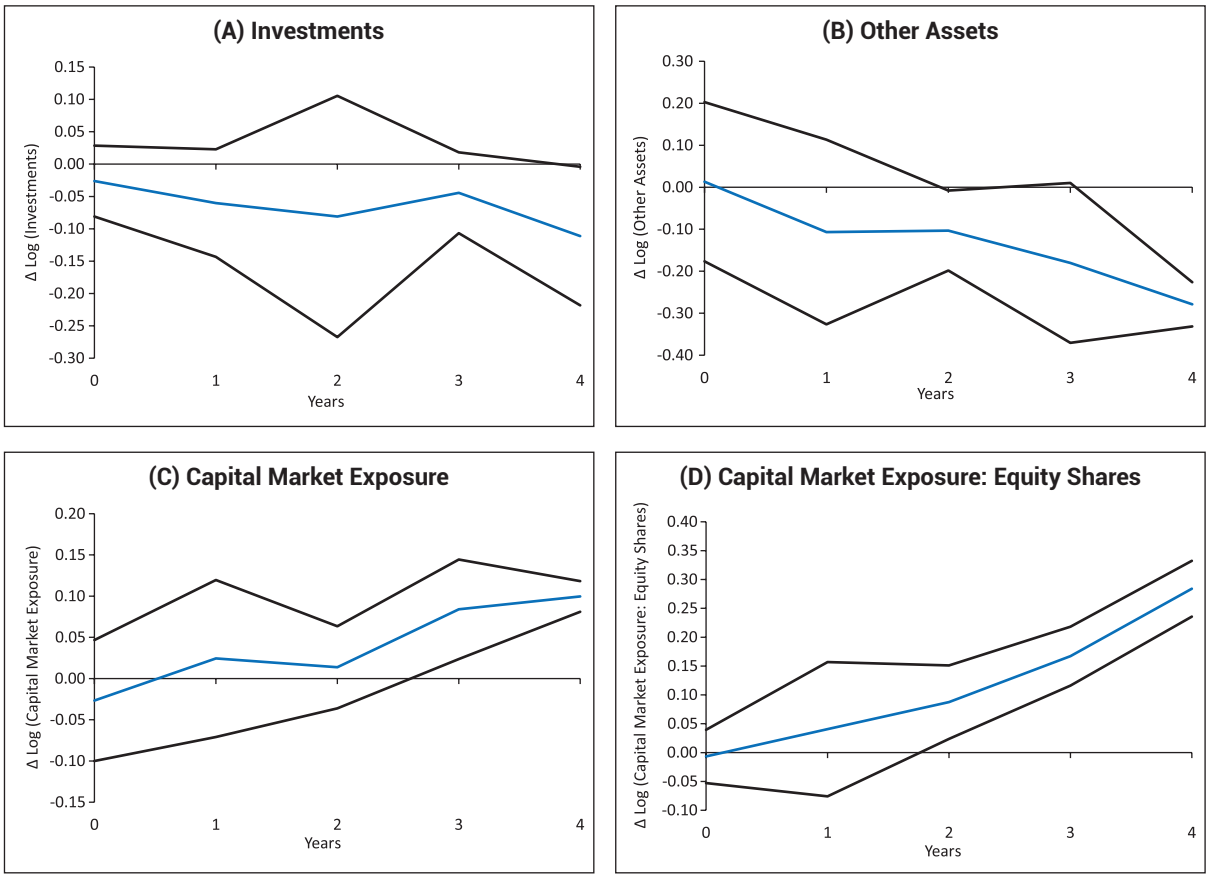
Impulse responses of Loans and advances to 100 basis point increase in the repo rate



Note: Black lines in the chart represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

Chart 4.20

Impulse responses of Assets to 100 basis point increase in the repo rate



Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

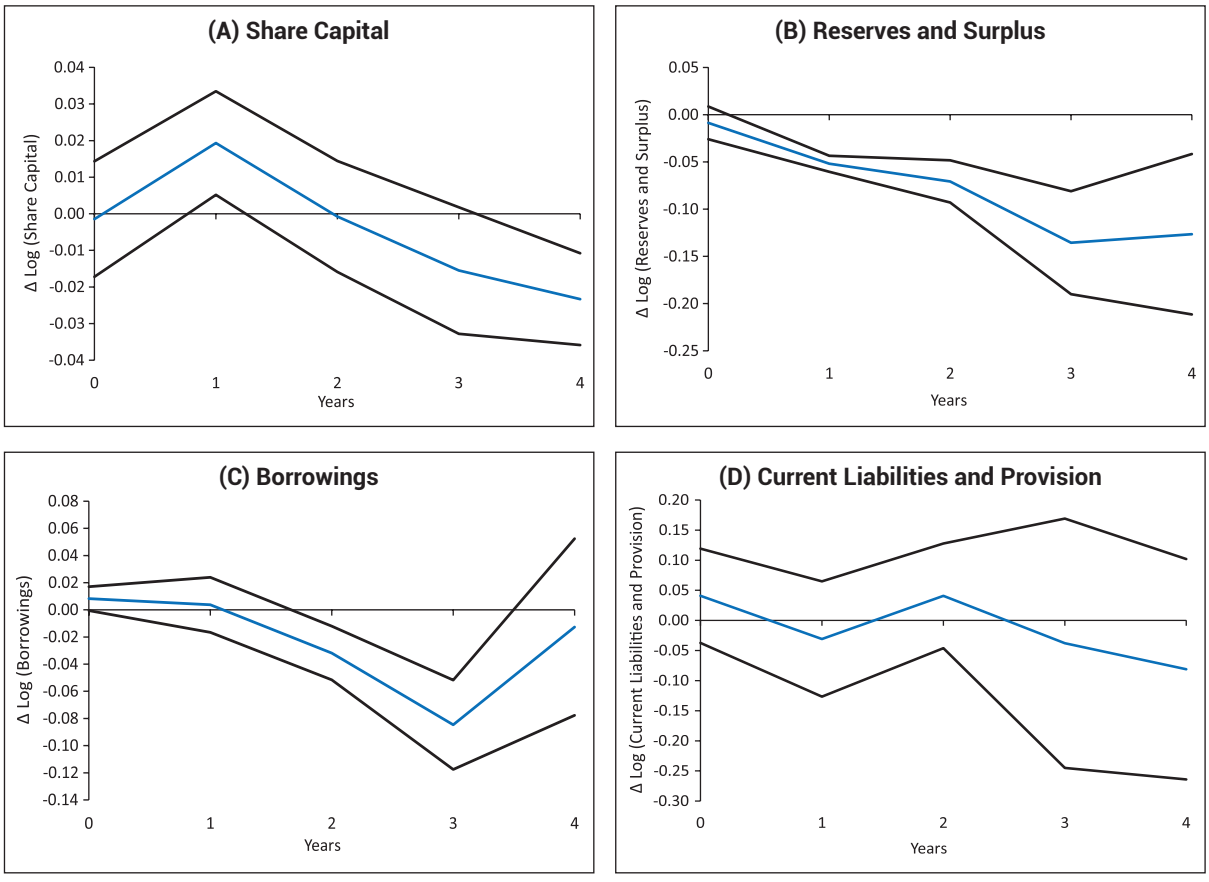
IV.58 The increase in risk taking behaviour after a monetary contraction is also evident in the responses of other asset components. While there is no change in the investments category, capital market exposure, led by equity share ownership, increases (Chart 4.20). Other assets fall but about four years following a policy contraction. Return on capital market investments would be more tightly linked to monetary policy compared to return on other investment instruments; hence there is an increase in capital market exposure.

4.4.2.2.2 Effects on NBFC Liabilities

IV.59 Analysis of the liabilities indicates that the decrease in the balance sheet size is followed by a fall in only some types of liabilities (Chart 4.21). There is no apparent change in the size of share capital or in current liabilities and provisions. The biggest drop is observed in the reserves and surplus category followed by borrowings. Interestingly, borrowings fall two years after a policy contraction, roughly matching the timeline of total balance sheet response. In contrast, reserves and surplus fall a year following a contraction.

Chart 4.21

Impulse responses of Liabilities to 100 basis point increase in the repo rate



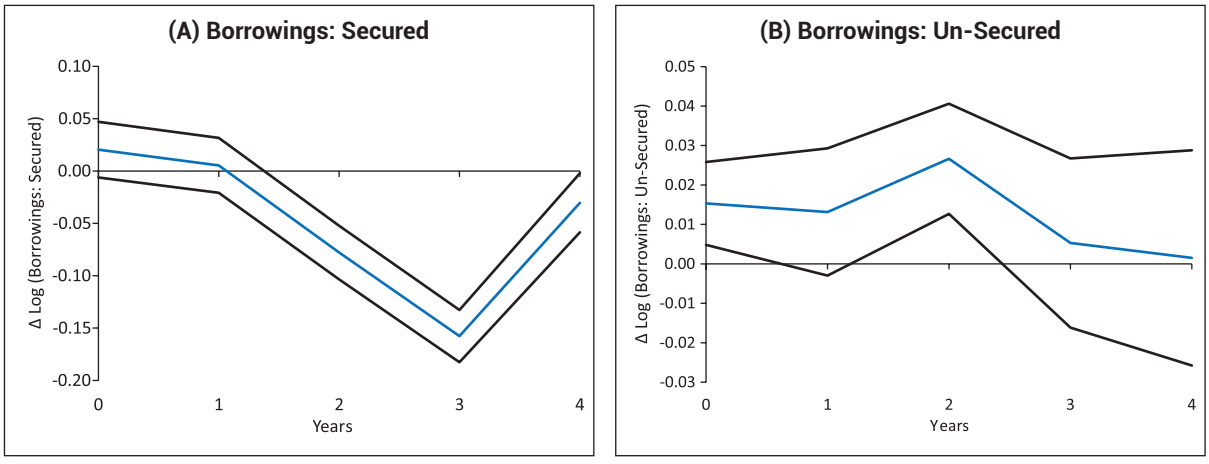
Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

IV.60 The richness of the time series data on borrowing facilitates decomposition of the response of total borrowing into secured and unsecured borrowings (Chart 4.22). Higher policy rates are known to reduce financial firms' net worth (Bernanke, 2007) and some collateral that the NBFCs can post to get secured loans also lose value. The chart reflects this effect as there is a fall in secured borrowings and the NBFCs are forced to compensate by relying on unsecured borrowings.

IV.61 Policy rate changes transmit to NBFC borrowing costs (Chart 4.23). Interest accrued on secured borrowings rise reflecting that secured loan interest rates are adjustable. For the unsecured loans too, there is evidence that interest cost rises. The quantity of such loans rises by 2% (Chart 4.22) whereas the interest accrued rise much more by about 10%. The interest costs rise as unsecured borrowings that mature are rolled over at higher interest rates.

Chart 4.22

Impulse responses of Borrowings to 100 basis point increase in the repo rate

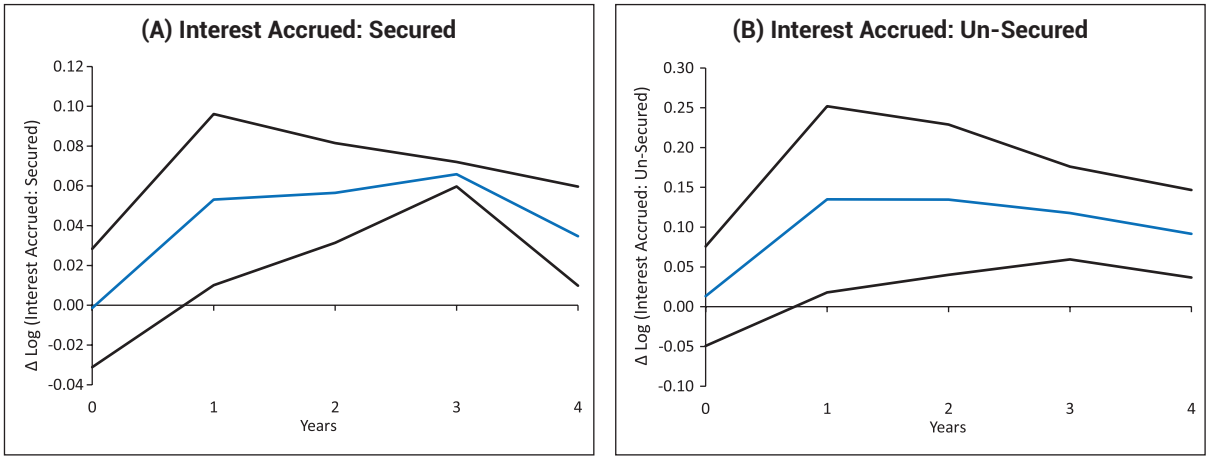


Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

IV.62 The component of unsecured borrowings that increases the most is in debentures (Chart 4.24). It increases two years following the policy announcement. In contrast, secured debentures actually fall around the same timelines. Together, it indicates a shift towards unsecured debentures. Commercial papers, in comparison, do not see any change (Chart 4.25). This is a result of two opposing forces that cancel each other. On the one hand, NBFCs want to issue less commercial paper given that transmission to CP market is high. On the other hand, investors want to switch away from longer term securities (such as

Chart 4.23

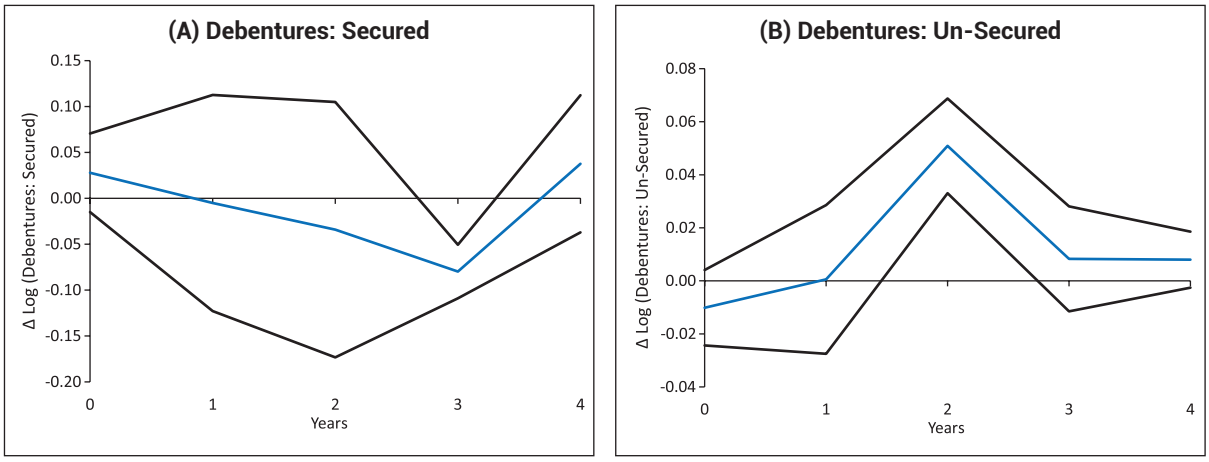
Impulse responses of Interest Accrued to 100 basis point increase in the repo rate



Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

Chart 4.24

Impulse responses of Debentures to 100 basis point increase in the repo rate



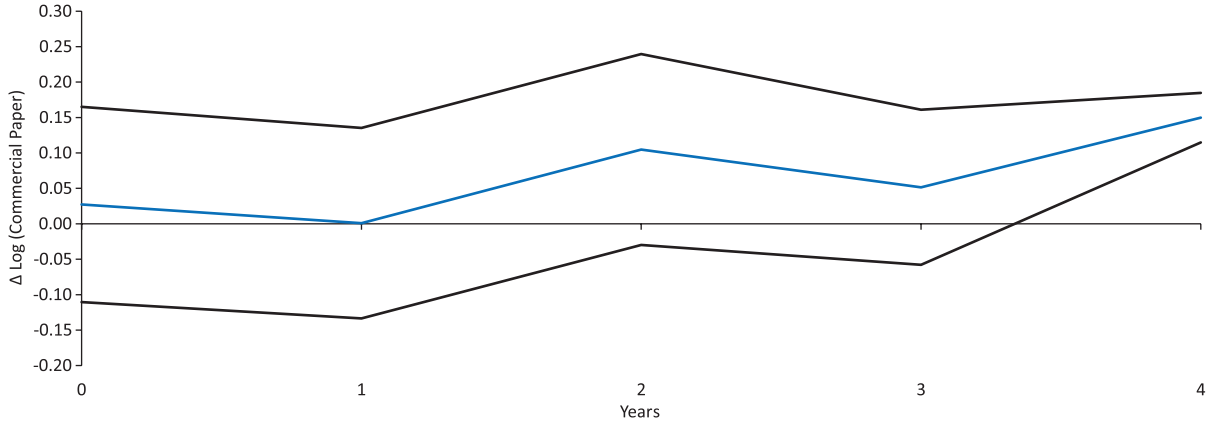
Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

debentures) to protect themselves from increased default risk during high interest rates as well as from further interest rate hikes. This implies a switch towards shorter term securities such as CP.

IV.63 Bank loans to NBFCs, both secured and unsecured, fall in response to a monetary contraction (Chart 4.26). For non-bank institutional finance, there is a decrease in the case of secured borrowings, but not in the case of unsecured borrowings (Chart 4.27).

Chart 4.25

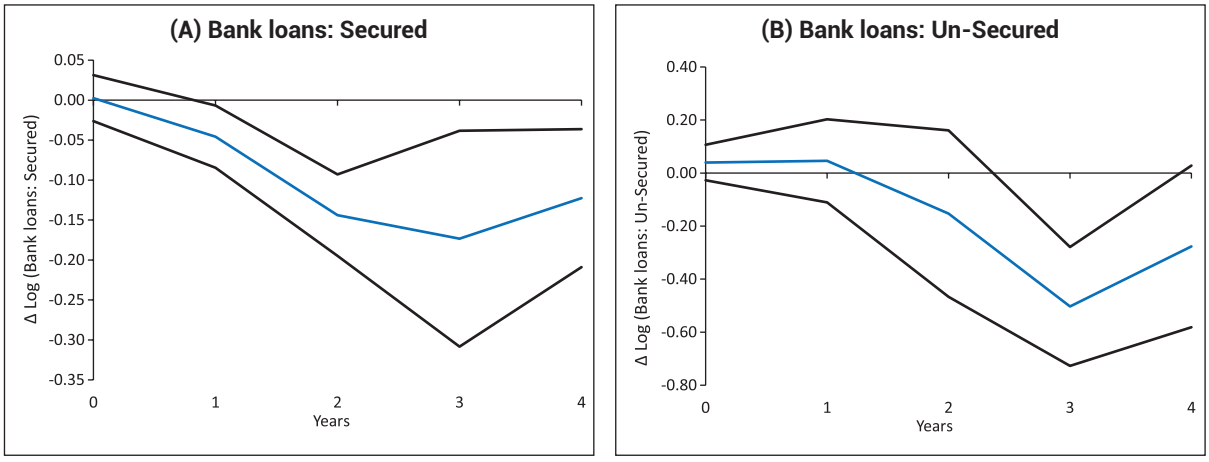
Impulse responses of Commercial Paper to 100 basis point increase in the repo rate



Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

Chart 4.26

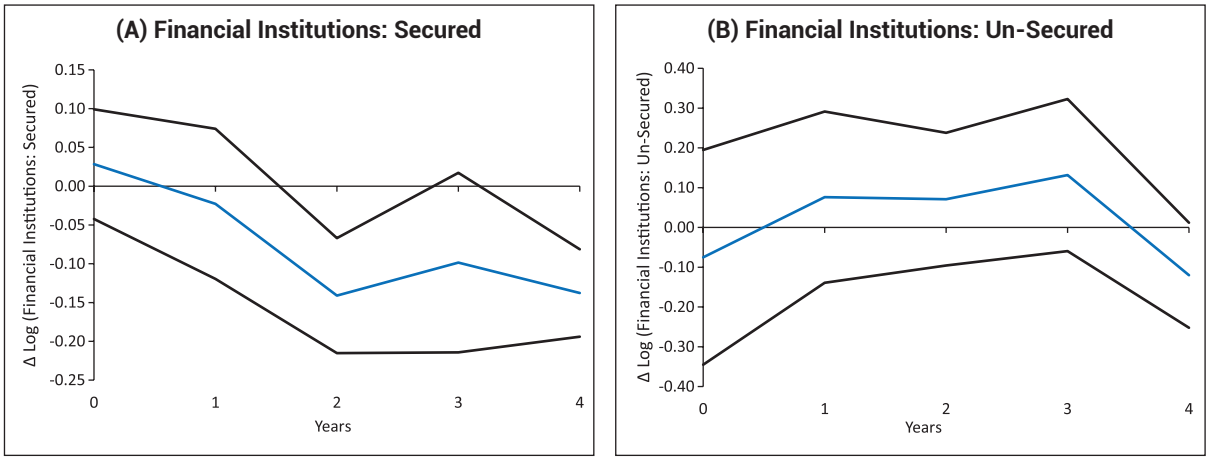
Impulse responses of Bank loans to 100 basis point increase in the repo rate



Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

Chart 4.27

Impulse responses of Borrowing from Financial Institutions to a 100 basis points shocks to the repo rate



Note: Black lines in the charts represent 90% confidence intervals.
Source: RBI and CAFRAL calculations.

Box 4.1: Rating Shopping by NBFCs

Most NBFCs are non-deposit-taking. Mutual funds and other institutional investors lend to them using several funding instruments which are rated by several credit rating agencies. These ratings are widely used as a regulatory tool to assign risk weights to financial institutions' assets. These weights are also taken into consideration by other market players as well to evaluate the riskiness of the NBFC and this evaluation is reflected in market prices.

The pivotal role played by credit ratings creates incentives for financial institutions to influence the rating process. This is truer for NBFCs because they cater more to the riskier segment of the market. The financial institutions that provide them funds also benefit from inflated ratings as they help them in meeting regulatory capital requirements.

(Contd.)

There are six main credit rating agencies (CRAs) in India and three of them are large with the highest market capitalization. The remaining three smaller ones are BRICKWORK, India Ratings and Research (IND-RA) and ACUITE. These CRAs follow an issuer-pay model under which the issuer of the securities approaches them, thereby making the rater choice or the number of raters approached by a firm a strategic decision: This is what the literature terms as *rating shopping*.

Table 1 : NBFC Raters Share (per cent)

	Type of Firm	Pre-2016	Post-2016
Single Rater:	Bank	16.9	12.50
	NBFCs or HFCs	58.0	64.3

	Type of Firm	Pre-2016	Post-2016
Small Rater:	Bank	42.1	56.9
	NBFCs or HFCs	28.5	29.1

Note: Single raters are CRISIL, ICRA, CARE, India-Ratings, Brickworks, and ACUITE; Small raters are India-Ratings, Brickworks and ACUITE.
Source: Prime, CAFRAL calculations.

The Securities Exchange Board of India (SEBI) is responsible for regulating the operations of the CRAs. In November 2016, SEBI made it mandatory for the CRAs to disclose the ratings rejected by the issuer firm. Therefore, before 2016, we can expect that firms involved in rating shopping would have approached more firms and chosen the score that is closest to their expectations. After the regulation, firms that shop for ratings are more likely to strategically choose a single CRA and/or a smaller CRA that is more likely to cater to the needs of the firm and in the process forge a longer-term relationship. More specifically, the 2016 disclosure mandate is expected to impact the behaviour of the rating shopper firms more than any other financial institution. We use this regulatory shock to identify if NBFCs indulge in rating shopping more than banks, which is our natural control group (Kallapur *et al.*, 2022)

The proportion of NBFCs (both NBFCs and HFCs) that got rated by a single rater post-2016 went up by 6.3 percentage points post-2016 (Table1). Both banks and NBFCs showed a higher chance of getting rated by a small rater after 2016.

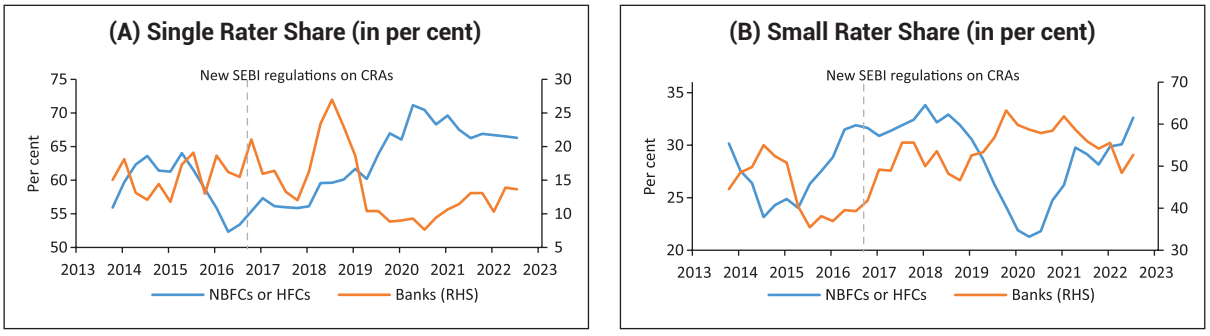
The proportion of NBFCs moving to a single rater did increase after the SEBI disclosure mandate in 2016 (blue line in Chart 1A) compared to banks. However, there is no clear evidence that they moved to get their instruments rated by a smaller rater (Chart 1B).

This analysis utilizes the SEBI disclosure mandate to highlight the prevalence of rating shopping among NBFCs, surpassing even that of banks. The implementation of the mandate resulted in a change in behaviour, indicating a partial success in enhancing transparency.

Before the mandate, NBFCs approached multiple rating agencies and likely selected the most favourable rating from the available options. However, the analysis does not indicate a clear increase or decrease in rating shopping after the mandate. Instead, it suggests that one specific avenue of rating shopping, which relied on limited disclosure by CRAs, has been addressed by the mandate.

Although the mandate may not have completely eliminated rating shopping by NBFCs, it has definitely terminated one of the ways it used to occur. Nonetheless, this represents a step forward in the development of efficient and effective regulations.

Chart 1: Trends in NBFC Ratings by Single/Small Rater



Source: Prime, CAFRAL calculations.

Box 4.2: NBFCs and Monetary Transmission in Retail Lending

An analysis of granular monthly-pincode-level CIBIL data is conducted to arrive at a very comprehensive picture of how NBFCs impact credit channel of monetary transmission in retail lending. The granular data accords us several advantages that tackle key concerns. First, we can account for granular seasonal patterns (using district by calendar month fixed effects) such as weather conditions and local festivals which can impact credit demand irrespective of monetary policy. Second, monthly data allows us to trace the impact of each policy action. We study the impact of policy actions on average credit flow over the next 12 months using an instrumental variables strategy. We distinguish between unanticipated shocks to short term and long term (i.e., forward guidance shocks) rates using the respective estimates from (Lakdawala ***et al.***, 2023) as instruments. The instruments are found to be strong with very high first stage F-statistics (Table 1).

Table 1: Monetary Shock Transmission Via NBFCs

	(1)	(2)	(3)
	Dependent Variable: Log Average 12-month Ahead Credit		
	IV = Total	*IV = Spot Shock*	*IV = FG Shock*
Change, repo (Banks)	-0.011*	0.038***	0.016*
	(0.006)	(0.006)	(0.008)
NBFC x Change, repo	0.138***	0.242***	-0.197***
	(0.008)	(0.009)	(0.010)
NBFC	-0.112***	-0.107***	-0.127***
	(0.002)	(0.002)	(0.002)
Observations	2,951,433	2,951,433	2,951,433
Adjusted R-squared	0.81	0.81	0.81
First Stage F-stat	1.79×10^6	1.14×10^6	1.30×10^6
Dist x Cal. Month FE	Y	Y	Y
Dist x Year FE	Y	Y	Y

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results show different passthrough to lending quantities for different types of monetary contraction. Overall, there is a 1.1 percent fall in bank lending whereas the effect on NBFCs is muted by 13.8 percentage points. Following a spot shock, the bank lending increases by 3.8 percent and the NBFC lending increases by a further 24.2 percentage points. Interestingly, NBFCs amplify forward guidance shocks. While bank lending increases marginally, NBFC credit contracts relatively by 19.7 percentage points.

These results provide credence to the notion that NBFCs use medium term wholesale funding channels to fund credit substitution from banks. But their ability to do so is limited to instances when the transmission to medium term rates is poor – i.e., when the policy action is expected to be short term. This explains the positive interaction term coefficient in column 2. Short term monetary contractions, which column 2 studies, does not impact NBFC borrowing costs severely. In contrast, the NBFCs are unable to borrow cheap when the policy action transmits to medium term rates. This is the case in column 3 where policy action indicates changes in forward guidance stance.

4.5 Conclusion

IV.64 The interlinkages between banks and NBFCs have witnessed a significant increase over the past decade. This surge can be attributed to various factors, including a flight-to-safety in the CP market following the IL&FS crisis in 2018. In response, banks stepped in to partially alleviate the funding crisis, and their involvement has continued to grow, with only a temporary pause during the COVID-19 pandemic. It is worth noting that while data indicates variations in bank funding among NBFCs, with weaker entities receiving less support, this filtering has reduced in the post-pandemic period due to the availability of cheaper credit.

IV.65 Throughout the past decade, contemporaneous measures of systemic risk have remained relatively subdued, suggesting that the median NBFC (among those traded) was not yet deemed systemically important. However, when considering the five traded NBFCs classified as NBFC-UL by the Reserve Bank, measures reveal a higher sensitivity to market shocks. This trend reflects the gradual increase in systemic risk resulting from greater integration with the financial system.

IV.66 This chapter highlights the impact of the IL&FS default on NBFC balance sheets, with healthier firms managing to secure funding while weaker ones faced challenges. This cleansing effect likely prevented the COVID-19 shock from triggering a full-fledged NBFC crisis or one that engulfs the entire financial sector. However, forward-looking measures of systemic risk indicate a sharp rise, indicating that the current accumulation of risk within the sector may have significant implications for the financial industry in the medium term. Consequently, regulatory intervention becomes imperative. Our analysis suggests that regulations should target NBFCs with larger assets and higher market-to-book value, as they are more prone to overvaluation.

IV.67 The chapter also highlights the transmission of monetary policy shocks to NBFC balance sheets. The effect on NBFC balance sheets is relevant in the context that the conduct of monetary policy in India has undergone significant changes in the last decade along with the fact that NBFCs have grown to take larger market shares in the credit market. It is important to note that the NBFCs are indirectly affected by policy rates via their funding links to banks and financial markets. It is therefore imperative to evaluate, monitor, and adapt to the changing circumstances during the conduct of monetary policy.

IV.68 To understand the impact on NBFC balance sheets, time series aggregate data are used to show that transmission via NBFCs is strong and in the expected direction but with a delay of about 2 years. The transmission to balance sheet is muted in the short-term. The evidence that forward guidance shocks transmit strongly to NBFC lending provides similar implications provided these shocks transmit more strongly to medium term rate.

IV.69 The evidence also shows risk build-up on the assets sides on the NBFC balance sheet following a contractionary monetary policy shock. On the assets side, the shrinkage is due to a fall in secured loans and advances even as unsecured ones see a marginal increase. There is also an increase in capital market exposure driven by increase in equity holdings.

IV.70 On the liabilities side, the increase in accrued interest indicates passthrough of policy rates to NBFC borrowing costs. There is a large fall in secured borrowings and a marginal increase in unsecured borrowings, showing increased exposure to riskier finance. Both secured and unsecured bank borrowings fall and unsecured debentures increase., There is also a significant fall in reserves and surplus indicating that buffers grow thinner.

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APPENDIX A: TECHNICAL APPENDIX

1. ***MES*** is defined as:

$$MES_i = -\{\overline{Market\ cap\ Growth}\}|I_{5\%}\} \quad \ldots(1)$$

where $I_{5\%}$ = Set of 5 per cent worst days of market performance.

In equation 1, $\overline{Market\ cap\ Growth}$ or the growth rate of market capitalization for firm i in the sample, is a proxy for firm's market return. It has a negative sign because in the 5 per cent of the worst days of market performance, the market return of the individual firm is expected to be mostly negative, hence making MES_i values positive. A higher value of MES in each period indicates higher levels of systemic risk. Like any other measure of systemic risk, the origin of the risk is unimportant. For an aberration that originates in firm i or elsewhere, MES_i captures the general equilibrium contribution/effect of/on firm i. Therefore, the presence of firms with high MES_i is detrimental to financial stability. MES_i does not determine causality but indicates the propensity of the entire financial sector to co-move in times of a crisis.

$$SES_i = \alpha Lev_i + \beta MES_i + \epsilon_i; \quad \ldots(2)$$

where Lev_i = Leverage

ϵ_i= idiosyncratic error-term for firm i

SES_i can be robustly predicted using MES_i and firm leverage. SES_i is computed as the average return on equity of the firm in times of a financial crisis when the entire system is undercapitalized. We expect the estimate of the parameter α and β to be negative and significant: when leverage of firm i is high its expected loss in times of crisis is also high. Similarly, when MES_i is high, expected return (loss) in a crisis is low (high).

2. The symbolic representation of $\Delta CoVaR_t$ is as follows:

$$\Delta CoVaR_t^{system|i}(q) = \hat{\beta}_q^{system|i}[VaR_t^i\ (q = 5\%) - VaR_t^i(q = 50\%)] \quad \ldots(3)$$

$\hat{\beta}_q^i$ for NBFC i is estimated using the following specification

$$VaR_t^i(q) = \hat{\alpha}_q^i + \hat{\gamma}_q^i M_{t-1} \quad \ldots(4)$$

$$CoVaR_t^{system|i}(q) = \hat{\alpha}^{system|i} + \hat{\beta}^{system|i} VaR_t^i(q) + \hat{\gamma}_q^{system|i} M_{t-1} \quad \ldots(5)$$

The superscripts in $\Delta CoVaR_t^{system|i}$ represents the risk of a financial system conditional the distress of firm i. $\hat{\beta}_q^i$ in Equation (3) measures the extent to which distress in firm i impacts the system as its individual risk increases. Equation (4) estimates VaR_q of firm i conditional on macroeconomic variables M_{t-1} with one period lag[13]. We use the estimated $VaR_q^i(q)$ in equation (5) to compute $CoVaR_t^{system|i}$. A lower value of $CoVaR_t^{system|i}$ implies higher systemic risk.

3. Time-varying $\Delta CoVaR$ are related to characteristics of financial institutions ***i.e.,***

$$\Delta CoVaR_t^i = \alpha_i + \beta\ X_{it-1,t-2} + \gamma M_{t-1}$$

[13] All the variables are at a weekly frequency. We use repo rate, VIX (India), liquidity spread (3- month repo rate - 3-month T-bill rate) and change in 3-month T-bill rate as macroeconomic control variables.

where ($X_{it-1,t-2}$) is the vector of lagged (either 1 period or 2 period) firm characteristics, (M_{t-1}) are lagged macro state variables and α_i control for firm fixed effects. The set of firm characteristics used to predict future contributions to systemic risk measures are:

1. leverage, defined as total assets / total equity (in book values);
2. maturity mismatch, defined as (short term debt - cash) / total liabilities;
3. market-to-book, defined as the ratio of the market value to the book value of total equity;
4. size, defined by the log of total book equity;
5. equity return volatility, computed from daily equity return data within each quarter;

4. Rating Shopping: Regression Results

We use the following regression specification to estimate the effect of the 2016 SEBI regulation on CRA choice by the NBFCs:

$$Y_{it} = \beta_0 + \beta_1 \mathbf{1}_{\{NBFC\}} * \mathbf{1}_{\{>2016\}} + \beta_2 \mathbf{1}_{\{NBFC\}} + \beta_3 * \mathbf{1}_{\{>2016\}} + \alpha_t + \epsilon_{it}$$

where

$Y_{it} = 1$ if single rater for institution i in time t;

i is a financial institution, r is a rater and t denotes time;

$\mathbf{1}_{\{NBFC\}}$ is the indicator for NBFC or HFC;

$\mathbf{1}_{\{>2016\}}$ is the indicator for post 2016;

α_t denotes the year-fixed effect.

Table 1 : Regression results for Rating shopping

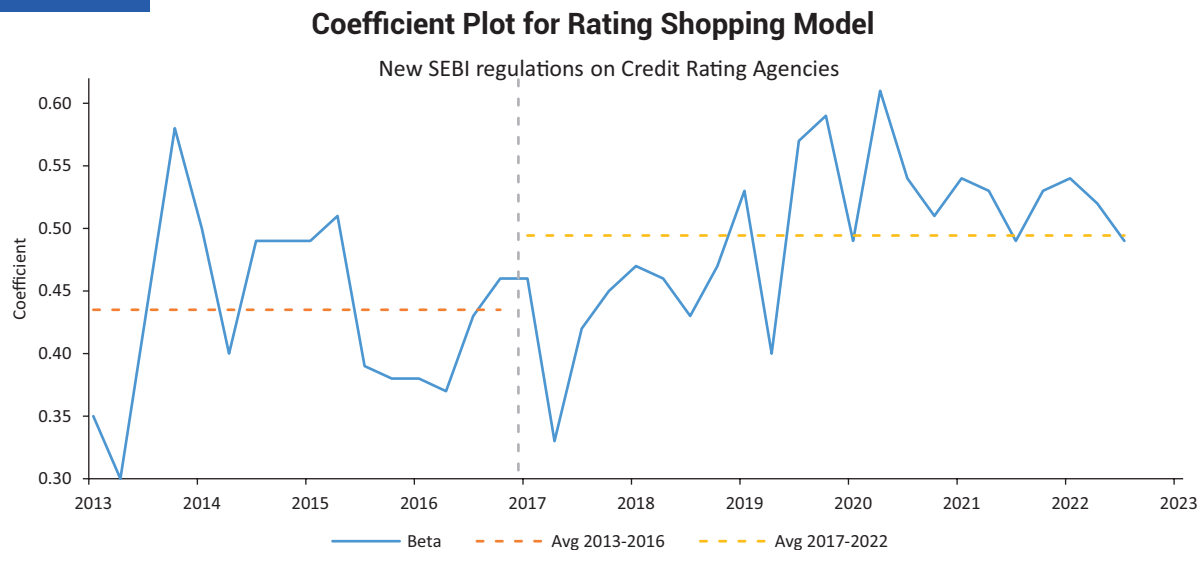
	No FEs	Time FEs
NBFC/HFC Indicator	0.41***	0.41***
	(0.03)	(0.03)
Post-2016 Indicator	−0.04	0.12*
	(0.04)	(0.05)
NBFC/HFC Indicator*Post-2016 Indicator	0.11*	0.10*
	(0.04)	(0.04)
Time Fixed Effects	N	Y
R^2	0.11	0.61
N	4025	4025

Standard errors in parentheses;
* p < 0.05, ** p < 0.01, *** p < 0.00
Source: Prime, CAFRAL Calculations.

We use the single rater dummy as the dependent variable. The interaction term is the coefficient of interest. We find that the term is positive and significant in both the fixed-effects and non-fixed effects. This means that NBFCs are more likely to approach a single CRA after 2016 compared to banks.

The coefficient plot derived from the estimated equation also illustrates the result. The average value of the coefficient on the NBFC dummy (without any interaction term) after the SEBI regulatory shock is significantly higher than the value before the regulation.

Chart 1



Source: Prime, CAFRAL calculations.

5. Forward $\Delta CoVaR$ regression results

The following tables (2 and 3) show the regression results for 1 and 2-year forward $\Delta CoVaR$ for all traded firms and the top 5 (NBFC-UL) firms respectively.

Table 2: $\Delta CoVaR$ Forecasts

	Market *CoVaR*		Bank *CoVaR*		NBFC *CoVaR*	
	(1)	(2)	(3)	(4)	(5)	(6)
	1 Year	2 Year	1 Year	2 Year	1 Year	2 Year
VaR	0.01458*** (0.00)	-0.00607* (0.00)	0.01906*** (0.00)	-0.00726* (0.00)	0.02542*** (0.00)	-0.01299** (0.01)
Market to Book	-0.00007*** (0.00)	-0.00000 (0.00)	-0.00009*** (0.00)	-0.00000 (0.00)	-0.00023*** (0.00)	-0.00008*** (0.00)
Volatility	-0.00028 (0.00)	0.00032 (0.00)	-0.00058 (0.00)	0.00010 (0.00)	-0.00100 (0.00)	0.00012 (0.00)
Log Book Equity	-0.00023*** (0.00)	-0.00026*** (0.00)	-0.00019*** (0.00)	-0.00031*** (0.00)	-0.00055*** (0.00)	-0.00069*** (0.00)
Leverage	0.00028*** (0.00)	0.00021*** (0.00)	0.00040*** (0.00)	0.00026*** (0.00)	0.00056*** (0.00)	0.00034*** (0.00)
Maturity Mismatch	0.00102*** (0.00)	0.00327*** (0.00)	0.00129*** (0.00)	0.00442*** (0.00)	0.00197*** (0.00)	0.00626*** (0.00)
Constant	-0.00355*** (0.00)	-0.00406*** (0.00)	-0.00633*** (0.00)	-0.00603*** (0.00)	-0.00620*** (0.00)	-0.00605*** (0.00)
Observations	12463	8485	12463	8485	12463	8485
R-Squared	0.85735	0.85114	0.85220	0.84655	0.88633	0.88495

Standard errors in parentheses
* p<0.1; ** p<0.05, *** p<0.01
Note: Publicly traded NBFCs.
Source: Prowess, CAFRAL calculations.

Table 3: $\Delta CoVaR$ Forecasts (Top 5)

	Market *CoVaR*		Bank *CoVaR*		NBFC *CoVaR*	
	(1)	(2)	(3)	(4)	(5)	(6)
	1 Year	2 Year	1 Year	2 Year	1 Year	2 Year
VaR	0.03432*** (0.01)	-0.01868 (0.01)	0.04665*** (0.01)	-0.02625* (0.02)	0.10103*** (0.02)	-0.03398 (0.03)
Market to Book	-0.00030*** (0.00)	0.00010* (0.00)	-0.00040*** (0.00)	0.00015** (0.00)	-0.00092*** (0.00)	0.00006 (0.00)
Volatility	-0.01812 (0.04)	-0.03702 (0.04)	-0.02675 (0.05)	-0.05066 (0.06)	-0.03976 (0.11)	-0.11154 (0.11)
Log Book Equity	-0.00110*** (0.00)	-0.00239*** (0.00)	-0.00146*** (0.00)	-0.00322*** (0.00)	-0.00338*** (0.00)	-0.00690*** (0.00)
Leverage	0.00042*** (0.00)	0.00025*** (0.00)	0.00055*** (0.00)	0.00035*** (0.00)	0.00119*** (0.00)	0.00063*** (0.00)
Maturity Mismatch	-0.00048 (0.00)	0.00534*** (0.00)	-0.00021 (0.00)	0.00772*** (0.00)	-0.00739*** (0.00)	0.00874*** (0.00)
Constant	0.00459 (0.00)	0.01764*** (0.00)	0.00578 (0.00)	0.02333*** (0.01)	0.01728* (0.01)	0.05442*** (0.01)
Observations	1834	1337	1834	1337	1834	1337
R-Squared	0.89512	0.89614	0.88689	0.88900	0.91631	0.91990

Standard errors in parentheses
* p<0.1; ** p<0.05, *** p<0.01
Note: Publicly traded NBFCs.
Source: Prowess, CAFRAL calculations.

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