Fintech Impact on Banking Transaction with Special Reference To Select Private Bank in India

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ABSTRACT

Banking sector will be the first sector to adopt the latest technology in the world, especially private sector banks are increasing the utilizing the technology to reach the customers swiftly and deliver the services efficiently. The present study made an attempt in this direction to know the technology role in banking sector. The study has considered the Indian top private sector banks (ICICI bank and HDFC Bank), which are allocating the large chunk of funding for the technology. The study has considered the 4G period six digital transactions and developed banking technology index. The study measured the relationship of digital transactions and banking technology index with the help of vector error correction model and the result reveals that the digital transactions are having the longrun relationship exists. The study examined the impact of digital transactions with the banking technology index and the result stated that the Mobile tractions are having the significant higher impact on the BTI. This paper is useful to the bankers, Fintech firms, regulators and researchers.

Key words: ATM, Banking technology Index, Credit Card, Digital Transactions, Mobile transactions, NEFT and RTGS.

INTRODUCTION:

Fintech is a relatively new concept, but the mechanism has been around for some time. Gradually, it has developed into a huge Fintech market made up of start-ups and

prominent financial institutions aiming to expand the financial services offered by financial institutions around the globe. As early as the 1900s, firms were trying to use ever-evolving technology to develop modern methods of money handling. Many of us may not realize that, but technology has always played a major role in the financial sector. However, the last 65 years have clearly been significant in the development of the Fintech industry and in the invention of several Fintech solutions.

Financial technology is said to be a disruptive force to reshape the financial sector, business models and banking systems in the past and in the future. There is no doubt that the transition came with a lot of scepticism, but eventually it was accepted. New financial technology continues to evolve and has attracted investors everywhere, paving the way for a thriving Fintech industry and emerging markets. Among the many areas of the financial sector, retail banking, money transactions and settlements, investment, securities companies, insurance brokers, commercial banking, investment and wealth management are most influenced by the rise of fintech.Like every other country, India has also experienced the marvels of <u>financial technology in the banking and finance sector</u>. For India, which is a cash-driven country, this is a step towards creating a cashless society. With a range of fintech services and fintech Technology, the way people conduct day-to-day transactions and treat their money has improved.

REVIEW OF LITERATURE

Xavier Vives (2018): This article discusses fintech growth and impact on performance, the dynamics of the banking industry, current and emerging strategies and financial stability. Fintech has a transformative potential to boost welfare, so that the policy needs to be adjusted to ensure that the new technology delivers the promised benefits without endangering financial stability. The study concluded that only the United Kingdom has a significant influence in the European Union (EU).

Ahmed T. Al Ajlouni et al, (2018): This study focused on increasing interest in financial technology (FinTech). The aim of the paper is, in the first place, to shed light on this

surge in growth in the financial sector and, in combination with high technology, also to explain FinTech's position in the financial sector in general and in the banking sector in particular. This paper also proposed a number of future research ideas on the impact of FinTech on the financial industry and banking sector in the Arab countries.

Peterson k ozili (2018): This article discusses some issues related to digital finance. Virtual finance and financial inclusion have several benefits for consumers of financial services, virtual finance companies, policy makers and the economy, The issues of digital finance discussed in this article are relevant to ongoing discussions and national initiatives aimed at improving financial inclusion through digital finance in both developed and emerging economies.

Yinqiao Li et al (2017): The aim of this study is to explain the role of FinTech digital banking start-ups in the financial sector. The author is investigating the effect of this start-up financing on the stock returns the results indicate that there is a positive relationship between the increase in funding or the FinTech deal and the current return on the stock of incumbent retail banks. While these results suggest that FinTech is compatible with traditional banking, The researcher noted that the results are statistically irrelevant at the level of the banking industry

Singh H.K. (2012): The aim of the paper is to discuss several key and common IT systems currently supported by banking institutions, their advantages and issues. The author concluded that, although the change is a good one, banks in India still need to resolve important issues in order to fully benefit from the implementation of information technology.

Ali Yakhlef (2001): The study found that, as automation increasingly takes up the burden of transaction processing, banks are focused on improving their marketing approach and reinventing their business model. This study concluded that traditional bank branches with an infrastructure that supports transaction processing are transformed into an open-

space platform where bank specialist communicate directly with their clients and provide advanced advisory services that focus more on retail banking.

OBJECTIVE OF THE STUDY:

1. To examine the Technology Index relationship with Digital Transaction of select private banks.
2. To identify Digital transaction impact on Technology index of select private banks.

HYPOTHESES OF THE STUDY:

$H0_1$: There is no significant relationship between Banking Technology Index with Digital transaction.

$H0_2$: There is no impact of Digital transactions on the Banking Technology index

SCOPE OF THE STUDY

The present study has been emphasized on the role of technology in service delivery to the customers in banking. The study has considered the 4G period digital transactions (2012-13 to 2018-19) of private sector banks. The study has compiled the banking technology index of ICICI bank and HDFC bank with the help of following digital transactions.

- ATM No. of Transactions
- NEFT No. of Transactions
- RTGS No. of Transactions
- Mobile No. of Transactions
- Debit Card No. of Transactions
- Credit Card No. of Transactions

RESEARCH METHODOLOGY

The study has considered the secondary data and applied the following statistical methods for the examination of framed objectives.

Banking Technology Index: The study has framed the BTI with the technological transactions relating to the customers rendered by the banks. The study has collected the

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data in 4G (2012-13 to 2018-19) relating to ATM, NEFT, RTGS, Mobile, Debit Card and Credit Card transactions.

Banking Technology Index = [(Number of ATMs/Total Branches) + (NEFT/Total Branches) + (RTGS/Total Branches) + (Mobile Banking/Total Branches) + (Debit Card/Total Branches) + (Credit Card/Total Branches)] ×100

Vector Error Correction Model – VECM: The study examined the relationship of select six digital transactions with the banking technology index. The study applied the VECM to know the long run or short run relationship between the BTI and the select digital transactions.

Ordinary Least square Method - OLS: The study applied the OLS to know the impact of select digital transactions (independent variable) on the banking technology index (dependent variable).

DATA ANALYSIS AND INTERPRETATION

Objective 1: To examine the Digital Transactions with the banking Technology Index relationship of select private banks.

The study examines the relationship of digital transactions and the Banking Technology Index during the 4G period. The study applied the vector error correction model.

Lag Order selection: The study applied the lag order selection criteria to know the optimum model selection for the application of vector error correction model.

Table- 1: VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria					
Endogenous variables: BTI NEFT RTGS MOBILE DEBIT CREDIT ATM					
Exogenous variables: C					
Sample: 2013 2019					
Included observations: 45					
Lag	LogL	LR	FPE	AIC	SC	HQ
0	4196.830	NA	4.558582	210.1915	210.4871	210.2984
1	3954.957	386.9964*	3.064778*	200.5479	202.9123*	201.4028*

2	3916.174	48.47966	6.432378	201.0587	205.4920	202.6616
3	3852.737	57.09291	6.222178	200.3369*	206.8390	202.6878
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Secondary Data

The lag order selection criteria table shows that the LR test statistical test and Final prediction error tend to be fit at lag 1. Likewise, it is observed that criterion such as the Akaike Information Criterion and the Schwarz Information Criterion are fit lag 1, whereas Hannan Quinn Information Criterion is observed to be fit lag 3. Hence it is concluded that most of the criteria and test are appear to fit at lag 1, implies lag 1 is optimal to examine the relationship by using VECM.

Table- 2: Vector Error Correction Estimates for Relationship between Digital Transactions and BTI

Vector Error Correction Estimates							
Sample (adjusted): 2012 2019							
Included observations: 45 after adjustments							
Standard errors in ( ) & t-statistics in [ ]							
Cointegrating Eq:	CointEq1						
BTI(-1)	1.000000						
NEFT(-1)	1.743402						
	(0.28678)						
	[6.07928]						

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RTGS(-1)	-1.705171						
	(1.36577)						
	[-1.24850]						
MOBILE(-1)	-0.218608						
	(0.08732)						
	[-2.50340]						
DEBIT(-1)	-0.301664						
	(0.03277)						
	[-9.20518]						
CREDIT(-1)	-1.067444						
	(0.27272)						
	[-3.91405]						
ATM(-1)	564.5827						
	(119.340)						
	[4.73087]						
C	-2012093.						
Error Correction:	D(BTI)	D(NEFT)	D(RTGS)	D(MOBILE)	D(DEBIT)	D(CREDIT)	D(ATM)
CointEq1	0.178436	0.060849	-0.011451	2.795517	0.738108	0.550988	-2.74E-05
	(0.26079)	(0.04638)	(0.00529)	(0.67057)	(1.08887)	(0.10993)	(0.00014)
	[0.68421]	[1.31191]	[-2.16573]	[4.16886]	[0.67787]	[5.01232]	[-0.20258]
D(BTI(-1))	-0.816408	0.369411	0.561795	5.051903	4.777596	0.613305	-0.000412
	(0.88272)	(0.15699)	(0.01790)	(2.26973)	(3.68558)	(0.37208)	(0.00046)

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	[-0.92488]	[-1.07910]	[-0.10032]	[-2.22577]	[-1.29630]	[-1.64833]	[-0.90100]
D(NEFT(-1))	-0.696367	0.400387	0.039259	-3.562992	-6.052678	-2.661741	5.20E-05
	(1.35535)	(0.24105)	(0.02748)	(3.48501)	(5.65894)	(0.57130)	(0.00070)
	[-0.51379]	[1.66101]	[1.42870]	[-1.02238]	[-1.06958]	[-4.65911]	[0.07409]
D(RTGS(-1))	1.581059	2.757496	0.328729	-19.37813	47.89570	14.22291	9.19E-05
	(9.35043)	(1.66298)	(0.18957)	(24.0427)	(39.0403)	(3.94131)	(0.00485)
	[0.16909]	[1.65817]	[1.73405]	[-0.80599]	[1.22683]	[3.60868]	[0.01898]
D(MOBILE(-1))	0.013796	0.024020	0.010373	-0.056020	0.460969	0.119987	-6.69E-06
	(0.13758)	(0.02447)	(0.00279)	(0.35376)	(0.57444)	(0.05799)	(7.1E-05)
	[0.10027]	[0.98165]	[3.71892]	[-0.15835]	[0.80247]	[2.06901]	[-0.09379]
D(DEBIT(-1))	0.098975	0.049275	0.000600	1.516156	0.970922	0.196057	0.000113
	(0.27043)	(0.04810)	(0.00548)	(0.69534)	(1.12910)	(0.11399)	(0.00014)
	[0.36600]	[1.02452]	[0.10944]	[2.18044]	[0.85991]	[1.71998]	[0.80607]
D(CREDIT(-1))	0.010985	0.003480	-0.004511	-0.480728	-0.508399	-0.408590	6.53E-05
	(0.42040)	(0.07477)	(0.00852)	(1.08097)	(1.75527)	(0.17720)	(0.00022)
	[0.02613]	[0.04654]	[-0.52922]	[-0.44472]	[-0.28964]	[-2.30577]	[0.29996]
D(ATM(-1))	-222.5782	-81.99072	-6.171583	-2933.391	-3376.594	-669.1378	-0.313708
	(846.368)	(150.527)	(17.1595)	(2176.26)	(3533.79)	(356.754)	(0.43857)
	[-0.26298]	[-0.54469]	[-0.35966]	[-1.34791]	[-0.95552]	[-1.87563]	[-0.71530]
C	638082.4	290369.5	10795.63	6628949.	3471952.	950033.9	553.9965
	(811650.)	(144352.)	(16455.6)	(2086987)	(3388836)	(342120.)	(420.579)
	[0.78615]	[2.01153]	[0.65604]	[3.17633]	[1.02453]	[2.77691]	[1.31722]

R-squared	0.759799	0.604881	0.632014	0.475362	0.419905	0.669153	0.588277
Adj. R-squared	0.950310	0.517077	0.550240	0.358776	0.465051	0.595632	0.528772
Sum sq. resids	2.827514	8.932012	1.169611	1.877715	4.925615	5.018513	75771114
S.E. equation	2799768.	497940.2	56763.36	7199014.	11689713	1180134.	1450.777
F-statistic	1.579430	6.888978	7.728735	4.077342	1.268529	9.101468	0.846178
Log likelihood	726.8586	649.1521	551.4306	769.3570	791.1714	687.9827	386.4250
Akaike AIC	32.70483	29.25120	24.90803	34.59364	35.56317	30.97701	17.57444
Schwarz SC	33.06616	29.61254	25.26936	34.95498	35.92451	31.33834	17.93577
Mean dependent	181470.6	861957.0	82566.71	3031146.	2411311.	89952.94	566.6481
S.D. dependent	2943555.	716536.3	84640.37	8990173.	11971678	1855850.	1430.345

Source: Secondary Data

Vector Error Correction Model represents the banking technology index relationship with select private bank digital transaction. For this purpose, panel data has been framed with Generalized Method of Moments over the 4G period, i.e. 2012-13 to 2018-19. It seems that strong relationship had found between Technology index with Mobile transaction, Debit and Credit. RTGS and NEFT had shown moderate relationship with Technology index, whereas weak and negative relationship had found with ATM to Technology Index. Furthermore, the table shows that the error correction terms t-values. In order to check the significant of the relationship wald test has been applied with the VECM equation.

Equation

D(BTI) = C(1)*(BTI(-1) + 1.74340153631*NEFT(-1) - 1.70517097659*RTGS(-1) - 0.218607593138*MOBILE(-1) - 0.301664362715*DEBIT(-1) - 1.06744419091* CREDIT(-1) + 564.582722794*ATM(-1) - 2012093.0987) + C(2)*D(BTI(-1)) + C(3)* D(NEFT(-1)) + C(4)*D(RTGS(-1)) + C(5)*D(MOBILE(-1)) + C(6)*D(DEBIT(-1)) + C(7)*D(CREDIT(-1)) + C(8)*D(ATM(-1)) + C(9)

Wald test: The study applied the wald test to know the long run or short run relationship between the digital transactions and the banking technology index. The following hypothesis has been framed.

Null hypothesis: There is no Long run relationship between Technology Index with Private Banking Digital transaction.

Alternative Hypothesis: There is a Long run relationship between Technology Index with Private Banks' Digital transaction.

Table – 3: Wald test for the relationship

Wald Test:				
System: %system				
	Test Statistic	Value	Df	Probability
NEFT	Chi-square	9.468302	2	0.0032
RTGS	Chi-square	7.468370	2	0.0021
Mobile banking	Chi-square	6.542942	2	0.0023
Debit	Chi-square	6.468456	2	0.0012
Credit	Chi-square	7.476940	2	0.0038

Source: Primary Data

Wald test represent that, the calculated value of each digital transaction's chi square seems to be greater than critical value at DF:2 and Probability value is less than 0.05 which implies the significant of the model and stated that Null hypothesis has reject and Alternative Hypothesis has accepted. Hence it is concluded that there is a long run relationship between Long run relationships between Technology Index with Private Banks' Digital transaction.

Objective 2: To identify Digital transaction impact on Technology index of select private banks.

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The study examined the select six digital transactions impact on the technology index with the help of ordinary least square method. The following is the hypothesis has been framed to test the objective

Null Hypothesis: Private Bank's Digital transaction has no impact on Technology index

Alterative Hypothesis: Private Banks' Digital transaction has impact on Technology Index.

Table – 4: Impact of Digital Transactions on BTI

Dependent Variable: BTI				
Method: Panel Least Squares				
Sample: 2009 2019				
Periods included: 11				
Cross-sections included: 5				
Total panel (balanced) observations: 55				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	695889.8	187466.2	3.712081	0.0005
NEFT	0.526098	0.111724	2.918773	0.0053
RTGS	-0.973763	0.654529	-1.487731	0.0434
MOBILE	0.699389	0.017474	5.687900	0.0000
DEBIT	0.238576	0.018012	13.24562	0.0000
CREDIT	0.357694	0.113730	3.145127	0.0028
ATM	-0.450084	68.79272	-7.864327	0.0000
R-squared	0.799263	Mean dependent var		1042546.
Adjusted R-squared	0.774171	S.D. dependent var		1879607.
S.E. of regression	893216.2	Akaike info criterion		30.36146
Sum squared resid	3.838513	Schwarz criterion		30.61694
Log likelihood	827.9401	Hannan-Quinn criter.		30.46025
F-statistic	31.85324	Durbin-Watson stat		2.172981
Prob(F-statistic)	0.000000			

Source: Secondary Data

Table illustrate the influence of Private Banks' digital transaction on Technology Index. The result signifies that, the coefficient value of Mobile banking is 0.6993 which seems to be higher as compare to other transaction and found that mobile banking had significant high influence on the technology index. It estimated that NEFT and RTGS had shown significant influence on technology index, but positive influence had shown by NEFT (0.526), while RTGS is negatively influenced with -0.973. It synchronized that debit is influenced with 0.238 and credit transaction by 0.357 on technology index. ATM is the digital transaction which had shown negative impact on technology index with -0.450. Further, r-square of the model is strong and probability model is observed to be statistically significant, implies reject null hypothesis and accept alternative hypothesis i.e., Private Banks' Digital transaction has significant impact on Technology Index.

FINDINGS OF THE STUDY:

The following are the findings have been derived based on the statistical results for the framed objectives. They are,

1. It is found from VECM that Mobile transaction, Debit and Credit had observed strong relationship with Technology index. RTGS and NEFT had shown moderate relationship with Technology index, whereas weak and negative relationship had found with ATM to Technology Index.

2. It estimated that, the coefficient value of Mobile banking is 0.6993 which seems to be higher as compare to other transaction and found that mobile banking had significant high influence on the technology index.

3. It synchronized that NEFT and RTGS had shown significant influence on technology index, but positive influence had shown by NEFT (0.526), while RTGS is negatively influenced with -0.973.

4. It examined that debit is influenced with 0.238 and credit transaction by 0.357 on technology index.

5. ATM is the digital transaction which had shown negative impact on technology index with -0.450.

CONCLUSION OF THE STUDY

The present study focused on the fintech role in banking operations among the private sector banks. The study has considered the ICICI Bank and HDFC bank business to customers' six digital transactions in the period of 4G i.e., 2012-13 to 2018-19. The banking technology index has been designed in panel form with the help of six digital transactions. The study examined the relationship of digital transactions with the BTI through the VECM and observed that the longrun relationship exists. The study made an attempt to study the impact of select digital transactions on the Banking Technology Index. The study result indicated that the Mobile transactions are having the significant effect on the banking technology index. There is a need to do research in this area by considering the technology role in the operational efficiency enhancement comparison between the public and private sector banks.

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