



# The Ecosystem of FinTech Companies in India: A Futuristic Perspective

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## ABSTRACT

The paper examines the present fintech ecosystem in India in general and assesses the efficiency of fintech firms operating in lending and payment verticals. Twelve companies were randomly selected from the top-rated fintech companies in India having an operational track record of four years and more. Financial data of these firms for three years (from 2017-2020) was used for evaluating the efficiency by applying the DEA model. The results indicate that 42 percent of the companies were unable to achieve profitability. The interest obligation (36%) on short-term borrowings which constitute 68 percent of current liabilities is the major contributor to the operating cost of lending firms. Companies from payment verticals are less homogeneous in their component-wise distribution of operating cost. The current ratio of two DMUs is excessively higher while it is below the benchmark for the other six DMUs. To make the fintech a revenue generating model by scaling up their operation, this study suggests the business areas where fintech firms could collaborate with traditional financial institutions.

## KEYWORDS

Constant Returns to Scale, Data Envelopment Analysis, Decision-Making Units, Digital Finance, Economic Efficiency, Financial Technology, Return on Equity, Return on Total Assets, Variable Returns to Scale

## INTRODUCTION

Financial technology (Fintech) incorporates technology in providing innovative products and services in the financial playground. Fintech business could be a technology startup offering insurance services, crowdfunding, payment, lending, wealth management, and capital markets (Lee & Shin, 2018). The burgeoning of the Fintech market has provided clever solutions to consumers, improved the quality of financial services by effectively screening profiles of borrowers using statistical models and predicting consumer default from digital footprint (Berg et al., 2018) and this, in turn, has led to the creation of more diverse, secured, and stable financial services landscape in the country (Deloitte, 2017).

Considering the importance of Fintech as a key driver for financial inclusion, the government of India had implemented various measures like earmarking the .1,500 crore scheme to boost digital payments, Fintech Innovation Incubation Program, the introduction of Unified Payment Interface (UPI) platform, etc. for the growth of Fintech landscape. As a result, in the Fintech Country Rankings,

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India is placed in the 15th position, and India's Fintech market is the third-largest Fintech ecosystem in the world (Gupta & Dhal, 2020).

Though the Covid 19 pandemic and the resultant lockdown and travel restrictions further accelerated the growth of the Fintech firms operating in the payments and lending sector, the performance of many companies from these sectors is not up to the mark. Against this backdrop, the paper examines the present ecosystem of Fintech companies and specifically assesses the efficiency of selected payment and remittance Fintech firms' businesses from an Indian perspective.

## **BACKGROUND**

The factors that contribute to the success of Fintech firms are the availability of funding, the ability to identify commercially viable innovative ideas (entrepreneurship), developing supporting software and hardware to convert the ideas to solutions (technology), demand for Fintech products from consumers (B2C) or from other businesses (B2B) and policy framework which regulates the Fintech market (Deloitte, 2017).

Regarding the growth constraints, new Fintech is always confronted with challenges in raising adequate funds (Beck et al., 2008; OECD, 2006). Vulnerable capital structures often hamper the growth of Fintech firms (Magnuson, 2018), and hence raising of equity capital as a permanent source of finance has a significant role in the growth path of a startup (Colombo & Grill, 2010). Due to the shortage of equity capital, a major percentage of startups in their early-stage face difficulty in meeting their operational cost and thus often fail in their business (Berger & Udell, 1998; Nguyen, 2019). Hence an eco-system to mobilize the initial equity capital is a pre-requisite for the development of the Fintech market.

Along with ownership capital, regulatory compliance can promote a high degree of standardization in financial services and can ensure service stability and consumer protection (Romanova et al., 2018; Rory, 2018). Fintech is exposed to cyber-security threats or amplifying third-party risks (Schindler, 2017). The hurdles faced by regulators include consumer protection and keeping a level playing field that strikes the right balance between fostering innovation and preserving financial stability (Xavier, 2019). Buchak et al. (2018) emphasize the need for regulatory measures to control Fintech firms, the absence of which will lead to shadow banking which in turn may lead to financial crises.

To study the efficiency of firms offering financial services, Data Envelopment Analysis (DEA) was used as a popular tool (Boubaker et al., 2018; Paradi et al., 2017). For instance, 620 papers with DEA analysis which were published between the time period of 1985 and 2016 in financial services can be found in the Web of Science database. Moreover, DEA is found suitable for small sample size and is also less prone to specification errors (Reinhard et al., 2000).

From the literature review, the authors feel that though few reports from professional financial service companies like KPMG, EY, and regulators like World Bank, financial stability board, and RBI are available about the Fintech landscape, studies that measure the efficiency of Fintech firms are limited. Ryan et al. (2020) also confirm the absence of empirical studies which measure the efficiency of Fintech firms in their systematic review based on literature review which was conducted on articles available between the period of 2014-19. In this context, the present paper attempts to bridge this research gap by evaluating the efficiency of Fintech models based on empirical data.

## **MAIN FOCUS OF THE ARTICLE**

In India, Fintech could be viewed as a fourth pillar of the Indian financial system along with commercial banks. They can either keep themselves as a separate entity to compete directly with traditional banks or they can integrate the technology with banking services (many Fintech firms got the Payment Bank licenses). The other option is to create partnerships with existing banks by integrating the high-end technology of Fintech firms with the large customer base of traditional banks. The focus of

this article is to examine the efficiency level of Fintech operating in the lending and payment arena in India as a separate entity.

## STATEMENT OF THE PROBLEM

The global financial crisis in 2008 and the resultant market crash, job loss and profit squeeze fueled the prosperity of startups offering innovative financial and banking solutions (Sudhir,2020). The covid 19 pandemic and the resultant lockdown and travel restrictions further accelerated the growth of the Fintech sector, especially the startups in payments and lending showed unprecedented growth. Fintech has significantly permeated the payments landscape with the introduction of the Unified Payment Interface (UPI) in 2016. This has provided a boost to the payment sector and, the value of transactions on UPI reached INR 54212 crore in August 2018.

In the Fintech landscape, companies from the payment sector occupy a major position in terms of revenue generation and market positioning. For instance, 80 percent of global Fintech revenue comes from the digital payment segment (Deloitte,2020). Out of the top 100 companies worldwide, the highest number of companies i.e.,26 is from the payment sector (KPMG,2020). Despite the growth potential, the revenue generations of even well-established Fintech which are included in the top 50 lists are below the benchmark. Against this backdrop, the paper is an attempt to measure the efficiency of Fintech firms that work independently on their business model. The research questions posed are the following:

1. What is the present Fintech ecosystem in India from a general perspective?
2. What is the economic efficiency of selected Indian Fintech business models from the payments and remittance sector?

## METHODOLOGY

The Fintech ecosystem in India (objective 1) was identified through a literature survey of the reports of global financial service companies, annual reports of Fintech companies, and reports of various regulators of financial markets.

The measurement of economic efficiency of selected Fintech firms (objective 2) was accomplished by using Data Envelopment Analysis (DEA). For this purpose, the authors restricted the definition of Fintech firms to entities engaged in lending loans and accepting deposits considering its market share (see figure 1). The study was exploratory in nature and the researchers had used secondary sources for attaining the research objectives.

The study included seven lending and five payments-based Fintech companies (Appendix 1) which were randomly selected from the top-performing Fintech companies in India (Medici India Fintech Report, 2020). Data from these firms for three years (from 2017-18 to 2019-20) has been extracted from the annual financial statements for evaluating efficiency. All the firms selected for the study had an operational track record of a minimum of 5 years in their chosen business vertical.

In the present study, an input-oriented DEA approach was used to evaluate the relative performance of selected companies taking the total assets of respective companies as input and revenue generated and EBIT as outputs. The input-oriented approach in DEA is a measure used to determine how much the input use of a firm could contract if used efficiently to achieve the same output level. Initially, CRS models were used to compute the efficiency of operation, which does not consider the scale of operation while deciding operational efficiency. Later, units were also analyzed under the VRS model to verify whether their efficiency scores showed some significant difference in varying scales of operational assumption. Overall scale efficiency of units was also computed by making a comparison between CRS and VRS values. DEA frontier software was used for evaluating the CRS values. The

stakeholders' perspectives were also incorporated into the evaluation by conducting ROTA (Return on Total Assets) and ROE (Return on Equity) analysis.

Later the relative performance scoring of selected companies was done by comparing the ranking of performance under DEA, ROTA, and ROE methods. Firm-level analysis was also conducted to analyse the performance of individual units for arriving at suitable conclusions. Thus, a detailed evaluation of factors leading to performance results of the selected companies was made using different financial indicators.

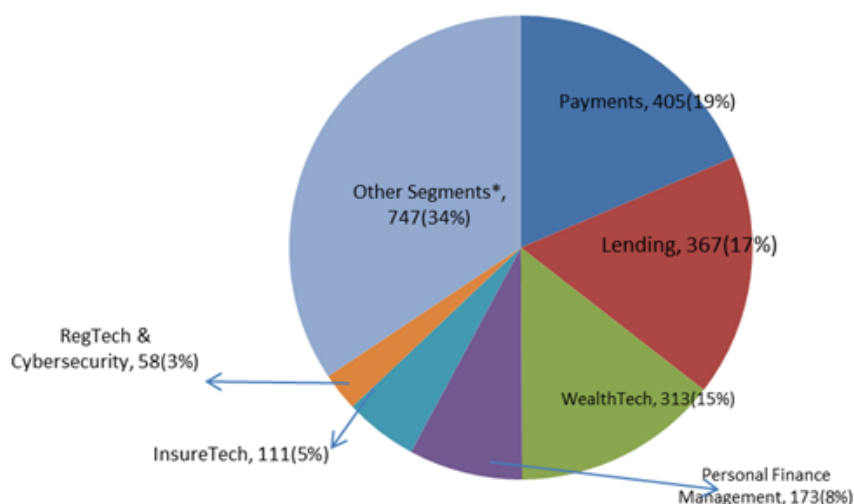
## RESULT AND DISCUSSION

### Fintech ecosystem in India

The current valuation of the Indian Fintech market is \$31 Bn which is expected to grow to \$84 Bn by 2025, at a CAGR of 22percent (www.investindia.gov.in). The segment-wise distribution of the Indian Fintech sector indicates that Fintech companies from the payment sector constitute the largest portion (18.63%) followed by lending firms which is 16.88 percent (RSBA Report, 2021).

The composition of the Indian Fintech market is depicted in Figure 1.

Figure 1. Segment-wise Distribution of Indian Fintech Sector



Source: RBSA Report on Fintech Industry in India Future of Financial Services, 2021

Note: Other segments include Blockchain, Cryptocurrency, AI/Machine Learning, Loyalty/Rewards/Coupons, B2B Fintech, Banking tech, Big Data Analytics, Crowdfunding, Digital Cards, Neo banks, Remittances, Capital Market Tech and Trade Finance.

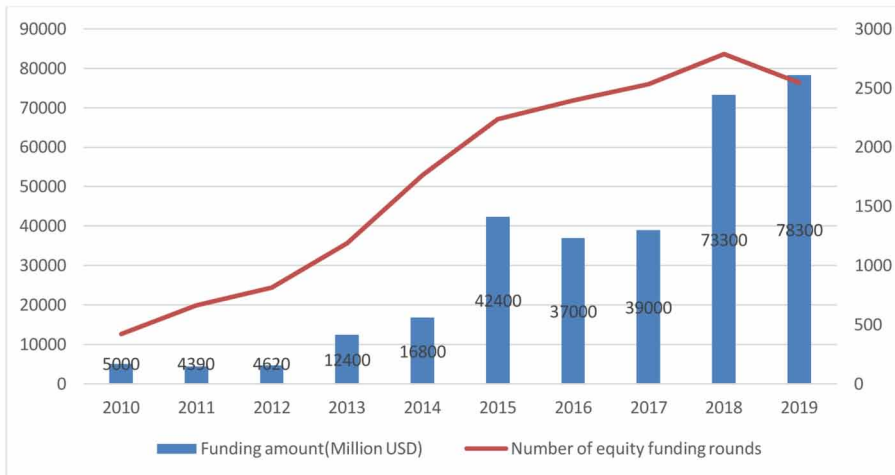
In the following section, a discussion on key enablers that will lead to the sustainable growth of Fintech firms in the Indian ecosystem is undertaken.

#### 1. Availability of finance

The flow of global funding (in terms of value) to Fintech shows an increasing trend since 2011 except in 2016 (Figure 2). The reason for the decline in Fintech funding globally in 2016 can be attributed

to the uncertainties in the market due to Brexit, the presidential election in the USA, the reflections from the slowdown in China's economy, and the resultant fluctuations in the exchange rate. Investors' perception about market saturation, especially from the USA, and the unfair practices adopted by American lending companies in 2016 aggravated the investor's sentiments.

**Figure 2. Trend of Global Fintech Investment**



Source: Tracxn Database

It is obvious that Covid19 has lowered the number of equity funding rounds during the year 2019. At the same time, the cross-border Mergers and Acquisitions (MA) which was valued at \$20400 million during 2017 increased to \$57900 million in 2018 and then to \$58800 million during 2019 indicating a general trend in the Fintech industry towards maturity. The technology of Artificial Intelligence (AI), cyber security, and block chain are driving the Fintech to a maturity stage. During the coming years, Fintech sector will probably witness more consolidation and perhaps some high-profile failures.

Out of the top 20 companies which could collect the largest funding in the Asia Pacific region during 2021, four companies in the list such as Phonepe(\$1.4Bn), IndusInd Bank(\$0.94Bn), CRED(\$0.26Bn), and Razorpay(\$0.21Bn) are from India. Similarly, 211 Indian companies could attract a total amount of \$ 3.18 billion during 2019-20. However, the data is highly skewed with the top 10 companies accounting for about two-thirds of the net funding. Paytm (\$1 billion), BharatPe, and Policy bazaar with \$0.15 billion each are the toppers in the list. Fintech companies that operate in the payments sector collected 14, 24, and 20 percent of the equity pie respectively in the corresponding funding rounds of series A, B, and C (Gupta & Dhal, 2020). The eligibility of companies in collecting 'series C' funding shows the reputation of Indian Fintech companies in terms their proven history of growth and the capability of these companies in developing on a global scale. Hence it can be inferred that raising of equity funds is not a serious challenge to Indian Fintech companies.

## 2. Technology support

The Internet Subscribers in India as of 31<sup>st</sup> March 2020 is 74.3 crore and Broadband Subscribers is 68.7 crore. The lower average cost of data Rs 6.7 (\$0.09) per gigabyte (Department of Telecommunications, Government of India, 2020) triggered the high penetration rate of the internet in India.

Despite skyrocketing internet usage and the ‘Digital India’ initiative, the urban-rural divide is more acute, where the Internet penetration in urban India was 64.84 percent in December 2017 compared to 20.26 percent in rural India. Only 2 percent of the rural population had used online platforms for the payment of bills, and only 26 percent of them owned debit cards, which indicates the poor adoption of Fintech in rural India (Digital Indian Report, 2019).

Lack of trust in the internet money transaction among people is another issue to be addressed. We cannot ignore the incidents reported where fraudsters have used technology to loot money from Fintech users. Hence Fintech firms must take strong cyber security measures to make sure that both money, as well as user data, is well protected from theft. Cyber-risk protection requires significant investment in security systems. Often, this is beyond the power of small Fintech companies and new startups. There is also a need for bringing awareness among the masses about digital transactions and cyber security, especially among low-income groups.

### 3. Policy Framework

Numerous guidelines have come into the picture to safeguard the public interest and hence the Fintech companies may come under the aegis of different regulators like Securities and Exchange Board of India (SEBI) / Insurance Regulatory and Development Authority of India (IRDA) / Reserve Bank of India (RBI).etc.) depending upon the underlying transactions they facilitate. For instance, in the case of payment aggregators and payment gateways, there exist guidelines regarding the net worth, periodic reporting, policy formulation, escrow account management, management, and Customer Grievance Redressal and Dispute Management Framework.

In the case of payments systems, Acts like The Payment Settlement and Systems Act, 2007 have created laws for regulating and overseeing payment systems in the country with RBI as the overseer. As for Prepaid Payment Instruments (PPIs), RBI regulates their issuance. All organizations authorized for the use of payment systems must receive the approval of RBI first. At the same time, transactions using the Unified Payment Interface (UPI) require to follow the guidelines imposed by the NPCI.

When it comes to Insurtech, several guidelines have been imposed by the IRDA, whereas Crowd funding comes under the influence of SEBI, and P2P is controlled by the RBI. The prohibition imposed by the Supreme Court of India on private entities to access Aadhaar based database made it difficult to Fintech companies to complete the KYC procedure online. So these firms are following alternative modes like masked Aadhaar, XML files and QR code-based verification processes which are not cost-effective.

**Table 1. Profile of DMU (Rs. In Lakhs)**

Particulars	Amount
Average amount of capital invested	140906
Average investment fixed assets	184441
Average investment in current assets	107983
Average revenue generated	76354
Average capital turnover (Revenues/Capital)	0.54
Average EBIT	5206
Average years of operation of DMUs	10.5 years
Business vertical of DMUs	Lending 7; Payment 5

Source: Compiled by the researchers

## ECONOMIC EFFICIENCY OF SELECTED FINTECH INDIAN COMPANIES

The average years of operation of selected DMUs (10.5 years) are higher than the average age top 100 companies globally from the payment sector (5.64 years). The average capital turnover 0.54 indicates that firms are not managing their capital investment efficiently to generate revenue.

**Table 2. Input - Output Analysis (Rupees in Lakhs)**

DMU Name	Input	Output 1	Output 2
	Total Assets	Revenues	EBIT
DMU 1	220434	33157	1305
DMU 2	152263	79232	319
DMU 3	96464	13519	2830
DMU 4	37485	5253	171
DMU 5	150664	36777	538
DMU 6	119247	10514	332
DMU 7	1066166	168349	45089
DMU 8	18891	35060	854
DMU 9	540384	59539	5986
DMU 10	133422	6414	839
DMU 11	25711	4238	211
DMU 12	947957	464196	4002

Source: Compiled by the researchers

Size of the total assets is considered as a significant factor affecting the operational efficiency of firms in the Fintech sector and hence total assets were used as input for this study. Total revenue of firms which is an indication of how well the assets are used to generate revenue in the midst of the market anomalies was loaded as output 1. Earnings Before Interest and Taxes (EBIT) which reflects the viability of business were loaded as output 2. The values of input and output 1 & 2 are presented in Table 3. The initial analysis was done by using Constant Returns to Scale (CRS).

**Table 3. Input Oriented CRS Efficiency**

DMU No.	DMU Name	Input-Oriented CRS Efficiency	Sum of lambdas	RTS	Optimal Lambdas with Benchmarks	
1	DMU 1	0.130	1.528	Decreasing	1.528	DMU 8
2	DMU 2	0.280	2.260	Decreasing	2.260	DMU 8
3	DMU 3	0.648	3.314	Decreasing	3.314	DMU 8
4	DMU 4	0.100	0.200	Increasing	0.200	DMU 8
5	DMU 5	0.131	1.049	Decreasing	1.049	DMU 8
6	DMU 6	0.061	0.389	Increasing	0.389	DMU 8
7	DMU 7	0.935	52.797	Decreasing	52.797	DMU 8

DMU No.	DMU Name	Input-Oriented CRS Efficiency	Sum of lambdas	RTS	Optimal Lambdas with Benchmarks	
8	DMU 8	1.000	1.000	Constant	1.000	DMU 8
9	DMU 9	0.245	7.009	Decreasing	7.009	DMU 8
10	DMU 10	0.139	0.982	Increasing	0.982	DMU 8
11	DMU 11	0.181	0.247	Increasing	0.247	DMU 8
12	DMU 12	0.263	13.240	Decreasing	13.240	DMU 8

Source: Computed by the researchers

The average efficiency score of DMUs in the sample based on the input-oriented CRS approach is just 34 percent. This figure indicates that the average inputs could be well reduced by 66 percent and the DMUs can still achieve the same output. This result invites serious doubt regarding the operational viability of the Fintech business models. Moreover, as per the results (Table 4), only one DMU i.e., DMU 8 has an efficiency score of 1, and all other units selected for this study are characterized as inefficient. The sum of lambda values is greater than one, indicating that the DMUs are located inside the inefficiency region. Seven DMUs are operating under decreasing return to scale which means that any percentage change in input in these units will be translated into a change in output only at a lower rate.

The optimal lambda indicates the level of reduction of inputs needed in the inefficient sample units to convert themselves into efficient ones. The lambda score reflects the size of the actual reduction needed in the sample units. For example, in the case of DMU 1, the total investment in assets should be reduced to ₹.28868 instead of the present investment of ₹.220434 ( $220434 * 0.13096$ ) for becoming an efficient unit as per the DEA model. If the average investment made by all units under the study is considered, the present level of output can be brought in by an average investment of ₹.1,32,263 instead of the actual average investment of ₹. 2,92,424. This specifies the need for bringing structural changes among the units under study to ensure optimal utilization of available resources.

**Table 4. Output/ Input Efficiency**

DMU Name	Revenue/Total Assets	EBIT/Total Assets
DMU 1	0.150	0.005
DMU 2	0.520	0.002
DMU 3	0.140	0.029
DMU 4	0.140	0.004
DMU 5	0.244	0.003
DMU 6	0.088	0.002
DMU 7	0.157	0.042
DMU 8	1.855	0.045
DMU 9	0.110	0.011



DMU Name	Revenue/Total Assets	EBIT/Total Assets
DMU 10	0.048	0.006
DMU 11	0.164	0.008
DMU 12	0.489	0.004

Source: Computed by the researchers

DMU 8 being identified as the efficient unit under the DEA model is justifiable by looking at the results exhibited in the table 5. The unit excels in both the ratios i.e., in revenue/total assets (1.8559) and in EBIT/total assets (0.0452) among the selected Fintech companies. However, there is scope for improvement with respect to the operating margin (in the case of EBIT) of DMU 8 as there is a wide gap between total revenue earned and EBIT. On further analysis, it can be understood that DMU 7 also exhibits good results among the peer group with respect to the operating margin as the value is 0.0423. It may be important to mention that the operating margin of most of the units is very low when they are compared with the global standards.

**Table 5. Input-oriented VRS Efficiency**

DMU No.	DMU	Input-Oriented VRS efficiency	Optimal Lambdas with benchmarks					
1	DMU 1	0.134	0.010	DMU 7	0.990	DMU 8		
2	DMU 2	0.752	0.897	DMU 8	0.103	DMU 12		
3	DMU 3	0.680	0.045	DMU 7	0.955	DMU 8		
4	DMU 4	0.503	1.000	DMU 8				
5	DMU 5	0.150	0.996	DMU 8	0.004	DMU 12		
6	DMU 6	0.158	1.000	DMU 8				
7	DMU 7	1.000	1.000	DMU 7				
8	DMU 8	1.000	1.000	DMU 8				
9	DMU 9	0.293	0.114	DMU 7	0.864	DMU 8	0.021	DMU 12
10	DMU 10	0.141	1.000	DMU 8				
11	DMU 11	0.734	1.000	DMU 8				
12	DMU 12	1.000	1.000	DMU 12				

Source: Computed by the researchers

The size of total assets invested by DMUs included as a sample differs greatly. So Variable Returns to Scale (VRS) model was also applied to capture the scale effect. The efficiency scores using the VRS method (table 5) identify two more DMUs were identified as efficient. After computing the efficiency scores using CRS and VRS method, the scale effect was computed using the scale efficiency score,  $SE = CRS/VRS$ . The SE score will be a value lying between zero and one indicating how well the firm operates in different situations. The average CRS efficiency score was 34.3 percent, and the

corresponding VRS efficiency score was 54.5 percent (table 6). It can be observed that almost 60 percent of the units are operating below 50 percent score, with respect to CRS efficiency and VRS the model doesn't improve the efficiency scores considerably for the majority of them. Thus, it can be assumed that scale differences are not a core issue for the units in this study and poor efficiency is due to many other factors that are inherent with the business environment/ in the business model itself.

**Table 6. Scale Efficiency**

DMU	CRS	VRS	Scale efficiency (CRS/VRS)
DMU 1	0.130	0.134	0.976
DMU 2	0.280	0.752	0.372
DMU 3	0.648	0.680	0.953
DMU 4	0.100	0.503	0.200
DMU 5	0.131	0.150	0.876
DMU 6	0.061	0.158	0.388
DMU 7	0.935	1.000	0.935
DMU 8	1.000	1.000	1.000
DMU 9	0.245	0.293	0.834
DMU 10	0.139	0.141	0.982
DMU 11	0.181	0.734	0.247
DMU 12	0.263	1.000	0.263

Source: Computed by the researchers

DEA is often regarded as a tool for assessing the sustainability of the units under study. Along with this analysis, the stakeholder perspectives were also brought into the study by the conduct of ROTA (Return on Total Assets) and ROE (Return on Equity) analysis. By conducting this analysis, the long-term impact of the units on the economy, society, and the environment can be understood in a precise way. The ROTA is considered as a broader view of the profitability of the companies and ROE is a narrow view that primarily looks at shareholder's benefits. The results of this analysis are presented in table 8&9 respectively. Furthermore, the results of ROTA and ROE are compared with the DEA CRS efficiency score by undertaking a ranking method (table 10). This is done with the objective of understanding the differences in the performance evaluation based on these three methods. Revenues and operating incomes are the output variables used in the DEA model. These two variables are directly related to the main input variable i.e. total capital invested in assets. EBIT as a performance measure indicates the economic contribution made by the firm to its various stakeholders like government, public, suppliers, customers,etc. in the form of various payments and services. Societal wellbeing is considered an important goal of a business as part of its ethical responsibility towards the society in which it exists.

**Table 7. Return on Total Assets (ROTA)**

DMU	EBIT	Total Assets	ROTA= EBIT/Total Assets
DMU 1	1305	220434	0.005
DMU 2	319	152263	0.002
DMU 3	2830	96464	0.029
DMU 4	171	37485	0.004
DMU 5	538	150664	0.003
DMU 6	332	119247	0.002
DMU 7	45089	1066166	0.042
DMU 8	854	18891	0.045
DMU 9	5986	540384	0.011
DMU 10	839	133422	0.006
DMU 11	211	25711	0.008
DMU 12	4002	947957	0.004

Source: Computed by the researchers

**Table 8. Return on Equity (ROE)**

DMU	Equity Capital	Net Income	ROE= Net Income/Equity Capital
DMU 1	102428	304	0.003
DMU 2	89308	-3759	-0.042
DMU 3	31865	2104	0.066
DMU 4	24201	183	0.007
DMU 5	38047	-622	-0.016
DMU 6	92152	1952	0.021
DMU 7	266908	30017	0.112
DMU 8	16703	894	0.053
DMU 9	263535	3848	0.014
DMU 10	58716	768	0.013
DMU 11	8558	146	0.0171
DMU 12	698451	2226	0.0032

Source: Computed by the researchers

**Table 9. Ranking of Performance under DEA, ROTA, ROE**

DMU	DEA-CRS	Ranking	ROTA	Ranking	ROE	Ranking
DMU 1	0.130	10	0.005	7	0.0030	10
DMU 2	0.280	4	0.002	12	-0.042	12
DMU 3	0.648	3	0.029	3	0.066	2
DMU 4	0.100	11	0.004	8	0.007	8
DMU 5	0.131	9	0.003	10	-0.016	11
DMU 6	0.061	12	0.002	11	0.021	4
DMU 7	0.935	2	0.042	2	0.112	1
DMU 8	1.000	1	0.045	1	0.053	3
DMU 9	0.245	6	0.011	4	0.014	6
DMU 10	0.139	8	0.006	6	0.013	7
DMU 11	0.181	7	0.008	5	0.017	5
DMU 12	0.263	5	0.004	9	0.003	9

Source: Computed by the researchers

The comparison of business units based on their performance through three different methods derives the following results:

The DMU 8 was identified as an efficient unit as per DEA CRS and VRS model and ranks one in the ROTA scoring also. However, the unit is ranked as third under ROE evaluation. This diverse score can be explained because when more attention is paid to the profitability component rather than to efficient use of available resources, the score of DMU 8 went to a lower position. DMU 7 which was not identified as an efficient unit under the DEA CRS method got to the number one position in ranking based on ROE. However, for a company to have sustainable growth in the economy, it must ensure that there is optimal utilization of the available resources and mere concentration on ROE is a narrow approach for performance evaluation.

**Table 10. Detailed Evaluation of Factors Leading to Inefficient Performance (₹.in Lakhs)**

Business Vertical	Average Revenue from Operations	Average Total Revenue	Average Expenses	Operating Expense Ratio	Average Financial Assets created	Average Financial Liabilities Accumulated	Current Ratio
Lending	18003.75	18211.50	17707.25	0.97	121332.30	82859.25	1.46
Lending	5435.75	5445.75	3728.75	0.68	35380.75	24232.50	1.46
Lending	1387.75	1780.25	2420.75	<b>1.36</b>	18668.25	205.75	<b>90.73</b>
Lending	22516.50	22824	24085.75	<b>1.06</b>	91972.25	66694.75	1.38
Lending	96421.00	96500.50	64319.25	0.67	606000.00	458500.00	1.32
Lending	1854.25	1970.25	1871.00	0.95	5039.25	5575.00	0.90

*Table 10 continued on next page*

Table 10 continued

Business Vertical	Average Revenue from Operations	Average Total Revenue	Average Expenses	Operating Expense Ratio	Average Financial Assets created	Average Financial Liabilities Accumulated	Current Ratio
Lending	97093.50	99443.25	94816.75	0.95	59692.75	5982.50	9.98
Payment	3874.25	4013.25	5109.75	<b>1.27</b>	47969.75	346.00	<b>138.64</b>
Payment	3815.00	4156.75	3521.00	0.85	50384.00	8019.75	6.28
Payment	22274.75	22851.25	22893.50	1.00	1291.50	4866.00	0.27
Payment	24504.75	25637.00	21383.75	0.83	315601.00	195018.30	1.62
Payment	228675.00	247085.30	443150.00	<b>1.79</b>	497850.00	121350.00	<b>4.10</b>

Source: Computed by the researchers

The researchers had further analysed the primary reasons for the inefficient performance by the selected units. As exhibited in table 10, the majority of the units were either in loss or making bare enough return to cover their operating expenses during the period under study. All of the units had tried to gain revenue from other sources like enabling different kinds of third-party services and through certain customized services which accounts for 5.13 percent of the total revenue. Due to insufficient profit, short-term borrowings at higher rates of interest are a major source of lending which constitutes around 68 percent of current liabilities of lending firms. Hence, finance cost which varies between 30 percent to 56 percent between companies with an average of 36 percent is the major component of the operating cost of lending firms. It is also observed that Fintech companies in payment verticals are less homogeneous in their operating cost. Though their finance cost is lower (2.25% of operating cost), the other operating cost varies within a range of 14 percent to 79 percent between companies with an average cost of 62 percent and employee expenses (average 21 percent of operating cost) which ranges between 8.64 percent to 33.80 percent are major constituents of operating cost of payment companies.

The current ratio also does not exhibit a sound condition. The current ratio of DMU3 and DMU8 is excessively higher which indicates current assets are kept idle while the current ratio of the other 6 DMUs are below 1.5, an indication of liquidity risks due to the stretched-out payment cycle they had given to the existing customers. Building public confidence in their revenue models and mitigating the credit risk due to the mismatch in asset-liability management is the greater challenge in attracting new equity capital. Certain companies have recently gone with the issue of their shares at a price lower than their initial offer price. For instance, One 97 Communications (DMU 12) whose issue price was ₹.2150, made the allotment at ₹.1333 and FINO PayTech (DMU 10) was forced to fix the allotment price to ₹.397 as against the initial offer price of ₹.577. So, the Fintech companies in India should adopt best practices around the management of credit & liquidity risk and internal controls for improving their efficiency levels.

### Policy Implications and Suggestions

Higher operating costs and under-utilization of assets are the primary reasons for the inefficiency of selected Fintech units under study. Scaling up of operation can cover up the operating cost and can also justify the investment in asset for which the following policy initiatives are suggested:

- At present, non-banking players are not part of the *National Payments Corporation of India* (NPCI) and hence their access to payment infrastructure like Aadhaar Enabled Payment System

(AEPS) is limited. RBI should take necessary steps to put an end to this discrimination which in turn will enhance competition and innovation.

- Government should promote the services of drone and remote sensing technology offered by Fintech companies. This will not only boost the Fintech sector but also will benefit insurance companies and lenders of agri-sector to assess discrepancies in cropping patterns and crop cutting experiment processes, enabling more efficient delivery of both credit and insurance products and reduce credit/insurance risks.
- Public sector commercial banks may be prompted to avail the services of Fintech firms to enhance credit scoring, follow up of repayments, predictive analytics, etc., so as to enable reduction of their Non-Performing Assets (NPAs).
- The Small Savings Products (presently operated through 1,54,000 Post Offices and nearly 8,000 branches of the Nationalized Banks) are neither accessible online nor available in demat form. This can be brought under demat form to be operated by Fintech firms.
- Cooperating with the traditional financial institutions rather than competing is another strategy to enhance the market share of Fintech firms. This collaboration will help share the infrastructure and customer base of existing banks while new Fintech can supplement technologies like big data/AI/ML and blockchain.
- For enhancing the accessibility of financial platforms using Fintech, designing suitable financial products that cater to specific needs of the financially excluded population and digital onboarding are important. It is a requisite to ensure multi-lingual financial literacy and robust grievance redressal mechanisms to effectively handle inter-regional disparities and to offer online dispute resolutions.
- The issue of lack of confidence of people in using online Apps can be addressed by encouraging Fintech firms specializing in cyber security and fraud control to set up their businesses in India.
- The regulatory landscape of the Fintech sector, to a great extent, is fragmented, and companies must adhere to multiple laws. Instead, a single set of regulatory frameworks focusing on the entity rather than the activity would be easier for compliance.

### **Scope for Further Research**

The present research evaluated the sustainability of present business models of Fintech companies in India operating in lending and payment verticals only. Future researchers can extend this research to other business verticals also to understand the differences that may exist in the Fintech business models under different verticals. Researchers had found that there is more heterogeneity among the selected Fintech companies in their operational practices. So future researchers can conduct an in-depth analysis of the operational modalities of these companies to arrive at suitable conclusions regarding sustainable business models for the Indian Fintech Sector.

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## APPENDIX

### List of Sample Companies

Name of Fintech	DMU Number	Area of operation	Year of Establishment
Incred Finance	1	Lending	2017
IntellectDesign Arena Ltd. (Formerly known as FinTechGrid Limited)	2	Payments	2011
Oxyzo Financial Services	3	Lending	2016
Niyogin Fintech (Formerly named as Global Finance Limited)	4	Lending	2005
Neo Growth	5	Lending	2013
U GRO Capital	6	Lending	2016
Credit Access Grameen	7	Lending	2007
Electronic Payment and Services	8	Payments	2011
Infibeam Avenues	9	Payments	2010
FINO PayTech	10	Payments	2006
Shiksha Financial	11	Lending	2014
One 97 Communications	12	Payments	2000

Source: Websites of respective companies