

Review Article

A STUDY ON ROLE OF FIN- TECH IN BANKING SERVICES: OPPORTUNITIES AND CHALLENGES

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Abstract

Fin- tech is one of the fastest-growing areas for banking services. It is simply termed as financial technology in which computer programs and other technology is used to support banking as well as financial services. According to many studies Fin- tech Adoption Index, one-third of consumers utilizes at least two or more fin- tech services and those consumers are also increasingly aware of fin- tech as a part of their daily lives. Entry of Fin- Tech firms in the banking industry has compelled banks to look for new offerings by creating the best environment for innovation with the help of Fin- Techs, considering them as a partner rather than a competitor. Initially, the term was applied to technology which is applied to the back-end of established consumer and trade financial institutions. At the end of the first decade of the 21st century, the term has extended to incorporate any technological innovation in the financial sector, with innovations in financial literacy and education, retail banking, investment and even cryptocurrencies. The objective of the study is to analyze the role played by fin- tech in banking services and the opportunities which are serving banking services and the challenges faced by banking sector. Descriptive type of research is used for the study. Secondary as well as primary data has been gathered for the study. The sources for the data are through the websites of the fin- tech companies and banks. The study briefly explains the role played by fin- tech in banks overall development. This helps banks to overcome the situations and sustain to the changes in the market. The study describes the opportunities for banking sector and clearly explains the problems faced by banking sector. The study analyzes the basic terms, objectives of research, assumptions and limitations.

Key Words: Fin- tech, Banking services, Role, Opportunities, Challenges.

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INTRODUCTION:

Fin- tech refers to the use of technology to recover the financial services that have been usually provided by banks. The study is relatively vast and involves a lot of concepts and technologies' like block chain, peer to peer lending, voice recognition, digipay etc. Fin- tech rose from the incapability and unwillingness of banks to use the finest technological advancements in their business⁹.

The era or the evolution of fin- tech has been started in 1866. Almost two-thirds of customers across the globe are already using Fin- Tech products or services. Nearly 80% of bank customers are having a good experience with the services provided by fin- techs².

Banking services has gone through computerization by which a lot of changes are being observed. There is difference in the banking services before fin- tech and after fin- tech³.

REVIEW OF LITRATURE:

Basel Committee on Banking Supervision (2018) the study explained the implications of fin- tech developments for banks and even for bank supervisors. The implications and considerations were briefly discussed. These considerations maybe further used for determining follow up actions. It is further used for monitoring risks associated with changing technologies and innovative business models. The study outlined the fin- tech developments and forward- looking scenarios. A survey was conducted to identify the significant fin- tech products and services surrounded by their jurisdictions and the key providers of fin- tech activity. The different sectors of innovative services like credit deposit and capital raising services, Payments clearance and settlement services and investment management services were analyzed in the study. The hype cycle was formulated for representing the maturity and adoption of technologies and applications. An attempt is made in listing out the risks and opportunities emerged from fin- tech and their innovations.

Prof Douglas W. Arner (2016) Author outlined the study covering the background and evolution of fin- tech and elaborated his study on Reg- tech and their implications. In the evolution he discussed about the era, geography, key elements and shift origin. Fin- tech companies were classified based on banks, IT companies and start ups. He explained the difference between mobile and bank penetration. Author outlined about the recent approaches in Asia. Financial innovation driven by technology is preferably overseen in the context of a twin peaks/ functional model such as in U K and

Australia. This is particularly related in jurisdictions that have a more a sectoral approach. Products based approach in U S, China, and Hongkong.

Mario Bergara and Jorge Ponce (2017) Author made a descriptive study about the application of technological innovation to finance. He studied whether these innovations are disrupting the financial intermediation. Author analyzed the effects on financial markets efficiency and its competition and organization of transaction and risks. Author evaluated the disruption and revolution of financial intermediation. The efficiency and competition of an industrial organization have been examined. An attempt is made in analyzing the transaction cost which resulted in contractual risk. The challenges and opportunities faced by fin- tech and few risks and the regulations to be followed and supervision were analyzed. Author concluded the study analyzing the potential impact of fin- tech on banking and financial markets and the regulation based on conceptual fundamentals about the rationale for the existence of financial intermediaries. Fin- tech posses many challenges to the regulation and supervision of financial systems. It also represents the opportunities for gaining efficiency on these activities.

Peterson Kitakogelu Ozili (Jan 2018)

Author discussed about few issues which are related to digital finance. The concepts and benefits of digital finance and financial inclusion to different users have been analyzed. Many issues which are related to digital finance are verified and

suggested for the betterment of country level projects in developing and emerging economies. Analysis has been done on the concepts and benefits of financial inclusion. The concepts and benefits of fin- tech providers are also discussed. Author explained the framework to illustrate the role of government, fin- tech and banks in digital finance and financial inclusion. There are many challenges which are being faced by fin- tech; a few of them were analyzed. Author concluded the After studying various research papers and articles, besides the above mentioned, the following important observations with regard to Fin- tech can be made:

OBJECTIVES OF THE STUDY:

1. To study the opportunities which are serving banking services.
2. To analyze the role played by fin- tech in banking services.
3. To study the challenges faced by banking services.
4. To analyze the future opportunities and challenges in banking sector.

SCOPE OF THE STUDY:

The study covers the banking services only. It used only few statistical tools. The study analyzed the role of Fin- tech in providing and enhancing services to banks. The study covered only the opportunities and challenges.

RESEARCH METHODOLOGY:

Descriptive as well as Analytical type of research is used for analyzing the objective of the study.

- Analytical research represents the investigative and organized study using the facts which are already available to come to a conclusion.
- Descriptive research represents expressive and graphical representation of the data for analyzing and representing the result for the study.

DATA COLLECTION:

Tools and Techniques:

1. Mann- Whitney U test
2. Rank co- relation

Primary data: Personal interactions with the management of banks and fin- tech companies.

Secondary data: Data from websites, journals, books, annual reports are used for the study.

HYPOTHESIS:

1. **H0:** There is no significant influence of fin-tech on opportunities in banking services.
H1: There is significant influence of fin-tech on opportunities in banking services.
2. **H0:** There is no significant difference in the role, before and after fin- tech in banking services
H1: There is significant difference in the role, before and after fin- tech in banking services
3. **H0:** There is no significant difference in challenges faced due to Fin- tech in banking services
H1: There is significant difference in challenges faced due to Fin- tech in banking services

Role of fin-tech in banking services^{11:}

Fin- tech plays a prominent role in rendering services to banks. A few of them are discussed under.

1. Online shopping
2. Foreign currency exchange
3. Stock investments
4. Money transfers

Benefits from Collaboration with Fin- Techs^{10:} There are many benefits from fin- tech for banking sector to perform their activities accurately and easily.

1. Customers are experiencing an increased wide range of services.
2. Fin- tech provides an environment which helps for further innovations¹.

study analyzing the pros and cons of digital finance. He also concluded that digital finance through fin- tech providers have positive effect for financial inclusion in emerging and advanced economies and the convenience that digital finance provides individuals with low and variable incomes which was always more valuable to them than the higher cost they will pay to obtain such services from convenient regulatory banks.

- There is a massive decrease in the cost of operations.
- Gathering improved insights from the data.
- Rendering personalized services to the customers.
- Saving the time of customers
- Improving compliance
- Reducing exposure to risks
- Offering a better client experience

Opportunities serving banking sector with fin- tech^{7,8:}

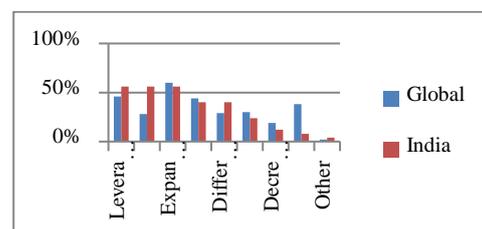
- Banking sector has undergone many changes in recent years. There are both strengths and weakness. One main reason is implementation of fin- tech in banking sector
- Fin- tech provides a source for innovations.
- Quickness in rendering services
- Reduced costs
- Opportunity to generate new revenues.
- Leverage existing data analytics
- Improve customer relation
- Expand products and services
- Increase customer stand
- Differentiate
- Reduce costs
- Decrease IT costs
- Respond to competition faster

MATERIAL AND METHOD:

Table 1: Tabular representation of percentage of Fin- Tech opportunities globally and in India

Fin- Tech opportunities in India	Global	India
Leverage existing data analytics	46%	56%
Improve customer relation	28%	56%
Expand products and services	60%	56%
Increase customer base	44%	40%
Differentiate	29%	40%
Reduce costs	30%	24%
Decrease IT costs	19%	12%
Respond to competition faster	38%	3%
Other	2%	4%

Source: Fin- tech trends report India 2017.



Graph 1: Graphical representation of percentage of Fin-Tech opportunities in India

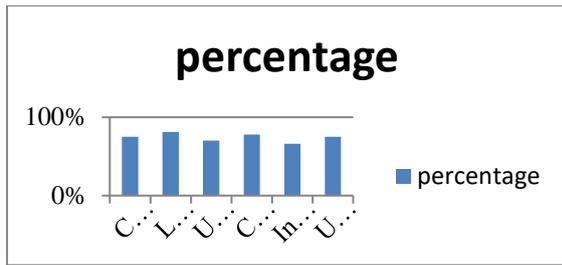
Interpretation:

The graph represents the fin- tech opportunities globally and in India. There are many opportunities for fin- tech in India when compared globally. There is more scope for leverage existing data analytics and improving customer relation by expanding products and services. It is needed to increase customer stand by reducing costs. But India is not able to respond competition faster.

Table 2: Tabular representation of role of fin- tech in banking services

Before fin- tech	Percentage	After fin- tech	Percentage
Controlled by legacy technology	75%	Existing customer base	83%
Lack clear strategic vision	81%	Reputation for trust and stability	81%
Under regulatory force	70%	Experience with regulators	80%
Culture not suitable to rapid change	78%	Full line of banking products	80%
Inability to recruit/retain tech talent	66%	Deep financial pockets	79%
Unwillingness to cannibalize products	75%	Effective risk management programs	80%

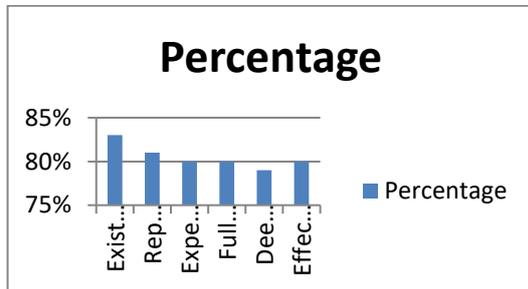
Source: Fin- tech trends report India 2017.



Graph 2: Graphical representation of banking services before fin- tech.

Interpretation:

The graph represents the percentage of role played before fin- tech in banking services. The banks were unable to meet their customer requirements. They failed in recruiting and sustaining their technically talented staff. The culture followed was not suitable to rapid changes in the banking sector.



Graph 3: Graphical representation of banking services after fin- tech.

Interpretation:

The graph represents the percentage of role played after fin- tech in banking services. There are many changes in the reputation, experience and ability to manage risky situations. The availability of banking services and products were in full line.

Challenges faced by banking services due to fin- tech⁸:

The bankers of tomorrow are going to be very tough than the bankers of today. We can previously see this experience in the retail sector. The employees of Amazon are very dissimilar from the employees of Wal-Mart.

Legacy systems: Adopting the old method of gathering information with outdated technology, programming and computer system.

Volume of load increased:

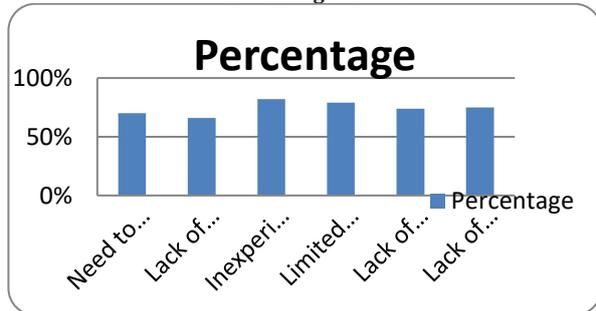
High increase in **cyber risks**: Examples of cyber security risks are Botnets; Distributed denial-of-service (DDoS); Hacking; Malware; Pharming; Phishing; Ransom ware; Spam.

Table 3: Tabular representation of challenges faced due to Fin- tech in banking services

Fin-Tech weaknesses	Percentage	Fin-Tech strengths	Percentage
Need to build customer base	70%	Absence of legacy software systems	80%
Lack of customer trust	66%	Capacity to innovate	79%
Inexperience with regulation	82%	Less regulatory force	79%
Limited line of products	79%	Alertness and speed to market	77%
Lack of capital investment	74%	Technology proficiency	76%
Lack of experience in risk management	75%	Able to improve current products	80%

Source: Fin- tech trends report India 2017.

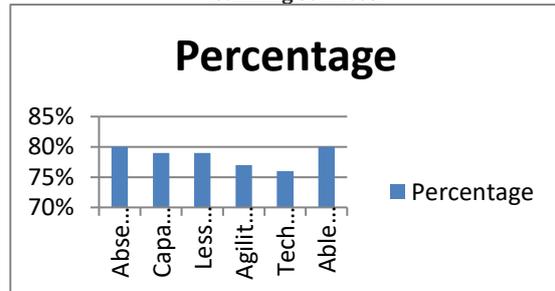
Graph 4: Graphical representation of Fin- tech weakness in banking services.



Interpretation:

The graph represents the challenges faced due to fin- tech in banking services. This concept was briefly explained in weaknesses of fin- tech, where there is a need to put together customer base and customer deficient trust on banking. The line of products were restricted.. There was no experience in handling risky management situations.

Graph 5: Graphical representation of Fin- tech strengths in banking services.



Interpretation:

The graph represents the challenges faced due to fin- tech in banking services and the strengths of fin- tech. This concept was briefly explained in strengths of fin- tech, where there is a scope for innovative capacity. The regulatory pressure was less. The technology expertise was limited to 76%. It was able to improve current products.

Technological trends that will completely change our banking experience⁴:

Blockchain ; Gamification; Nudge theory; Robo advising; Voice processing; Biometrics; Social integration; Personalization; Big data; Open API and clouds.

Challenges for both Banks and Fin- Tech Companies in rising Markets⁵:

1. Low levels of formal financial services (cash dominance in transactions, informal credit and savings)

2. Lower income and financial literacy levels (low value transactions, smaller fees, need for user education)
3. Underdeveloped technology and venture capital ecosystems (shortage of skilled tech/finance entrepreneurs, small markets, limited revenue potential)
4. Relatively weak infrastructure (underdeveloped payment systems, customer credit data, legal enforcement mechanisms for payment obligations, power, Telco/Internet coverage).

Changes due to Fin- Tech in Banking sector in future⁶:

1. **Real time payments or online payments:** Real-time payments will completely progress our customer's capability in managing their cashflow and account balances
2. **Artificial intelligence:** It helps to find the finest payment schedules, recommend consumers new products, develop existing products, increase operational effectiveness of business processes and track new discoveries that offer innovative business opportunities.
3. **Industry 4.0:** there is a pattern shift in the way information technology systems will be built and run in the future.

Technology is the great equalizer: Technology is the vast equalizer for small firms challenging with the behemoths in their market.

Deeper and better data capture: A more consistent client on boarding process across the whole firm which includes deeper and better data capture about the client so that there will be additional planning process.

Blockchain

Rebundling into one: All parts of the fin- tech/finance setting into one product to help consumers across their whole life will completely be a strong development.

Robo advisors

DATA ANALYSIS:

Hypothesis 1:

Applying Mann- Whitney U test for the two variables Global and India with a level of significance at 0.05 is 1.96, and the calculated value is -0.045. (Absolute value is 0.045)

Applying Rank co- relation $r_s=0.568$; It represents r is highly positive correlated.

Since calculated value is less than the table value, null hypothesis is accepted and alternative hypothesis is rejected and we may conclude that there is no significant influence of fin- tech on opportunities in banking services. Even though there are opportunities for banking sector from fin- tech, fin- tech is considered as a competitor for banking sector.

Hypothesis 2:

Applying Mann- Whitney U test for the two variables showing the banking services before and after fin- tech with a level of significance at 0.05 is 1.96, and the calculated value is -2.16. (Absolute value is 2.16)

Applying Rank co- relation $r_s=0.5$; It represents r is highly positive correlated.

Since calculated value is more than the table value, null hypothesis is rejected and the alternate hypothesis is accepted. We may conclude that there is significant difference in the role, before and after fin- tech in banking services

Hypothesis 3:

Applying Mann- Whitney U test for the two variables showing the challenges faced due to Fin- tech in banking services with a level of significance at 0.05 is 1.96, and the calculated value is -1.44. (Absolute value is 1.44)

Applying Rank co- relation $r_s=-0.2$; It represents r is highly negative correlated.

The calculated value is less than the table value, so null hypothesis is accepted and alternative hypothesis is rejected and we may conclude that there is difference in challenges faced due to Fin- tech in banking services. When comparing the challenges the fin- tech strengths are more than the fin- tech weaknesses.

LIMITATIONS OF THE STUDY:

1. The study has been limited to analyzing the role of fin- tech in banking services.
2. Only the opportunities and challenges due to fin- tech were analyzed.
3. Two statistical tools were used for the study.
4. Mann Whitney and Rank Co- relation were used.
5. Secondary data was used for analyzing the study.

Findings:

1. There are many opportunities for fin- tech in banking services.
2. There are many changes in banking sector after fin- tech than before fin- tech.
3. Banking sector is facing many challenges due to fin- tech.
4. There are opportunities as well as challenges which are being faced by banking services.

Suggestions:

1. Firstly banks should know their customer and retain them.
2. Banks need to update themselves with the latest technology that customers expect.
3. They need to promote confidence to the customers.
4. Banks should always be ready to face any challenges.
5. Know about themselves and their reputation in the public.
6. New challenges are ready to be face depending upon safety and privacy of data and information.

CONCLUSIONS:

This article provides a discussion on financial technology in banking services. The role played by fin- tech and the opportunities and challenges underlying it. Fin- tech providers have positive effect on banking sector. There is much advancement in the services provided by banks. Customers are more satisfied when compared with opportunities before fin- tech. Despite the opportunities and challenges this study highlighted the future opportunities and challenges to both banks due to fin- tech.

Ethical clearance: The study is a part of regular thesis

Source of funding: The first author is enrolled in PhD programme at the K.L.U. Business School, K L E F (Deemed to be University)

Conflict of interest: Nil

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ANNEXURE: Calculation of Mann Whitney U test:

The value of Mann Whitney U statistical for each group is calculated as:

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

$$U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2$$

Mean E (U)= $n_1 n_2 / 2$

Standard deviation= $\sqrt{n_1 n_2 (n_1 + n_2 + 1) / 12}$;

Formula: Z test= U-E (U)/SD

Hypothesis 1:

Sample 1	Rank	Sample 2	Rank
46	14	56	16
28	7	56	16
60	18	56	16
44	13	40	11.5
29	8	40	11.5
30	9	24	6
19	5	12	4
38	10	8	3
2	1	4	2
	R ₁ =85		R ₂ =86

Applying the formulas we get U₁=41 and U₂=40

Lower value U=U₂=40

Now applying the values in Z we get Zcal Val as -0.045.

Hypothesis 2:

Sample 1	Rank	Sample 2	Rank
75	3.5	83	12
81	10.5	81	10.5
70	2	80	8
78	5	80	8
66	1	79	6
75	3.5	80	8
	R ₁ =25.5		R ₂ =52.5

Applying the formulas we get U₁=31.5 and U₂=4.5

Lower value U=U₂=4.5

Now applying the values in Z we get Zcal Val as -2.16.

Hypothesis 3:

Sample 1	Rank	Sample 2	Rank
70	2	80	10.5
66	1	79	8
82	12	79	8
79	8	77	6
74	3	76	5
75	4	80	10.5
	R ₁ =30		R ₂ =48

Applying the formulas we get U₁=27 and U₂=9

Lower value U=U₂=9

Now applying the values in Z we get Zcal Val as 1.44.

Calculation of Rank co- relation:

When ranks are repeated the formula is

$$r_s = 1 - 6 \frac{[\sum d^2 + \{m(m^2-1)/12\} + \{m(m^2-1)/12\}]}{n(n^2-1)}$$

Where m is number of times a number is repeated.

Hypothesis 1:

X	R ₁	Y	R ₂	d=R ₁ -R ₂	d ²
46	8	56	8	0	0
28	3	56	8	-5	25
60	9	56	8	1	1
44	7	40	5.5	1.5	2.25
29	4	40	5.5	-1.5	2.25
30	5	24	4	1	1
19	2	12	3	-1	1
38	6	8	2	4	16
2	1	4	1	0	0
					∑d ² =48.5

Applying the formulas we get r_s=0.568

Hypothesis 2:

X	R ₁	Y	R ₂	d=R ₁ -R ₂	d ²
75	3.5	83	6	-2.5	6.25
81	6	81	5	1	1
70	2	80	3	-1	1
78	5	80	3	2	4
66	1	79	1	0	0
75	3.5	80	3	0.5	0.25
					∑d ² =12.5

Applying the formulas we get r_s=0.5

Hypothesis 3:

X	R ₁	Y	R ₂	d=R ₁ -R ₂	d ²
70	2	80	5.5	-3.5	12.25
66	1	79	3.5	-2.5	6.25
82	6	79	3.5	2.5	6.25
79	5	77	2	3	9
74	3	76	1	2	4
75	4	80	5.5	-1.5	2.25
					∑d ² =40

Applying the formulas we get r_s=-0.2