Digital Financial Inclusion: A Payoff of Financial Technology and Digital Finance Uprising in India

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Abstract - Technological inventions and innovations paved a way for upheaval in the financial market. New technologies such as the internet, artificial intelligence, machine learning, big data, biometric identification, and blockchain technology brought new financial technologies (Fintechs) namely Unified Payment Interface, Immediate Payment System, and Mobile Money into existence. As a result of the development of Fintechs, digital finance companies and digital financial services and products emerged and got well-liked among the people because of their convenient, speedy, simple, and user-friendly functions. In fact, digital finance companies work a mile further, in the name of digital financial inclusion, by serving excluded, marginalized, neglected individuals and Small and Medium Enterprises through their innovative, affordable, quality, and speedy digital financial services and products. This article focuses on Fintechs, digital finance, and their role in digital financial inclusion in India using the existing sources of the World Bank, Reserve Bank of India, National Payment Corporation of India, and United Nations Organizations.

Index terms - Fintech, Digital finance, Digital financial inclusion, Digital financial products and services, India, Financial inclusion, Financial system

1 INTRODUCTION

Financial system development, access to finance, and financial inclusion have been policy initiatives of almost all the countries in the world over the past few decades. As a result, a number of initiatives have been taken by the countries over a period of years towards financial inclusion. Financial inclusion refers to the ability to access quality formal financial services like savings, credit, remittance, insurance, payments, and other financial services by all kinds of individuals, households and their businesses at an affordable cost. India has also, being a developing country with a high volume of financially excluded people, formulated and implemented a series of financial inclusion initiatives since independence right from priority sector lending to the recent, Prime Minister Jan Dhan Yojna (PMJDY) in order to promote financial inclusion in India. The traditional financial inclusion initiatives such as priority sector lending, lead bank scheme, nationalization of the banks, Swabhimann scheme, business correspondence model, and so on have brought mixed results in respect of financial inclusion in India. In the year 2011, only 35% of Indian adults have access to bank accounts (Global Findex, 2011), and it increased to 53% in the year 2014 (Global Findex, 2014) which is an 18% increase over a period of 3 years. But, access to the bank account by the adults in India has dramatically reached 80% in the year 2017 (Global Findex, 2017) which is a 27% increase between the years 2014 and2017. At the same time period, there is an acceleration in the financially included adults and their businesses all over the world. This acceleration can not only be attributed to the strong policies of the governments, and the regulatory pushes of the central banks, but, it can also be due to technological developments namely Artificial Intelligence, Machine Learning, Blockchain, Cloud, and adoption of those technologies in the financial products and services by the formal financial institutions and Financial Technology (Fintech) start-ups.Fintechs have become a game-changer in the field of finance and have brought numerous innovations in financial institutions, and financial products and services. Further, emergence and rapid development of financial technologies have turned around many existing concepts. Finance becomes Digital finance, formal financial institutions compete with Financial Service Providers (FSPs), financial services grow to be digital financial services, and financial inclusion nurtures as Digital Financial Inclusion."Digital finance encompasses a magnitude of new financial products, financial businesses, finance-related software, and novel forms of customer communication and interaction - delivered by Fintech companies and innovative financial service providers" (Gomber, 2017). Digital financial services are intended to provide ease of financial service and to serve the unserved people. "Digital Financial Service (DFS) has three essential concepts namely a digital transactional platform, retail agents, and the use by customers and agents of a device – most commonly a mobile phone – to transact via the digital platform" (CGAP, 2015). Digital Financial Inclusion (DFI) means "digital access to, and the use of, formal financial services by the excluded and underserved population" (CGAP, 2015).

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2 RESEARCH PROBLEM

Fintech market and Fintech business units have been growing steadily in India in terms of numbers, transactions, and reach. In the year 2015, there were 174 Fintech units and it reached more than 2000 units in India in the year 2018. The value of transactions is expected to reach $73 Billion in the year 2020 (Micro Save, 2018). Moreover, digital finances are not meant for elite and urban groups. Digital financial services, of late, provide safe, convenient and affordable financial services to the unserved lower and middle-income people. In India, formal financial institutions could not serve all kinds of people in various regions with quality, affordable, and simple financial services through their traditional business models. But, Fintech companies with their innovative products and services coupled with their convenience, speed, and safety features are able to reach the people belonging to the various regionals and various income groups. Digital financial services, together with effective oversight and supervision, can expand the scale, scope, and reach of financial services, and are essential to closing the remaining gaps in financial inclusion. Digital technologies also offer affordable and convenient ways for individuals, households, and businesses to save, make payments, access credit, and obtain insurance. Therefore, it is imperative to focus on the role of financial technology in digital finance and digital financial inclusion in India.

3 LITERATURE SURVEY

The term 'Fintech' denotes 'financial technology' and is defined as the delivery of financial and banking services through modern technological innovation led by computer programs and algorithms (Ozili, 2018).The Indian Fintech market has been growing upwards in the last five years (PWC, 2019). Increased entrepreneurial activities in India and the growth of Fintech start-ups have, in turn, resulted in increased adoption of Fintech solutions by the customers in India (PWC, 2019).In 2018, India ranked second globally in the Fintech adoption rate. The average percentage of Fintech users in the country is 57.9%, behind China's 83.5%, and much higher than developed countries' 34.2% (Academy of Internet Finance, Zhejiang University, 2018). "With a strong technological ecosystem as its backbone and a huge market base with low penetration of financial services (FS), the Indian Fintech market holds immense potential " (PWC, 2019)."In India, along with sustained funding, both supply-side factors such as Government and regulatory support, and technological advancements and demand-side factors such as large unmet needs and rising customer digital expectations have been converging to drive the Fintech market" (PWC, 2019).There is no single and commonly accepted definition for digital finance. But, certain features of digital finance products and services are consensually accepted. The features include the usage of the internet, access to finance products online, and no need of visiting the branches of FSPs. So, digital finance comprises all finance products, services, technology, and infrastructure that facilitate access to payments, savings, credit, remittance, and other financial transactions through online platforms and thus, digital finance avoids direct dealing with the banks and FSPs (Ozili, 2018).The goal of financial services made available via digital platforms is to contribute to poverty reduction and to contribute to the financial inclusion objectives of developing economies (United Nations, 2016)."Digital finance can lead to greater financial inclusion, expansion of financial services to non-financial sectors, and the expansion of basic services to individuals since nearly 50% of people in the developing world already own a mobile phone" (World Bank, 2014 "Digital financial inclusion involves the deployment of the cost-saving digital means to reach currently financially excluded and underserved populations with a range of formal financial services suited to their needs that are responsibly delivered at a cost affordable to customers and sustainable for providers" (CGAP, 2014).Digital financial inclusion provides banks lower costs by reducing queuing lines in banking halls, reduce manual paperwork and documentation and maintaining fewer bank branches (Manyika et al, 2016).Digital financial inclusion can improve the welfare of individuals and businesses that have a reliable digital platform with which to access funds in their bank accounts to carry out financial transactions (CGAP, 2015).From the above studies, it can be understood that there are close relationships among Fintech, Digital finance, and Digital Financial inclusion.

4 RESEARCH OBJECTIVES

The primary objectives of the study are;

1. To study the development and adoption of financial technology and digital infrastructure in India
2. To analyze digital financial innovations in terms of products, and institutions
3. To assess the role of digital finance companies in promoting digital financial inclusion in India

5 THE METHODOLOGY OF THE RESEARCH

This study is descriptive in nature and is completely based on secondary data. The data for the study has been collected and used from The World Bank, the Consultative Group to Assist the Poor (CGAP), National Payments Corporation of India (NPCI), Reserve Bank of India, and Alliance for Financial Inclusion (AFI).

6 DEVELOPMENT AND ADOPTION OF FINANCIAL TECHNOLOGY IN INDIA

There has been a dramatic increase in access to finance in India between 2014 and 2017 periods. As of 2017, 80% of the adults have access to bank accounts while access was only 53% in the year 2014. This steep hike in access is mainly due to strategies adopted by the government to promote the digital economy and digital financial system in India. India Stack, a digital infrastructure, alone accounts for gaining access to bank accounts for approximately 35 million people (AFI, 2018).The government of India (GOI), and the financial regulatory bodies of India have played an extensive role in the development and promotion of Fintech in India. Some of the prominent initiatives towards Fintech development include rolling out of Goods and Services Tax (GST), Prime Minister Jan Dhan Yojna (PMJDY) and building of digital infrastructure.Digital infrastructure has been a priority for GOI. The government has been laying a strong digital infrastructure for the present and future using the introduction of Unified Payment Interface (UPI) through NPCI, Digital India program, and making available of high-speed internet and smart-phones across the country. The value of UPI transactions crossed Rs 1 trillion in December 2018 and there are 520 million mobile internet users in India (PWC, 2019). Further, GOI promotes innovation and competition in the financial sector through giving license to payments bank and small finance banks, encouraging start-ups via startup India and recognition of digital finance institutions as Non-Banking Financial Companies (NBFCs).Reserve Bank of India (RBI) has finalized and announces Regulatory Sandboxes (RS) for Fintechs in India in August 2019 which permits financial institutions, and banks to set up regulatory sandboxes to test innovative products in the areas of retail payments, digital Know Your Customer and wealth management lively. A regulatory sandbox is a framework set up by a financial sector regulator1to allow small scale, live testing of innovations by private firms in a controlled environment (operating under a special exemption, allowance, or other limited, time-bound exception) under the regulator's supervision (Ivo Jenik, 2017). Thus, the government works vigorously to bring up right digital platforms and infrastructures to promote fin-tech market in India and further, the government focuses and encourages adoption of Fintechs by the customers through the initiatives of demonetization, Direct Benefit Transfer (DBT), UPI products like Bharat Interface for Money (BHIM), Bharat QR Code, Aadhar Enabled Payment Services (AEPS), Cheque Truncation System (CTS), Rupay Debit cards, National Automated Clearing House (NACH), Immediate Payment Services (IMPS) and charging no transaction fees for National Electronic Fund Transfer (NEFT), and Real-Time Gross Settlement (RTGS).

***Table – 1**: Volume of Retail Digital Payments in India from 31st March 2014 to 31st March 2019 (in Million)*

Particulars	*31st March 2014*	*31st March 2015*	*31st March 2016*	*31st March 2017*	*31st March 2018*	*31st March 2019*
Paper clearing	*1253.1*	*1196.5*	*1101.9*	*1206.6*	*1170.6*	*1123.7*
Retail electronic clearing	*1018.7*	*1687.4*	*3141.6*	*4161.7*	*5467.2*	*7113.2*
Debit and credit cards	*7219.1*	*8423.5*	*10036*	*12054*	*13358*	*16046*
Prepaid Payment Instuments	*144.2*	*314.46*	*747.96*	*1963.6*	*3459.0*	*4604.3*
Total Retail digital payments	*9636.1*	*11621*	*15028*	*19386*	*23455*	*28887*

Source: RBI Bulletin

***Table 1** reveals that*

a. Retail digital payments have grown 199.78% over the chosen period of time.
b. The overall growth of digital payments in India has been 198.64%.
c. The retail electronic clearing component has grown a whopping 598.2% since the year 2013-14.
d. Debit and credit cards are also grown significantly. The card transactions have achieved 122.2% growth as of 31st March 2019 as compared to 31st March 2014.
e. Prepaid payment instruments component has exponentially grown (3092%) in the given period

***Table – 2:** Value of Retail Digital Payments in India from 31st March 2014 to 31st March 2019 (in Billion Rupees)*

Particulars	31st March 2014	31st March 2015	31st March 2016	31st March 2017	31st March 2018	31st March 2019
Paper clearing	93003	85434.	82206	80958	81893	82460
Retail electronic clearing	47415	65365	91407	131917	192014	258745
Debit and credit cards	22143	25414	29323	30208	38214	45121
Prepaid Payment Instuments	79.05	213.42	490.14	838.01	1416.3	2128.76
Total Retail digital payments	162641	176,427	203428	243922	313538	388456

Source: RBI Bulletin

From the above table, it can be observed;

a. Retail digital payments have grown 139% since the year 2013-14.
b. The retail electronic clearing component has grown a colossal 445.2% since the year 2013-14.
c. Debit and credit cards have reached 103.7% growth as of 31st March 2019 as compared to 31st March 2014.
d. Prepaid payment instruments component has attained 2593% growth in the given period.

Both the tables confirm the higher growth of digital finance products and services among the customers over a period of time in India. Innovative digital financial institutions and Innovative digital financial products and services in India and their role on digital financial inclusionAs a result of the Fintech uprising in India, numerous innovations have occurred in financial institutions, and financial products and services. Almost all financial services except accepting of deposits are undertaken by Fintech startups. Fintechs provide various unconventional loan products and services to the general public especially to the group of the general public not covered by the formal financial system. In earlier days, whenever people think about financial services, the banks used to appear in their minds. But, now a day, the scenario has changed and Fintechs have become the preferred place of getting financial services by the people because of convenience, speed, ease of transactions, and digital transactions. Many innovative financial institutions have emerged in the Indian financial market. The prominent digital innovative financial institutions and their digital products are presented in the following table.

***Table – 3**: Innovative digital financial instruments in India*

Digital financial institutions	*Digital Financial Product/Service*
NeoGrowth	*Point of Sale transactions based*

	lending
Indifi, Capital Float	*Bank-Fintech partnership model*
KredX	*Invoice discounting exchanges*
Paisabazzar	*Loan Marketplaces*
Kotak Mahindra Bank's 811 application, HDFC Bank's 10-second personal loan	*Bank-led digital models*
Uber, Ola partnering with Banks to finance drivers, Xiaomi partnered with KreditBee to provide credit to its consumer in India	*Captive model especially by non-financial players*
Faircent, Lendingkart, Finzy, i2iFunding	*Peer to peer (P2P) lending*
Early salary	*Mobile Money Lender*

Source: Compiled by the author

Further, digitalization and Fintech companies have come out with many innovative and unconventional digital financial products and services to meet the needs of the individuals and Small and Medium Enterprises (SMEs) They are listed below with their description;

Table – 4*: Innovative digital financial products and services in India*

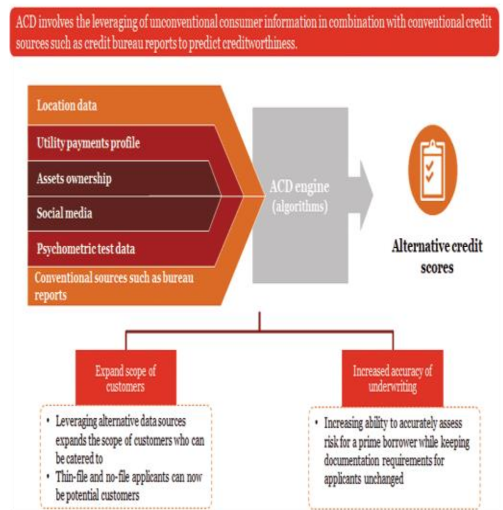
Digital financial products/services	*Description*
Peer to Peer lending	*Peer-to-peer (P2P) lending is an individual to individual loans without the financial intermediary using an online platform.*
Invoice funding or supply chain finance	*Supply chain finance is available to business people against their invoice bills (Upto 80%) in order to support the working capital of the business*
Crowdfunding	*It is a way of raising money from a large number of people who each contribute a relatively small amount, typically via the internet to fund a project. It may be either donation-based or equity-based or reward-based or debt-based.*
Payday loan	*It is a relatively small amount of loan given to salaried individuals at a high-interest rate which is repayable when the borrowers receive their next pay.*
Merchant cash advance	*Loans given against card swipes up to 200% of the monthly sales made via Point-of-Sale machines*
Pay later finance	*A rolling loan product available to SMEs with the predetermined credit limit and the interest is payable only for the amount used*
Online seller finance	*It is a customized business loan for e-commerce sellers to facilitate inventory purchase*
Franchise loan	*Unsecured working capital loans for existing and new franchise owners to establish or improve upon their business*

Source: Compiled by the author

These innovative financial institutions and innovative financial products and services bring many financially excluded people and SMEs into the formal financial sector. In fact, the traditional formal sectors could not serve certain individuals and SMEs due to regulatory issues. For instance, the bank can give a personal loan to a salaried individual when he has a monthly minimum salary of Rs 30,000 and similarly, the bank can't give a business loan to a small business that has been started very recently as it doesn't have any final accounts. But, in both the above-stated instances, digital finance companies provide loans to the individual and SME. Thus, Fintechs serve neglected individuals and SMEs. Further, digital finance companies provide digital financial services and products to those who don't have a satisfactory credit score. Digital finance companies don't only rely on traditional credit scores to sanction loans, and they sanction the loans on the basis of alternative credit scores generated by location data, utility payment profile, assets ownership, social media, and psychometric test data, along with the traditional credit scores. The following figure demonstrates Alternate Credit Decisioning (ACD) in digital finance companies.

Figure – 1

Alternate Credit Decisioning (ACD) mechanism in Digital finance companies



Source: PwC India, 2018

So, it is clear from the above paragraphs that digital finance companies in India are making inroads into those areas where traditional financial institutions could not serve, and digital finance companies started to exploit the potentials at the bottom of the pyramid. Traditional formal financial institutions, despite their untiring efforts, could not achieve a complete financial inclusion in India as well as in the world because of certain constraints in terms of operational cost, limited scale of operations, and inability to penetrate the remote areas. These problems are effectively solved by digital finance companies through digital financial inclusion which offers innovative, cost-effective, and quality digital financial services to the excluded people. To make digital financial inclusion as a policy action plan of the countries, G20 formulated principles of digital financial inclusion in the year 2016 (GPFI, 2016). They are listed below;

- Principle -1: Promote a Digital Approach to Financial Inclusion
- Principle -2: Balance innovation and risk to promote DFI
- Principle -3: Provide legal and Regulatory framework for DFI
- Principle -4: Expand DFS infrastructure ecosystem
- Principle -5: Establish responsible digital financial practices to protect customers
- Principle -6: Strengthen digital and financial literacy and awareness

- Principle -7: Facilitate Customer Identification for Digital Financial Services
- Principle -8: Track Digital Financial Inclusion Progress

Keeping these principles of digital financial inclusion in mind, RBI has formulated guidelines on electronic KYC, and it uses Aadhar for digital identification and simplified account opening and approved for Regulatory Sandboxes. Further, GOI works extensively in developing digital infrastructure and the ecosystem in India.

7 CONCLUSION

The emergence of new technologies such as artificial intelligence, machine learning, big data, biometric identification, and blockchain technology has transformed the way in which financial institutions function and has, also, paved way for a new era of digital finance. The digital finance era encompasses digital finance companies and digital financial products and services. Fintech companies have changed the faces of payments, credit, remittances, and insurances and these companies are leading from the front in digital financial inclusion. Fintechs fuelled access to the bank account by the adults in India. Fintech played a dominant role in achieving a mammoth 27% hike in access to the bank accounts by the adults in a span of three years. Fintechs resulted in innovative digital finance companies and digital products. These institutions and products are promoting digital financial inclusion throughout the world as well as in India through their speed, convenience, and indiscriminative approach.

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