Digitalization Impact on Banking operational Profitability with Reference to Public and Private Sector Banks

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ABSTRACT

The study has been emphasized on the digital banking impact on the operational profitability of the select public and private sector banks. The study has considered the 3G and 4G period. The study has considered the State bank of Indian from the public sector bank and HDFC bank from private sector. The study has considered the secondary data from the period 2012-13 to 2017-18. The Vector error Correction Model has been applied and the found that the long and short run relation has been observed. The ordinary least square method has been applied and found that the impact of the NEFT, RTGS and mobile transaction are having positive influence on the operating profitability. The VAR model predicted that near future the growth of the digital transactions will have positive growth of the profitability of the banks.

Keywords: Banking sector, Digital Transactions, HDFC banks, Mobile Transactions, NEFT, RTGS and SBI.

INTRODUCTION

The IT sector has been one among the hotshots of Indian economy. IT and internet are influencing client contact, service and insight. It's recycled the repetitive and overlapping systems and procedures; it'll facilitate to extend the speed with single pressing key, accuracy and

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potency of conducting business. The exceptional changes in technology and its growing impact on society are inevitable.

Technology a competitive tool has been adopted by the Indian banks. The motivation behind the utilization of IT in banking relates to the ever-increasing expectations of the customers like flexibility, convenience, direction, customization, instant, anytime and anyplace banking facilities. The Indian banks try to become a lot of competitor-oriented during a new liberalized setting. The history shows that foreign banks and new personal sector banks are the most competitors within the Indian banking sector. Within the past decade public sector banks and previous personal sector banks have also improved their technology primarily based services.

The appreciating branch network, mass dealing process, advanced calculations and global operations forced Indian industry for technological adoption and technological initiatives. It's been shifting the Indian banking towards 'virtual banking'. The 'brick and mortar' has been changing as 'click and portal'. Not only banks are gaining the potency resulting in larger potential for higher profitability and subsequent profit to the economy as a full, but also customers.

REVIEW OF LITERATURE

Suresh Chandra Bihar (2011)[1]: In this research paper located the factors affecting the effective implementation of CRM strategies in order to prove this, detailed study on the different factors affecting the revenue and loyalty to some of the mostly used bank products i.e. credit cards, debit cards and internet banking services in New age banks in India. Finally the researcher suggested that banks should do propos market research and find out the target customer segment for different products and implement CRM strategy.

Ramana Reddy N.R.V. (2012)[2]: Examined in this research paper, the technology based financial services to attract the bank customers towards their products and services. E-Commerce practices i.e. online/net banking, computerized financial services are offered by the banks to sustain in the competition between public sector and private, foreign banks. The study emphasized mainly on electronic payment systems, online trading credit / debit card, online payment, electronic funds transfers are the convenient technologies through which the customers are benefitted in the banks.

Nair N. M (2014)[3]: Liberalization and Information technology has attracted many foreign banks to India, thereby opening up new markets, new products and efficient delivery channels for the banking industry. In the development of Indian Economy, Banking sector plays a very important and crucial role. With the use of technology there had been an increase in penetration, productivity and efficiency. It has not only increased the cost effectiveness but also has helped in making small value transactions viable. It also enhances choices, creates new markets, and improves productivity and efficiency. It has been noticed that financial markets have turned into a buyer's markets in India.

Anbalagan G (2017)[4]: The new financial year in India has seen a fuel growth in the banking sector with the development of innovations like Unified Payments Interface (UPI), adoption of cloud technology etc. the Banking challenges of changing needs and customer's insights, new regulations and creating more technological innovations for customers in the banks. Nowadays we have E-Banking system along with currency notes. India's monetary system can create a new instrument along with liquidity and safety. The Indian banking sector where introduced Arrival of the card, introduction of Electronic Clearing Service (ECS) in 1990's, EFT, RTGS, NEF, mobile banking, online banking are the various innovations in banking.

OBJECTIVES OF THE STUDY:

1. To study the digital transactions with the profitability of the select public and private sector banks.
2. To study the impact of digital transactions on the Operational Profitability of the select Public and Private sector banks.

HYPOTHESIS OF THE STUDY:

$H0_1$: There is no relationship of digital transactions with the operating profitability of the banks.

$H0_2$: There is no impact of the digital transactions on the operational profitability of the banks.

SCOPE OF THE STUDY: The study has considered the business to customer digital transactions of the banking segment. The study has considered Public sector banks – SBI and Private sector bank – HDFC digital transactions data of RTGS, NEFT and Mobile Transactions in 3G and 4G period i.e., 2008-09 to 2017-18.

RESEARCH METHODOLOGY: The study has considered the vector error correction model has been applied to know the long run and short run relationship between digital transactions and the operational profitability of SBI and HDFC bank. The ordinary least square method has been applied to know the impact of the digital transactions on the operational profitability of the selected banks.

Tabulation of Data Analysis:

1st Objective: To study the digital transactions with the profitability of the select public and private sector banks

SBI Co Integration Test

Sample (adjusted): 3 32				
Included observations: 27 after adjustments				
Trend assumption: Linear deterministic trend				
Series: MR NEFT RTGS MOB_TRAN				
Lags interval (in first differences): 1 to 1				
Unrestricted Co integration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.843604	112.1247	47.85613	0.0000
At most 1 *	0.566120	62.02979	29.79707	0.0000
At most 2 *	0.538919	39.48511	15.49471	0.0000
At most 3 *	0.497535	18.58219	3.841466	0.0000
Trace test indicates 4 co integrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michel is (1999) p-values				

Source: Complied on secondary data

The above table depicts Johnson co integration test between digital transactions with money in circulation results of trace test indicates that there is 4 co integrating equations at 5% level even max Eigen statistic test indicates that there is 4 co integrating equations at 5% level. Hence the table concluded that there is co integration between digital transactions with money in circulation.

SBI - VECTOR ERROR CORRECTION MODEL

Sample (adjusted): 4 32				
C	-0.285314			
Error Correction:	D(MR)	D(NEFT)	D(RTGS)	D(MOB_TRAN)
CointEq1	-1.399967	0.894892	0.002777	-0.337417
	(0.23300)	(0.23606)	(0.22403)	(0.32167)
	[-6.00838]	[3.79094]	[0.01239]	[-1.04896]
D(MR(-1))	0.025421	-0.617649	-0.640122	-0.022472
	(0.21809)	(0.22096)	(0.20970)	(0.30109)
	[0.11656]	[-2.79533]	[-3.05261]	[-0.07464]
D(MR(-2))	0.019345	-0.095556	-0.294982	0.178243
	(0.14805)	(0.14999)	(0.14235)	(0.20438)
	[0.13067]	[-0.63709]	[-2.07230]	[0.87210]
D(NEFT(-1))	-1.302187	-0.412214	-0.562722	-0.975733
	(0.29232)	(0.29615)	(0.28106)	(0.40356)
	[-4.45470]	[-1.39189]	[-2.00213]	[-2.41784]
D(NEFT(-2))	-0.458039	-0.279568	-0.785367	-0.696528
	(0.23014)	(0.23317)	(0.22128)	(0.31772)
	[-1.99022]	[-1.19901]	[-3.54916]	[-2.19225]
D(RTGS(-1))	0.304773	0.306016	-1.302019	0.243283
	(0.21576)	(0.21860)	(0.20746)	(0.29787)
	[1.41253]	[1.39991]	[-6.27612]	[0.81674]
D(RTGS(-2))	0.317252	0.412447	-0.621423	0.031165
	(0.20523)	(0.20792)	(0.19732)	(0.28332)
	[1.54587]	[1.98368]	[-3.14926]	[0.11000]
D(MOB_TRAN(-1))	1.049460	-1.084099	-0.045744	-1.060091
	(0.24258)	(0.24577)	(0.23324)	(0.33489)
	[4.32620]	[-4.41110]	[-0.19612]	[-3.16545]
D(MOB_TRAN(-2))	0.618090	-0.776493	-0.282664	-0.676566
	(0.19964)	(0.20226)	(0.19195)	(0.27561)

	[3.09605]	[-3.83911]	[-1.47258]	[-2.45481]
C	-0.918359	0.169548	0.591330	0.470955
	(0.73480)	(0.74445)	(0.70651)	(1.01442)
	[-1.24981]	[0.22775]	[0.83698]	[0.46426]
R-squared	0.964674	0.912973	0.955670	0.907673
Adj. R-squared	0.943478	0.860758	0.929072	0.852278
Sum sq. resids	191.0772	196.1262	176.6452	364.1721
S.E. equation	3.569101	3.615948	3.431668	4.927285
F-statistic	45.51254	17.48458	35.92990	16.38521
Log likelihood	-60.89599	-61.22200	-59.91431	-68.95785
Akaike AIC	5.671679	5.697760	5.593144	6.316628
Schwarz SC	6.159229	6.185310	6.080695	6.804178

Source: Complied on secondary data

The above table depict the vector error correction estimation model between money circulation with digital transaction such as NEFT, RTGS, mobile transactions results indicates that in SBI NEFT and RTGS is having positive influence on money circulation with there respective coefficient value as 0.894, 0.0027 where as mobile transaction seems to be having negative influence on money circulation with its coefficient value as -0.337 further adjusted R square for the model is observed to be greater than 0.60 it signifies that vector error correction estimation model is strongly fit.

SBI - Wald test

Test Statistic	Value	Df	Probability
F-statistic	3.301833	(3, 28)	0.0347
Chi-square	9.905500	3	0.0194
Null Hypothesis: C(1)=C(2)=C(3)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value		Std. Err.
C(1)		-0.068550	0.268405
C(2)		-0.022252	0.211941
C(3)		0.582482	0.196390
Restrictions are linear in coefficients.			

Source: Complied on secondary data

The above Wald test illustrate that the relationship between the digital transaction with money in circulation. Probability value for F statistic is observed to be less than 0.05 which signifies that it is statistically significant at 5% level even calculated chi square value is observed to be greater than critical value. Hence it is concluded that null hypothesis has been rejected alternative hypothesis accepted i.e., there is a relationship of digital transaction with money circulation further table states that F statistic (3.30) calculated value is observed to be lies in above the Pesaran critical value (3.25) which signifies that there is a long run relationship between the digital transaction with money in circulation. Hence there

HDFC BANK - Co integration test

Sample (adjusted): 3 32				
Included observations: 30 after adjustments				
Trend assumption: Linear deterministic trend				
Series: MR NEFT RTGS MOB				
Lags interval (in first differences): 1 to 1				
Unrestricted Co integration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigen value	Statistic	Critical Value	Prob.**
None *	0.625474	91.04411	47.85613	0.0000
At most 1 *	0.557116	61.58126	29.79707	0.0000
At most 2 *	0.505667	37.14787	15.49471	0.0000
At most 3 *	0.413578	16.01148	3.841466	0.0001
Trace test indicates 4 co integrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

Source: Complied on secondary data

The above table depicts Johnson co integration test between digital transactions with money in circulation results of trace test indicates that there is 4 co integrating equations at 5% level even max Eigen statistic test indicates that there is 4 co integrating equations at 5% level. Hence the table concluded that there is co-integration between digital transactions with money in circulation.

HDFC BANK - Vector Error Correction Model

C	0.083587			
Error Correction:	D(MR)	D(NEFT)	D(RTGS)	D(MOB)
CointEq1	-1.121690	1.368009	1.057235	0.778723
	(0.25573)	(0.52697)	(0.50431)	(0.44351)
	[-4.38625]	[2.59599]	[2.09642]	[1.75583]
D(MR(-1))	-0.445114	-1.049269	-0.364846	-0.469358
	(0.22918)	(0.47226)	(0.45194)	(0.39746)
	[-1.94223]	[-2.22183]	[-0.80728]	[-1.18090]
D(MR(-2))	-0.157915	-0.083368	-0.232359	-0.225056
	(0.20149)	(0.41520)	(0.39734)	(0.34944)
	[-0.78375]	[-0.20079]	[-0.58479]	[-0.64405]
D(NEFT(-1))	-1.120324	-0.133136	0.878145	0.638285
	(0.20116)	(0.41453)	(0.39670)	(0.34887)
	[-5.56926]	[-0.32117]	[2.21363]	[1.82956]
D(NEFT(-2))	-0.707051	-0.005565	0.458537	0.240160
	(0.13827)	(0.28494)	(0.27268)	(0.23981)
	[-5.11340]	[-0.01953]	[1.68159]	[1.00147]
D(RTGS(-1))	-0.538163	-0.380991	-0.930875	0.127818
	(0.20208)	(0.41642)	(0.39851)	(0.35047)
	[-2.66309]	[-0.91492]	[-2.33587]	[0.36471]
D(RTGS(-2))	-0.367263	-0.020569	-0.353255	0.369119
	(0.17031)	(0.35096)	(0.33587)	(0.29537)
	[-2.15639]	[-0.05861]	[-1.05177]	[1.24967]
D(MOB(-1))	0.589290	0.421749	-0.263731	-1.304067
	(0.23992)	(0.49440)	(0.47313)	(0.41609)
	[2.45618]	[0.85306]	[-0.55741]	[-3.13408]
D(MOB(-2))	0.620447	-0.013864	-0.182932	-0.827316
	(0.21596)	(0.44502)	(0.42588)	(0.37454)
	[2.87296]	[-0.03115]	[-0.42954]	[-2.20889]

C	-0.136226	0.171660	0.073665	0.002389
	(0.56484)	(1.16395)	(1.11389)	(0.97960)
	[-0.24118]	[0.14748]	[0.06613]	[0.00244]
R-squared	0.926422	0.856532	0.881551	0.884187
Adj. R-squared	0.891570	0.788574	0.825443	0.829329
Sum sq. resids	173.9216	738.5273	676.3668	523.1149
S.E. equation	3.025519	6.234569	5.966427	5.247129
F-statistic	26.58120	12.60375	15.71182	16.11758
Log likelihood	-67.12319	-88.09097	-86.81609	-83.09054
Akaike AIC	5.318841	6.764894	6.676972	6.420038
Schwarz SC	5.790322	7.236376	7.148453	6.891519

The above table depict the vector error correction estimation model between money circulation with digital transaction such as NEFT, RTGS, mobile transactions results indicates that in HDFC the NEFT, RTGS and mobile transaction is having positive influence on money circulation with their respective coefficient value as 1.368,1.057,0.778. Further adjusted R square for the model is observed to be greater than 0.60 it signifies that vector error correction estimation model HDFC is strongly fit.

HDFC BANK - Wald test

Test Statistic	Value	Df	Probability
F-statistic	1.867055	(3, 29)	0.0073
Chi-square	5.601165	3	0.0027
Null Hypothesis: C(1)=C(2)=C(3)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value		Std. Err.
C(1)		0.164888	0.125517
C(2)		-0.476130	0.253845
C(3)		0.333920	0.289501
Restrictions are linear in coefficients.			

Source: Complied on secondary data

The above Wald test illustrate that the relationship between the digital transaction with money in circulation probability value for F statistic is observed to be greater than 0.05 which signifies that it is statistically insignificant at 5% level even calculated chi square value is observed to be less than critical value. Hence it is concluded that null hypothesis has been accepted alternative hypothesis is rejected. I.e. there is no relationship of digital transaction with money circulation further table states that F statistic (1.86) calculated value is observed to be lies in above the Pesaran critical value (2.25) which signifies that there is a short run relationship between the digital transactions with money in circulation.

2nd Objective: To study the impact of digital transactions on the Operational Profitability of the select Public and Private sector banks.

The study has considered the ordinary least square method has been applied to measure the impact of the NEFT, RTGS and Mobile Transactions on the SBI and HDFC bank Operating profitability.

**Impact of Digital Transactions on SBI Operational Profitability**

Dependent Variable: OP				
Method: Least Squares				
Sample: 1 32				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NEFT	-0.317281	0.190923	-1.661824	0.0077
RTGS	0.060468	0.150759	0.401093	0.0014
MOB_TRAN	-0.650877	0.139697	-4.659195	0.0001
R-squared	0.518898	Mean dependent var		-0.064516
Adjusted R-squared	0.484533	S.D. dependent var		7.009211
S.E. of regression	5.032334	Akaike info criterion		6.161411
Sum squared resid	709.0828	Schwarz criterion		6.300184
Log likelihood	-92.50186	Hannan-Quinn criter.		6.206647
Durbin-Watson stat	2.019968			

Source: Complied on secondary data

The above table depicts that influence of digital transactions on business profitability of SBI result indicates that probability value for the mobile transaction seems to be significant at 5%

level where as NEFT and RTGS probability value is observed to be above (0.05) this indicates that it is statistically insignificant further coefficient value of mobile transaction (0.65) is observed to be negative (-) that means mobile transactions having negative (-) influence on business profits.

Hence it is concluded there is no impact on digital transactions on business profitability accept mobile transactions i.e. there is an impact of mobile transactions on business profits.
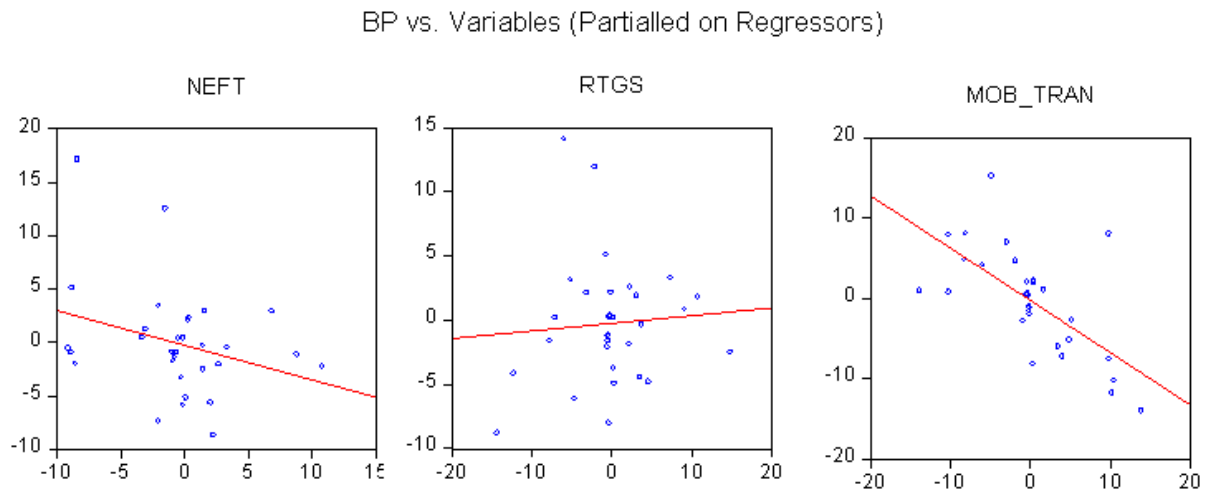
Source: Complied on secondary data

Above Leverage plot reflects the plotted between Digital transaction with Business profitability. In the Above graph digital transaction plotted line shows upwards direction which indicates that NEFT Transaction is pushing business profitability upwards direction whereas RTGS is observed to be stable and mobile transaction is pulling transaction on business profitability.

Impact of Digital Transactions on HDFC Operational Profitability

Dependent Variable: BP				
Method: Least Squares				
Sample: 1 32				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NEFT	0.638203	1.328140	-0.028764	0.0002
RTGS	1.011607	2.686022	-0.376619	0.0082
MOB	0.592234	3.063318	0.193331	0.0020

R-squared	-0.349676	Mean dependent var	24.15000
Adjusted R-squared	-0.442757	S.D. dependent var	40.82198
S.E. of regression	49.03325	Akaike info criterion	10.71193
Sum squared resid	69723.51	Schwarz criterion	10.84935
Log likelihood	-168.3909	Hannan-Quinn criter.	10.75748
Durbin-Watson stat	0.323746.		

Source: Complied on secondary data

The above table depicts that influence of digital transactions on business profitability of HDFC result indicates that probability value for the NEFT seems to be significant at 5% level where as RTGS and mobile transaction probability value is observed to be above (0.05) this indicates that it is statistically insignificant further coefficient value of NEFT (0.63) is observed to be negative (-) that means mobile transactions having negative (-) influence on business profits.

Hence it is concluded there is no impact on digital transactions on business profitability accept mobile transactions i.e. there is an impact of mobile transactions on business profits.
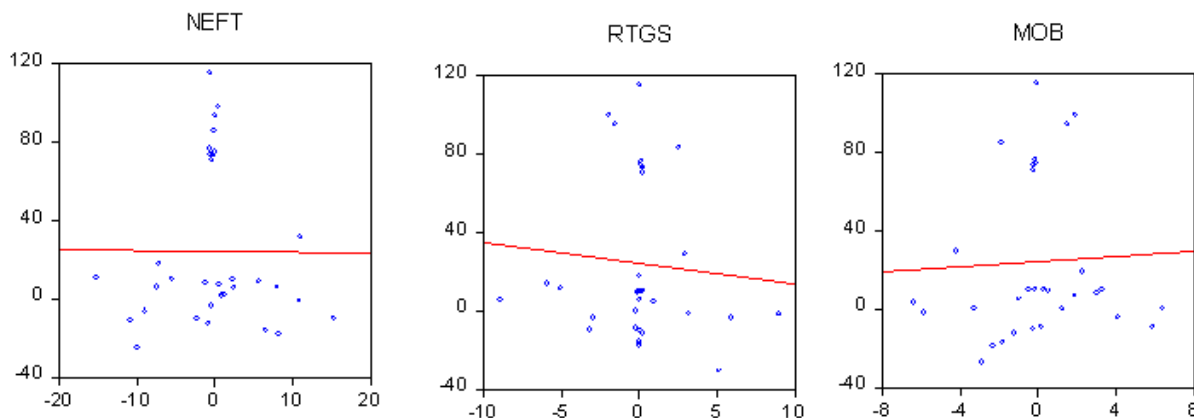
Source: Complied on secondary data

Above leverage plot reflects the plotted between digital transaction with business profitability. In the above graph digital transaction plotted line shows the NEFT direction is stable where as

RTGS transactions is pushing business profit abilities in upward direction and mobile transactions are pulling downward direction on business profit abilities.

FINDINGS OF THE STUDY

1. The study found from VECM model that Digital transaction in SBI namely NEFT and Mobile transaction shown strong relationship with Money in circulation whereas In HDFC, all the three digital transaction (NEFT, RTGS, and Mobile transaction) are observed to be strong relationship with Money in circulation.

2. The study also stated from VECM model that, In SBI digital transaction is having long run relationship with Money in Circulation whereas HDFCs' digital transaction shown short run relationship with Money in Circulation.

3. The study found from regression test that Mobile transaction is having influence on profitability of SBI banks, whereas NEFT and RTGS are seemed to be not having influence on Profitability of SBI bank.

4. The also illustrated from Regression test that NEFT and Mobile transaction are observed to be having influence on profitability of banks ,whereas RTGS is observed to be not having influence on Profitability of HDFC.

5. The study found from leverage plot in both banks (SBI and HDFC) that NEFT and Mobile transaction are pushing business profitability towards upwards direction.

CONCLUSION OF THE STUDY

The study concludes the titled impact of the technology on banking sector with reference to public and private sector banks. The study has considered the State bank of Indian from the public sector bank and HDFC bank from private sector. The study has considered the secondary data from the period 2012-13 to 2017-18. The auto regressive distributed log methodology has been applied and the found that the long and short run association has been observed. The ordinary least square method has been applied and found that the impact of the neft, rtgs and mobile transaction are having positive influence. The VAR model predicted that near future the growth of the digital transactions will have positive growth of the profitability of the banks. Hence there is a need to do further research in this area by considering the economic factors influence on the banking sector along with the digitalization.

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