The Impact of Technology on the Financial Performance of Banking Sector With Reference To Sbi & Hdfc Banks

Ch. Siva Priya, PV. Durga Rao, C. Supriya

Abstract : The modern banking system includes the effective usage of technology not only to deliver services to customers, but also to increase the financial performance of the banking sector. The present study considered the meta data of the State Bank of India and the HDFC Fund for the duration 2009-10 to 2019-20. The study introduced the data in panel form and applied the approach according to the objectives outlined. The study primarily looked at the four key banking network variables (internet banking, telephone banking, ICS banking and ATMs) influencing the contingent variable – asset returns by tracking a few different variables. The study examined the relationship between the banking technology variables and the financial variables with the aid of the Bivariate correlation statistical method, and the result revealed a favorable relationship with the asset returns technology variables. The study examined the influence of technology on the financial results of banking with a mediation effect and concluded that mobile and ICS banking have a substantial impact on the return on assets of the selected SBI and HDFC banks.

Keywords: Asset Quality, ATM, Banking technology, Cost Efficiency, Debt Card, Internet banking, HDFC Bank and SBI.

I. INTRODUCTION

Communication technologies have enabled a change in every field of human life. The Indian banking network has reached into every corner of the planet. The Indian banking network is no longer confined to metropolises in the remote parts of the country. The new development landscape has encouraged the delivery of various contemporary artistic services to customers. The increasing demand for customers has increased as a result of globalisation, digital technology and global literacy. In India's financial services sector, globalization, liberalization and privatization have also introduced major improvements.

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Banks have also needed to review their lending activities because of economic pressures. Norm over – banks' own strategies on self-service and economic pressures are gradually losing control. Computers, telephones and Internet services are revolutionized in order to offer alternative options and transfers to Internet banking. This helps customers to use banking services in various ways on their devices and computers.

IT use has pushed banks to register, assimilate and manage information electronically in the banking sector. Banks have embraced modern innovation to succeed and develop in a growing market environment. This ensures that banks are able to provide consumers with the requisite protections and respond appropriately to their product or service. Innovations in payments and financial processes such as online banking, mobil banking, telebanking, ATM / debit cards and credit cards have contributed to this technological advancement in the banking sector.

In India, banks were the first to use technologies through structure automation and process simplification. The implementation of
technological innovations has helped banks to retain high rates of security, deter theft, aggression or pillage, and raising the danger
and expense of currency administration. In the transformation of bank services, it is also necessary to introduce non-cash payment systems including RTGS, NEFT, NECS, UPI, and digital wallets.

Objectives of the Study

1. To examine the relationship of banking technological variables with the financial performance indicator
2. To study the impact of banking technology on financial performance

Hypotheses of the Study

H0: There is no relationship of banking technology with the banking financial performance

H0: There is no impact of banking technology on the banking financial performance.

Scope of the study

The study has been emphasized on the banking technology impact on the banking financial performance indicator. In the study Return on Assets has been considered as the proxy to financial performance indicator.

The study has considered the SBI from PSU segment and HDFC Bank from private sector and collected the meta data from the period of 2009-10 to 2019-20 years. The study has considered the following key technological and financial variables from both the public and private sector banks. They are as follows,

Intangible Assets (Banking Technological Variable – Independent variable)

Mobile Banking (Banking Technological Variable – Independent variable)

Internet Banking (Banking Technological Variable – Independent variable)

No. of ATMs (Banking Technological Variable – Independent variable)

Capitalization (Technological Influenced Variable – Controlling variable)

Cost Efficiency (Technological Influenced Variable – Controlling variable)

Asset Quality (Technological Influenced Variable – Controlling variable)

Bank Size (Technological Influenced Variable – Controlling variable)

Research Methodology

Research Design:

The goal of this research was to establish a panel model to know the mediation effect of the technology on the financial performance of the banking. The system construction of the present research was a systematic process that started with a thorough analysis of the literature. Likewise, the a priori relationship between models and theories was envisaged on the basis of the literature, the relevance of which was checked through the compilation of data from annual reports of various banks. The study has collected the meta data of the banking sector and examined the impact of technology on the financial performance indicator. The study applied the following statistical methods for the statistical analysis of framed objectives. They are as follows,

Panel Data: The study has considered the data set of independent and dependent variables in panel form with the coded variable from the year of 2009-10 to 2019-20 years.

Stationary of the Data: The Econometric related E-Views software has been considered and standardized the time series data with the augmented dicky fuller test.

Intangible Assets data standardized in 1st difference level and observed to be significant as the p value is less than 0.05. The Mobile Banking, Internet Banking are observed to be stationary in level, where the p value is found to be less than 0.05. The No. of ATMs, Capitalization, Cost Efficiency and Asset Quality are found to be stationary i.e., significant in 1st difference level but the Bank Size is found to be stationary i.e., significant in 2nd difference level.

Statistical Tools: The study applied the following statistical tools for the framed objectives. They are,

Bivariate correlation: The study has considered the bivariate correlation to know the relationship of banking technology with the banking financial performance indicator – Return on Assets (ROA).

Mediation Regression: The study applied the mediation effect through the regression analysis. The study has considered the banking technology variables as independent variables and controlling variables as Capitalization, Cost Efficiency, Asset quality and Bank Size. The Return on Assets has been considered as the banking sector financial performance indicator.

II. REVIEW OF LITERATURE

The study reviewed the following review of literature relating to the banking technology effectiveness in various verticals in banking stream.

Ali and Hayat (2019), Remember the factors influencing mobile banking customers ' experience. In order to assess its impact on the growth of mobile banks in Bahrain, an expanded development distribution model was created. The study found that mobile banking acceptance results in variables such as perceived interest and ease of use. On the other hand, little thought, such as expected expense and risk, has no impact on the decision of the consumer to utilize mobile banking services. In order to incorporate Mobile banking systems, the study advised managers to consider those aspects.

Rakhi and Mala (2017), Two aims, assessing the realistic relation between preparation for acknowledgement, perceived danger and mobile payment usage strategy in India, were achieved. This work explores the consistency of existing partnerships between various groups of customers. In order to develop and introduce development infrastructure, the literature on the main aspects of technical adoption has been widely discussed. A computational model was established which involves acceptance planning, basic innovation and possible hazards and tested empirically using a structural equation study. Throughout the study of the experimental model, five out of six hypotheses were completely accepted but one theory was partly endorsed.

Nayak et al. **(2016)** Indian consumers have been described as variables that affect the adoption of mobile banking services and different phases of growth of mobile banking services linked to the device have been highlighted. The survey shows that Indian customers are positive, relaxed and costly in introducing mobile banking services. The study also shows that banks would boost visibility through mobile banking platforms, like magazines, brochures, sample rates, types of lobbying, etc.

Mermod (2015), In the banking industry, the role of technology has been analyzed. The profit margin has been decreased due to the restructuring in the banking sector, so many banks are launching Internet-based banking .. In Turkey, 15 million authorized retail banking users and 1 million registered corporate banking users are involved. It accounts for about 47% of its clients. Integrated banking systems allow banks to enhance market share and decision-making by consumers. The author says the vendors' collaboration will be strengthened.

Sharma (2014), The advantages of e-banking have been developed. The vendors are willing to support data programming and storage as practitioners. The major banks resulted in lower usage of actual currencies and higher use of plastic money. "Electronic banking has an impact on customer connections, bank productivity as well as the acceptability of bank workers and the public to the banking industry." They have been investigated.

Bishnoi (2014), The different facilities provided by the ATM, the explanations for the ATM issues that occur while using the ATM card were addressed. The research also explored the relation between the different personal profiles of the individual banks and the ATM facilities. The study showed that complications with the use of ATM machinery such as a cash register, low-quality currency notes, out of sight, the Internet latency, mini-pressure printing and poor declaration slip visibility were the main challenges. The work has shown that ATM is still and anywhere more reserved. ATM expanded every day and the market benefited as well. In terms of male and female users and public and private ATM clients, there were no significant differences with respect to such complaints when using ATM installations.

Patel and Pithadia (2014), They also explained the many issues facing Indian banking in their paper. For traditional banks, adopting innovations and contributing banks to Core Banking Services (CBS). While most large banks claim it would cover 70 percent to 80 percent of the bank's revenue, they converted just 20 percent to 30% of their branches into CBS. Bank vendors improved performance and quality across technology-driven delivery channels. We assume that outsourcing bank duties contributes to a high risk as suppliers lack the required banking expertise.

Praful (2013), Analysis of State Bank of India's (SBI) products and services market opinion found that an average of 99.27% of customers showed satisfaction, and a total of 0.73% of customers showed disappointment with SBI 's operation. State Bank of India became the first public-sector bank to continue using advanced computerization and core banking technologies, using IT-focused goods and services. This work reveals how IT impacts customer service in city, semi-urban, and rural areas.

Gulla and Gupta (2012), IT's position in commercial banks was explained. Real banking substituted tech-based banking. They provided the Bank of India example, the first to use the outsourcing infrastructure program. Includes all short-term and long-term banking infrastructure. Vendors' hazard varies from bank to bank.

Alsamydai et al. (2012), Works have been divided into five aspects, such as electronic banking, personal preferences, perceived importance, consumer loyalty and eBanking services management performance. The research shows that the perceived utility and service standards, these features and also the variables related to electronic banking, have a major connection. Major variables influence customer satisfaction and effective management of e-banking.

Shah (2012), Identify business expectations of Thane City Electronic Banking and examine 'customer requirements, challenges for bank clients and approaches to enhance the activity of eBank.' This study shows that although high demands are on the part of customers, eBanking services are provided by public sector banks, private sector banks, and external banks. Customers have suffered from various problems such as a lack of technical know-how, poor banking answer, lack of Internet connectivity, lack of ATM PIN and language difficulties. More problems have been suffered by clients.

Kuchara (2011), She looked at findings such as comfort and security, ease of management of banks, profit, a better rate and low service charges, in her article entitled "Study of customer perception of internet banking in Ahmedabad City." Half respondents acknowledged the simplification and flexibility of internet banking. It has unique sales and market advantages. Internet banks expanded regularly, providing more than a respectable operation. Banks offer internet banking.

Sekar (2011), IT organisations evaluated the state of their execution. Private banks have provided far more fast technology-based capabilities than banks in the public sector. Technology may build and overcome the complex problems of banks. Sekar claims that banks should become building firms that sell financial goods. Biometric ATMs, voicemail and language kiosks, electronic marketing of SHG products via bank payment gates, all include technical progress by banking traders. The company faces a variety of challenges, including merging different systems, market demands and handling specific goods in the short term. The health of vendors is also considered an significant obstacle.

Sawant (2010), The finance sector, through the usage of information technology, has been seen to facilitate economic growth. Initiated at the end of the 1990s in the Electronic Clearance Services (CEC), inaugurated in the mid-2000s in EFT, in 2004 in RTGS and proposed in 2005-06 in NEFT, the shared aim is to increase the competitiveness of business banking institutions. At the end of 2010, nearly 90% of the banks had taken over the system. The authors looked at SWIFT, Bank network, NPCI and demat cards and considered it useful to include financial facilities and equipment.

Jain and Natarajan (2010), The traditional factors that affect outsourcing decisions have been mentioned. Outsourcing is normally performed for each sector where everyday jobs are costly for the business. The researcher notes that in the Indian banking sector both banks and the company exporting (salesperson) borrow from a common workplace and offer about the same pay. But it is not cost-cutting to outsource Indian commercial banks. Although, despite the outsourcing of infrastructure, it is more challenging for commercial banks to execute conventional functions. However, procurement costs for commercial banks are increased and the provider's transparency is reduced.

Kumbhar V (2009), Primary factors have been established that influence consumer interest in the ATM operations of public and private banks. User know-how is categorized into seven categories: product functionality, performance and production, protection and accountability, ease, accessibility, cost effectiveness, connectivity and problem solving and overall satisfaction.

As a consequence, the cost performance of the ATM service was a key factor in efficiency that influenced the total consumer loyalty of the ATM services to public and private banks. However, factor research has shown the impact on easy-to-use, cost-effective, health and responsiveness that customer loyalty has 36% improvement.

Girdhar and Bhardwaj (2008), Established the extent of penetration and usage of mobile banking facilities by working professionals. mobile banking. The analysis showed a slightly lower vulnerability for the mobile banking services of working professionals. The explanations behind their usage by new clients and others who tend to be consumers is two key factors such as secure and convenient access and the limitless quality of current mobile banking services. The banks can inform their customers by explaining the benefits of mobile banking.

III. DATA ANALYSIS

1st Objective: To examine the relationship of banking technological variables with the financial performance indicator

The study has considered the statistical method of bivariate correlation to know the relationship between the banking technology and banking financial performance. The study in this analysis relationship has been examined between the return on assets, Controlling variables and technological variables. The following is the SPSS version 24 output, which reflects the significant relationship exists between the selected variables.

Table No - 1: Relationship of technology variables with the financial Performance indicators

Correlations

		Return on Assets	Intangible Assets	Mobile Banking	Internet Banking	No of ATM	Capitalization	Cost Efficiency	Asset Quality	Bank Size
Return on Assets	Pearson Correlation	1								
	Sig. (2-tailed)									
	N	20								
ICS	Pearson Correlation	.807**	1							
	Sig. (2-tailed)	.000								
	N	20	20							
Mobile Banking	Pearson Correlation	.349	.210	1						
	Sig. (2-tailed)	.038	.028							
	N	20	20	20						
Internet Banking	Pearson Correlation	.194	.162	.336	1					
	Sig. (2-tailed)	.013	.035	.042						
	N	20	20	20	20					
No of ATM	Pearson Correlation	-.217	.145	.529*	.253	1				
	Sig. (2-tailed)	.037	.042	.016	.041					
	N	20	20	20	20	20				
Capitalization	Pearson Correlation	.504*	-.683**	-.550*	-.392	-.422	1			

	Sig. (2-tailed)	.024	.001	.012	.038	.034				
	N	20	20	20	20	20	20			
Cost Efficiency	Pearson Correlation	-.209	.223	.135	.084	.797**	-.193	1		
	Sig. (2-tailed)	.017	.041	.021	.026	.000	.015			
	N	20	20	20	20	20	20	20		
Asset Quality	Pearson Correlation	.434	.430	.212	.152	.877**	-.378	.937**	1	
	Sig. (2-tailed)	.036	.038	.029	.023	.000	.041	.000		
	N	20	20	20	20	20	20	20	20	
Bank Size	Pearson Correlation	.744**	.812**	.473*	.387	.514*	-.927**	.303	.546*	1
	Sig. (2-tailed)	.000	.000	.035	.042	.020	.000	.044	.013	
	N	20	20	20	20	20	20	20	20	20
*. Correlation is significant at the 0.05 level (2-tailed).										

Source: Annual reports of SBI and HDFC banks from 2009-10 to 2019-20

Table No. 1 represents the bivariate relationship between the profitability and technology parameters of banks. The result signifies that, Return on Assets had shown significant strong relationship with ICS (Investment in Computer system), Bank size has 0.807 and 0.744. It reveals that Asset Quality and Capitalization are positively and moderately correlated with the profitability and also signifies that Cost Efficiency had negative and weak relationship with Profitability. Mobile Banking and Internet Banking are found to be positively correlated with 0.349 and 0.194 respectively. Implementation of ATM is negatively correlated with the Return on Assets. P-value of the parameter are less than 0.05, implies rejection of Null hypothesis and Acceptance of Alternative Hypothesis i.e., there is a significant relationship between the profitability performance with the Technological Parameters of bank

2nd Objective: To study the impact of banking technology on financial performance

The study applied the mediation regression analysis on the panel data of both SBI and HDFC bank selected variables to know the impact of technological impact on the banking financial performance. The following is the result indicates the impact of the technological impact on the financial performance of the banking sector and the study also framed the following sub hypothesis as per the technology variables.

H0: There is no impact of Internet banking technology on the banking financial performance.

Table No-2: Impact of Internet Banking on financial Performance

Parameters	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Independent Variables	B	Std. Error	Beta		
(Constant)	7.779	0.856		9.083	0.000
Internet Banking	0.513	0.712	0.204	0.018	0.986
Internet Banking + Capitalization	0.117	0.053	0.505	2.22	0.040
Internet Banking + Cost Efficiency	-0.03	0.037	-0.194	-0.829	0.419
Internet Banking + Asset Quality	7.166	3.783	0.414	1.894	0.015
Internet Banking + Bank Size	2.415	0.533	0.787	-4.533	0.000
a. Dependent Variable: Return on Assets					

Source: Annual reports of SBI and HDFC banks from 2009-10 to 2019-20

Table No. 2 illustrates the Mediation effect Analysis of Technology parameter on Profitability. Here, the study considered Return on Assets has dependent variable and Technology Parameter such Internet Banking with Control variable such as Capitalization, Cost Efficiency, Asset Quality and Bank Size. The result indicates that Internet banking with bank size is highly impacted on the profitability as compare with other control variable parameter with 0.787.

Cost efficiency and Asset Quality had negatively effect on the probability, but the Cost Efficiency plus Internet Banking had insignificantly influenced. It reveals the combine effect of Internet Banking with Capitalization is positively and moderately impacted on the profitability of Bank. Further it reveals that, a unit increase in Internet banking, will raise the Profitability by 0.204. Hence, it is concluded that Mediation effect of Technology parameter (Internet Banking with Control Variable) are significant impacted on the profitability of banks.

Table No-3: Impact of Mobile Banking on financial Performance

Parameters	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Independent Variables	B	Std. Error	Beta		
(Constant)	6.943	0.732		9.483	0
Mobile Banking	0.796	0.58	0.327	1.373	0.028
Mobile Banking + Capitalization	0.158	0.055	0.683	2.872	0.011
Mobile Banking + Cost Efficiency	-0.032	0.037	-0.206	-0.861	0.401
Mobile Banking + Asset Quality	-7.676	3.862	-0.444	-1.988	0.063
Bank Size	-2.85	0.483	-0.929	-5.894	0.000
a. Dependent Variable: Return on Assets					

Source: Annual reports of SBI and HDFC banks from 2009-10 to 2019-20

Table No. 3 shows the Mediation effect Analysis of Technology parameter on Profitability. Here, the study considered Return on Assets has dependent variable and Technology Parameter like Mobile Banking with Control variable such as Capitalization, Cost Efficiency, Asset Quality and Bank Size. The result signifies that Combine effect of Mobile Banking with Capitalization had significantly positive and strong effect on the profitability of bank. It reveals that combine effect of Mobile banking with Cost efficiency, Asset Quality and Bank size had found to be negative impacted on the Profitability of bank. Further reveals that individual effect (Mobile Banking) had influenced moderate (0.327) on Return on Assets. Hence it is concluded that Mediation effect of Technology parameter (Mobile Banking with Control Variable) are significant impacted on the profitability of banks.

Table No-4: Impact of ATM on financial Performance

Parameters	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Independent Variables	B	Std. Error	Beta		
(Constant)	7.803	0.587		13.289	0
Implementation of ATM	1.106	0	0.006	0.026	0.98
Capitalization	-0.116	0.053	0.501	2.169	0.055
Cost Efficiency	0.015	0.061	0.098	0.25	0.006
Asset Quality	-18.19	7.274	-1.052	-2.501	0.123
Bank Size	2.637	0.555	-0.859	-4.752	0
a. Dependent Variable: Return on Assets					

Source: Annual reports of SBI and HDFC banks from 2009-10 to 2019-20

Table No. 4 depicts the Mediation effect Analysis of Technology parameter on Profitability. Here, the study considered Return on Assets has dependent variable and Technology Parameter like Implementation of ATM with Control variable such as Capitalization, Cost Efficiency, Asset Quality and Bank Size. It is found that Implementation of ATM had insignificantly influenced on the profitability of banks. Whereas, it reveals the mediation effect had shown with Cost Efficiency and Bank size, remaining control variable are insignificantly effect on the profitability of bank. Hence it is concluded that Implementation of ATM is not much effect on the profitability.

Table No -5: Impact of ICS Banking on financial Performance

Parameters	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Independent Variables	B	Std. Error	Beta		
(Constant)	9.923	0.556		17.851	0.000
ICS	0.628	0.006	0.867	4.443	0.000
Capitalization	0.521	0.045	0.588	0.452	0.017
Cost Efficiency	0.305	0.023	0.231	0.208	0.038
Asset Quality	1.848	2.71	0.107	0.682	0.024
Bank Size	0.802	0.729	0.561	1.101	0.026
a. Dependent Variable: Return on Assets					

Source: Annual reports of SBI and HDFC banks from 2009-10 to 2019-20

Table No. 5 represents the Mediation effect Analysis of Technology parameter on Profitability. Here, the study considered Return on Assets has dependent variable and Technology Parameter like Investment in computer software (ICS) with Control variable such as Capitalization, Cost Efficiency, Asset Quality and Bank Size. The result signifies that Individual effect (ICS) had shown significant strong and positive effect on the Profitability of the bank with 0.868. While Mediation effect of ICS with Bank Size and Asset Quality is found to be majorly influenced on Return on Assets. It reveals, remaining Mediation effect had likely to impacted positive on profitability of the bank. Hence it is concluded that Mediation effect of Technology parameter (ICS with Control Variable) are significant impacted on the profitability of banks.

IV. FINDINGS

The study applied the various statistical methods for the framed objectives and the following findings have been derived.

1. The analysis shows that Return on Assets is strongly and positively related to Investment in the Computer System (0.807) and the size of the Bank (0.744).
2. Mobile banking and Internet banking have been shown to be positively correlated with Return on Asset has 0.349 and 0.194, respectively.
3. Mediation Effect Analysis examined that Internet banking with bank size had a substantial effect on profitability compared to other control variable.
4. Implementation of the ATM was found to be insignificant, while observing the Mediation effect result of implementation of the ATM with Control Variable has a significant impact on the profitability of the bank.
5. Cost Efficiency in Internet banking, mobile banking and ATM implementation was found to have a negative effect on bank efficiency.

V.CONCLUSION

The study has been focused on the banking technology impact on the financial performance of the banking sector in India. The study has considered the meta data from the period of 2009-10 to 2019-20 (i.e., 11 years) of Public sector unit bank – State Bank of India and Private sector bank – HDFC bank. The study mainly considered the four key banking technology variables (internet banking, Mobile Banking, ICS banking and No. of ATMs impact on dependent variable – Return on Assets by controlling few key variables.

The study has framed the data in panel form and applied the statistical methods as per the framed objectives. The study examined the relationship between the banking technology variables with the financial variables with the help of statistical method of Bivariate correlation and the result stated that positive relation has been depicted with the technology variables with the return on assets. The study examined the impact of technology on the financial performance of the banking with the mediation regression and the result stated that the Mobile and ICS banking are having the significant impact on the return on assets of the selected banks of SBI and HDFC bank. Hence, there is a need to do further research in this area by considering the technology impact comparison between the 3G and 4G on the banking financial performance of public and private sector banks.

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