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Innovating Finance: Navigating Risks for Enhanced Banking Performance in India

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Abstract: Banks are the supporting pillars of any economy around the world as their advancement and progress, paves way to a thriving economy. With the broadening dimensions of innovations in the banking sector and new neo-banking models coming up, banks have had to be dynamic and resilient enough to face global competition to retain their customer-base, as well as manage the risks that come with it. In India, banks are incorporating many technological financial innovations to improve their efficiency and performance. Through this study, an effort has been made to explore how financial innovations impact banking performance and what effect risk management has on the relationship of financial innovation and bank performance. The study strives to explore if an improvement in risk management could enhance the mediating impact of financial innovation on bank performance significantly in a positive manner. Secondary data collected from public sector banks in India over 10 years from 2012-13 to 2021-22 has been utilized to attain the study objective. It becomes apparent from the results that, with the restriction on the physical availability of ATMs and POS, mobile banking is taking on a more active role in the future.

Key Words: Financial innovation, Risk management, Bank performance, Mediation, Impact

1.0 INTRODUCTION

Banks are one of the major supporting pillars of the economic system of any country. They perform the most significant functions that ensures the cycling of savings and investments for the growth and advancement of an economy such as- maturity transformations and liquidity provision. As such; their robust performance is thus an indispensable priority to the financial sector of a country. The 2008 Global Financial Crisis sparked some big changes for both the country economics and the banking industry globally. This is what led to one of the major shifts in the asset base of the banks globally; because the top ten largest were based in Europe or USA, today the top 6 are situated in Asia. The crisis and the rise of Asia, are not the only reasons that could be attributed to this major shift in the asset base. The other prominent reason is the digital disruption in retail banking from new age fintech firms, that come with new and

improved financial innovation every day. Digital transformation is a double-edged sword. While it comes with the potential of improved efficiency in innovation, broad diversity in supply chain as well as a market extension that could augment financial inclusion; on the other hand, it also expediates an erosion in the profit margin of retail commercial banks, a danger of losing the gen Z customer base and increasing pressure from competition as well as contestability in the banking market. The new entrants-fintech and bigtech have gained market entrance and monopolised the customer base by technological developments and meeting the ever-changing customer expectation of improved service base (OECD, 2020).

This situation entails that either the banks partner themselves up with new entrants or create opportunities of their own. In India, the Nachiket Mor Committee released a report in 2014, recommending differentiated banking policy to issue specialised license to banks, that would narrow the dimension of specialisation. This means, rather than the banks doing everything and pursuing every opportunity; they would be specialising in certain functions. The payment Banks and Small Finance Banks serve as one of the greatest examples. While the payment banks issue only deposit and payment services, the Small Finance Banks specialise on lending low-cost loans to MSMEs (NITI Aayog, 2021).

Deregulation and globalisation naturally mean a more competitive and contested banking market, that expands the magnitude and the range of exposure to financial risk. This makes effective risk management a necessity for the developing economies that have an unpredictable and volatile market environment (Beyani & Kasonde, 2009). To keep up the performance and retain their customer-base, innovation and its associated risk has become the necessary evil for the commercial banks- whether on a wholesale level or on a retail level. The innovation in case of banking sector, could mean many things such as introduction of blockchain and artificial intelligence to enhance efficiency of business operations, developing and expanding their own mobile banking framework to better the service experience for their customers, innovative products like crypto-currency loans, online shopping cards etc (Egorov, 2022).

ATMs or Automatic Teller Machines could be the grandmother of innovations in the financial sector, for the simple fact that its creator, John Shepherd-Barron came up with the idea of an 'automated' and 'self-service', when he was late withdrawing money from the banks one day. It is one of the enduring fintech successes that proved 24X7 access to cash as well as anytime contact with the bank or financial service provider. Since Covid, the idea of automated self-service and contactless transactions picked up more heat to alleviate the social-distancing concerns. POS or Point Of Sale terminal on the other hand, gives the ease of digitally transferring funds from one account to another. They are mostly used in retail stores and shopping marts, where they provide the serve as a convenient combination of software and hardware to record transactions as well as print the terminal receipt for the customers. Though ATMs and POS terminals revolutionised the prospects of banking sector in a profound manner, it is the 'Mobile Banking' that literally eliminates the physical limitations of ATM and POS. The term 'anytime-anywhere transaction' describes mobile banking much better. Customers can not only conduct any transaction digitally at anytime from anywhere, but they also can avail many banking services digitally through internet banking and mobile banking applications and software.

It is inarguable that, these technological financial innovations have made the role of banks as

financial intermediaries quite simpler and smoother. A robust banking system, though is not only recognised by its conduct of dynamic operations, but also the management of risk associated with the said operations. Among the wide range of roles and responsibilities to dispensed by the bank, the conduct of these responsibilities largely depends on how effectively and efficiently banks manage their capital. Capital Adequacy Ratio (CAR) is one of the tools that measure and assess the ability of banks to absorb losses. It provides the level of safety cushion banks need to have to tackle credit and operational risk as well as pay off their liabilities. It acts as a stress test for many banks and; is calculated as a ratio to the capital banks need to keep in hand for their day-to-day operations and capital they need to keep in hand in case of liquidation to their risk weighted asset.

Though management of capital is an inevitable part of risk management, it is equally important to keep a track of performance of the investments. Transaction fees from financial services rendered and as well as interest earned from the resources and assets banks hold for their clients are some of the major sources of revenue for the banks. There are many financial tools that the banks use to estimate the profitability and operational efficiency of banks. Return on Assets (ROA) is a metric used to measure the profit earned by a bank against the assets owned by it. Since, financial innovations- technological and otherwise are essential to retain and grow the customer-base to maintain the bank's profitability and managing certain risks is just as important for the banks to function; the present study endeavours to understand the dynamics of the relationship between financial innovation and bank performance and how risk management affects it.

1.1 Objective of the study

The study aims-

1) To understand how financial innovation impacts bank performance

2) To discern how risk management impacts the relationship of financial innovation and bank performance.

1.2 Division of the study

The study has been divided into six sections. The authors and websites that helped form the conceptual background of the study is set forth in Section 2. Section 3 details the methodology and techniques adopted to fulfil the objectives of the study. Section 4 focuses on the analysis of data and its interpretation. Section 5 and 6 give the concluding remarks, limitations and scope for further research with respect to the study.

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

With the performance of the Indian banking sector under spotlight for many years now, due its ever- expanding market share, technological and financial advancement, and India being the

new investment hub for foreign investors; its crucial for the banks to stay on stable ground amidst unpredictable market conditions. Performance evaluation takes on a whole new importance when it comes to public sector banks; as it is not simply only profitability that they can focus on. For the public sector commercial banks in India, it is really important that their performance bridges the gap between management objective and customer-investor expectations. The poor performance of the PSUs has been one of the reasons why the public and government has sometimes focused on privatising them **(Allen, 2007)**.

(Blach, 2011) focused on identifying on the core issues to the role played by financial innovation the modern financial system and systemise and expediate the issue. The author tries to define what is actually construed as financial innovation and what are the sources and motives of financial innovation and their implications for the financial system, which could be quite ambiguous as the financial institutions are not homogeneous in nature. The financial system plays quite a huge role with respect to the cost and quantity of funds available in the country; with respect to the monetary function, capital allocation function and controlling function. While the traditional approach to technological innovation groups into innovation of new products, new production methods, etc; the OECD methodology is all about product, process, marketing and business organisations. Over the long history of its innovation, rather than being separate, the technological and financial innovation have often gone hand-in-hand over time.

The development of financial sector of a country does not only drive the growth of a single country's economy, rather it drives the growth and development of many other economies globally, either directly or indirect- seeing how the world is a global village today. In Nigeria, **(Mustapha, 2018)** highlighted the banking sub-sector of the financial sector to be the major driver for Nigeria's economic growth with the e-payment mechanisms like ATM, POS, Mobile Money Transfer etc according to the report by the Nigerian Inter-Bank Settlement System.

In their systematic and holistic literature review of existing work on financial innovation across various disciplines, **(Nejad, 2022)** highlight the revolutionization of financial services and ease with which the financial transactions are conducted today due to advanced fintech platforms. They identified three key disruptions in the market caused by financial innovations. The first would be the new era of customers who are not bounded to any particular financial institution and expect low-cost and at the finger-tips seamless service experience. The second is the dynamic competition environment of the finance and banking industry due technological advancement and fintech start-ups. The third, is the changing dynamics and meaning of geographical boundaries- the funds are mobile and globalised with expansion of financial centres all over the world. However, crossing geographical boundaries and expanding base comes with its own risk. So does managing innovation of financial institutions; that brings the increasing global controversy on the increasing economic crime. Financial intuitions face different types of risks all over the world in the context of strategy, operation, credit, transformation, information, compliance etc. In USA, to counter the volatile and uncertain situation of economic crime, financial institutions are striving to come up with various financial risk management tools and techniques to manage their efficiency in response to the various drivers of digital transformation in the market **(Karsh, 2021)**.

Though there have been a lot of technological advances over the time, the digital innovations

have proved to be a useful mode of connecting systems and making innovative use of readily available usable data among the asymmetry of information and economies of scale in dynamic market structure of newly emerging financial intermediaries **(Frost et al., 2021)**.

In the Indian context, **(Pooja & Singh, 2009)** while discussing on the then state of Internet banking in India, examined its implications for the Indian banking industry from the context of financial performance of banks as well as risk management. They rightly pointed out that internet banking with enhanced service delivery would also mean the obsoletion of the traditional bank service delivery system. Banks have gradually, over years evolved from being labour intensive to automated process to improve their operational efficiency. They also emphasised that banks adopting internet banking would be more profitable than those who had yet to adopt the channel.

To discern the financial soundness of banks, it is important that the banks should be able to absorb financial shocks in case of unpredictable market movements. The importance of risk management is most acutely felt in heavily leveraged sectors of an economy. It is thus, safe to say that banks feel this need quite acutely. The Basel accords published by the BCBS committee gives certain guidelines that banks need to follow and hence, maintain their capital base and requirement adequately. Basel III guidelines lay a profound importance on the quality, adequacy and transparency of the capital base of the banks.

In Tunisian banks, **(Abir et al., 2016)** rather than simply focus on interactive relationship of product and process innovation in banks, also explore the theory of innovation with a new take on innovation side of product and process in banks. An exploration of the banks wielded the conclusion that a proper combination of both product and process innovation leads to banks achieving a high level of performance. It is emphasised that, introduction of new product should go hand-in-hand with introduction of new processes. It is revealed that though adoption of financial innovation and internet banking could prove to be a costly affair for the banks, they ultimately yield high results in the long run.

2.2 Empirical Evidence

(Mustapha, 2018) took a sample of fourteen deposit money banks listed in Nigerian Stock Exchange Market, ranging from a period of 2012 to 2017, respectively taking into account the introduction of cashless payment channel in the Nigerian economy. Taking, sortino index as a proxy for the measurement of bank performance and the market risk the banks are exposed to in adopting e-payment technologies; the author uses time dimensional and panel least square models to study the impact of the innovation on the performance of the banks. Through the study, it was concluded that the e-payment technologies do significantly affect the profitability of banks and that the investors should not be fussed about the previous bank performance, and rather should focus on the current resources at the disposal of banks that could improve their efficiency.

In a study of Tunisian banks, **(Abir et al., 2016)** considered the range of financial assets or services offered by financial institutions as well as new technologies related to the process of distribution of said services and products. The study empirically divines the consequences financial innovatons have on the effectiveness of banks in Tunisia. 10 Tunisian banks from a period of 1985-2016 were covered in the study with 260 panel data observations. Both banking

experts and managers of affiliated banks were questioned. Their opinion on 17 product innovations and 8 process innovations were derived. With the help of descriptive statistics and empirical modelling of variables in the context of organisational structure, environment, financial innovation and bank performance, it was concluded that a high interaction between product and innovations improves the market value of banks as the customers associate these innovations with efficiency and technological progress.

(Akhisar et al., 2015) adopted dynamic panel methods to study how the performance of electronic banking services affects ROA and ROE of banks over the period range of 2005-2013. The authors collected data of electronic banking services of 23 countries from the developed and developinf economies around the world. They developed a dynamic panel model and used GMM estimator to study the impact the electronic banking products have on the bank performance. The study showed that all the products positively or negatively significantly affected the bank performance. It was found while ATMs positively affect the bank performance to a large extent; on the other hand POS terminals affect it the profitability negatively. This was attributed to the dynamic e-banking infrastructure as well as socio-cultural background of people.

(Amsterdam, 2018) took to establishing the relationship between financial innovation and economic growth of 25 African countries using Fixed and Random Effects Regression and comparing the very same results using the OLS regression method. The growth in the bank lending to the private sector and mobile penetration data with respect to ATM, etc were used as proxies for financial innovation. The estimates of the research narrow down to the positive effect of mobile transactions and financial innovations on the economic growth of African nations as compared to the non-mobile measures or proxies. **(Usman, 2016)** took risk into account while investigating the effect financial innovation has on bank performance as well as economic growth. In order to arrive at the results, bank and country level variables from 14 banks in Pakistan from the period of 2000 to 2013 were taken and put to test using the OLS regression and correlation matrix. From the three econometric models developed, it was concluded that the financial innovations not only positively and acutely affect bank performance and economic growth , but they also reduce the level of bankruptcy faced by the banks.

While surveying over 1100 financial firms; **(Heffernan et al., 2008)** use the logit and tobit estimations to understand what drives the growth of financial innovations in Britain. They conclude that it is the R&D resources as well the level of citizen education and the size these firms that act as effective drivers of the financial innovations in UK.

(Piyananda et al., 2015) while investigating the risk management efficiency of 11 listed commercial banks in Sri Lanka, also strive to determine the factors that affect the efficiency of risk management. CAR is used as an appropriate proxy for the purpose of the study. While examining the relationship over a period of 6 years, the authors concluded that while operational risk, liquidity risk, bank size, and ROA positively impact CAR, that is not the case with credit risk.

(Zouari & Abdelmalek, 2020) showed an interest in the mixed results of several researches in the context of the relation shared by financial innovation and bank performance, while ignoring how risk management could be affecting the said relations. To rectify the situation, they

conducted an empirical research taking panel data of 8 years (2008-2017), extracted from 10 banks listed over the Tunisian Stock Exchange. They conducted the study taking risk management as the mediator in the empirical analysis and came up with a model to do the same. With the study, they proved that though financial innovation affects stock market performance positively, this is even further improved when operational risk management is introduced as the mediator.

2.3 Research Gap

Though there have been many studies that have studied the relationship between financial innovation, bank performance and risk management, not many papers have studied the indirect effect that risk management could have on the relation between financial innovation and bank performance on an Indian context.

2.4 Development of Hypothesis

H_1: There is a significant impact of the amount of ATM transactions on the Return on Assets.
H_2: There is a significant mediating effect of CAR on the relation of the amount of ATM transactions and Return on. Assets.
H_3: There is a significant impact of the amount of POS transactions on the Return on Assets.
H_4: There is a significant mediating effect of CAR on the relation of the amount of POS transactions and Return on. Assets.
H_5: There is a significant impact of the amount of Mobile Banking transactions on the Return on Assets.
H_6: There is a significant mediating effect of CAR on the relation of the amount of Mobile Banking transactions and Return on Assets.

3.0 RESEARCH METHODOLOGY

3.1 Research Design and Sample Selection

3.2 Methods and Techniques used in the study

The study employs content analysis along with panel data, to examine the dynamics of the relationship between financial innovation, risk management and firm performance. The study has further used panel data collected from the annual reports and RBI report from 5 public sector banks in India- Bank of Baroda, Canara Bank, Punjab National Bank, Union Bank of India and State Bank of India; for the study. The research work covers a period of 10 years from 2012-13 to 2021-22, that limits the research to 250 observations. Three simple econometric models are developed to conduct the empirical analysis for the study. The study uses corelation matrix, regression analysis and mediation analysis to achieve the study objective.

Pearson's Correlation Matrix

Since, the mediation model is based on the assumption of correlation among the variables, Pearson's Correlation matrix is taken to observe the pairwise correlation among the various variables of the study. The correlation coefficient ranges from -1 to +1; that is perfectly

negative to perfectly positive correlation and generally indicates the strength and direction of linear relationship between two variables.

Regression and Mediation Analysis

Mediation approach is based on regression and is simply a more advanced form of regression. Basically, regression analysis is used to analyse the impact that predictor or independent variable(s) have on the predicted or dependent variable. The regression equation generally goes by-

$y = \alpha + \beta_1 x_1 + \cdots \cdot \beta_n x_n + e$ where;

α is the intercept or constant term, β is the unstandardised regression coefficient, e is the standard error, x is the predictor variable and y is the predicted variable. The R^2 and adjusted R^2 are used to disvcern the goodness of fit of a model, whereas the p-value of significance suggests whether the model is significant or not.

Mediation analysis is used when along with the study of the effect one variable has on another, the study also aims to analyse how the relationship is impact through another intervening or mediating variable. The output interpretation is mostly similar to regression, except for Sobel's test is done to get the statistical significance of the indirect effect and Bootstrap is done to statistically resample a single dataset multiple times to get simulated results.

3.3 Variable Specifications

The study conducts its empirical analysis using 3 simple econometric models. In each of the three models; there is a dependent variable, mediating variable and independent variable. In each model the financial innovation variable differs, while the risk management variable and bank performance variable remains the same.

For the independent variable; there are 3 proxies taken for financial innovation- Volume of ATM transactions, Volume of POS transactions and Volume of Mobile Banking transactions.

Amount of ATM transactions- ATM
Amount of POS transactions- POS
Amount of Mobile Banking transactions- MOB_TRANS

For the mediating variable; Capital Adequacy Ratio (CAR) is used as proxy for the risk management tool.

Risk Management- CAR

For the dependent variable; Return on Assets (ROA) is used as proxy for bank performance.

Bank Performance- ROA

3.4 Model Specifications

The conceptual framework of mediation model is given below-

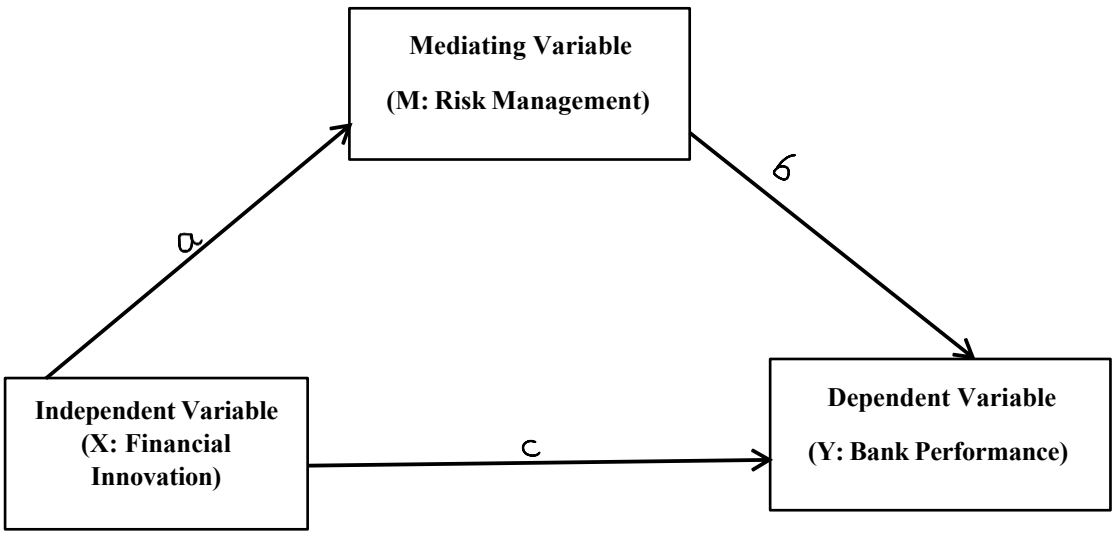

Figure 1: Conceptual Framework of Mediation in this study

In the figure1 above, 'c' denotes the direct path or the Direct Effect (DE) financial innovation has on the bank performance. 'a' denotes the impact financial innovation has on risk management and 'b' denotes the impact risk management has on bank performance. The path 'a' and 'b' are the Indirect Effect (IE). Hence, the Total Effect (TE) in the model is calculated by-

TE = DE(c)+IE(ab)

4.0 DATA ANALYSIS AND INTERPRETATION

4.1 Analysis of Data

The first step is the presentation of Pearson's correlation matrix that gives the pairwise correlation of the variables.

In the econometric mediation model 1; ATM is used as a proxy for financial innovation, Capital Adequacy Ratio (CAR) is used as a proxy for risk management and Return On Assets (ROA) is used as a proxy for bank performance.

In the econometric mediation model 2; POS is used as a proxy for financial innovation, Capital Adequacy Ratio (CAR) is used as a proxy for risk management and Return On Assets (ROA) is used as a proxy for bank performance.

In the econometric mediation model 3; Mobile Transaction is used as a proxy for financial innovation, Capital Adequacy Ratio (CAR) is used as a proxy for risk management and Return On Assets (ROA) is used as a proxy for bank performance.
The said econometric models are conducted using the HAYES PROCESS MACRO in SPSS v.26.

4.2 Interpretation of Data

In **Table 1**, ATM shows a significant correlation with CAR at 0.699 (at 0.01 level), but it is not so significant with ROA. POS shows a significant correlation with CAR at 0.688 (at 0.01 level), but it is not so significant with ROA. Similarly, MOB_TRANS shows a significant correlation with CAR at 0.532 (at 0.01 level) , but it is not so significant with ROA. CAR is clearly correlated with all the variables significantly at 0.01 level except for ROA to which it shows a correlation at 0.05 level.
Table 2 of the research study shows the outcome of mediation analysis of econometric model

1. In the first part of the table, the mediator- CAR is used as the outcome. There is only one predictor- ATM; and the coefficient of ATM on CAR is considered to be the value 'a' in the mediation models, that is 0.468. This equation is quite significant as the p-value is less than 0.05. In this regression equation, 48.9% of the variation in the outcome is explained by ATM. The second part of the table, uses ROA as the outcome variable and both CAR and ATM- that is, the mediator and the predictor as the independent variable. The coefficient in this part of the output helps us arrive at the 'b' and 'c' values in the mediation model respectively. The values go by- 0.161 and 0.468. The p-value of the first equation in this part is significant while the same does not hold true for the second equation in this part. In this regression equation, only 9.5% of the variation in the outcome is explained by CAR and POS. The third part in the table; shows the total effect, direct effect and indirect effect of the mediation. The indirect effect is 0.76 (a*b), which is clearly non-significant as the 0 lies between the Boot LLCI and Boot ULCI. The same goes for the direct effect as well, as the 0 lies between LLCI and ULCI. So, there is no mediation effect in model 1. Except for the value of the indirect path 'a', none of the values are significant. In **Table 3**, outcome of mediation analysis of econometric model 2 is shown. In the first part of the table, the mediator- CAR is used as the outcome. There is only one predictor- POS; and the coefficient of ATM on CAR is considered to be the value 'a' in the mediation models, that is 0.369. This equation is quite significant as the p-value is less than 0.05. In this regression equation, 47.3% of the variation in the outcome is explained by POS. The second part of the table, uses ROA as the outcome variable and both CAR and POS- that is, the mediator and the predictor as the independent variable. The coefficient in this part of the output helps us arrive at the 'b' and 'c' values in the mediation model respectively. The values go by 0.223 and -0.077. The p-value of the first equation in this part is significant while the same does not hold true for the second equation in this part. In this regression equation, only 14.9% of the variation in the outcome is explained by CAR and POS. The third part in the table; shows the total effect, direct effect and indirect effect of the mediation. The indirect effect is 0.83 (a*b), which is clearly non-significant as the 0 lies between the Boot LLCI and Boot ULCI. The same goes for the direct effect as well, as the 0 lies between LLCI and ULCI. So,

there is no mediation effect in model 2. Except for the value of the indirect path 'a', none of the values are significant. In **Table 4**, outcome of mediation analysis of econometric model 3 is shown. In the first part of the table, the mediator- CAR is used as the outcome. There is only one predictor- MOB_TRANS; and the coefficient of ATM on CAR is considered to be the value 'a' in the mediation models, that is 0.223. This equation is quite significant as the p-value is less than 0.05. In this regression equation, 28.3% of the variation in the outcome is explained by POS. The second part of the table, uses ROA as the outcome variable and both CAR and POS- that is, the mediator and the predictor as the independent variable. The coefficient in this part of the output helps us arrive at the 'b' and 'c' values in the mediation model respectively. The values go by 0.243 and -0.093. The p-value of both the equations in this part is significant, but MOB_TRANS negatively impacts ROA. In this regression equation, 28.8% of the variation in the outcome is explained by CAR and MOB_TRANS. The third part in the table; shows the total effect, direct effect and indirect effect of the mediation. The indirect effect is 0.054 (a*b), is clearly significant as the 0 does not lie between the Boot LLCI and Boot ULCI. The same goes for the direct effect as well, as the 0 does not lie between LLCI and ULCI. So, there is a mediation effect in model 3.

5.0 CONCLUDING REMARKS

In this research study; H_1, H_2, H_3 and H_4 are rejected and the H_5 and H_6 are accepted. It is safe to conclude that CAR does not have a mediating effect on the relationship between financial innovations ATM and POS with bank performance ROA. On the other hand, CAR has a significant mediating effect when it comes to the relationship between MOB_TRANS (Mobile Transactions) and ROA, where MOB_TRANS positively impacts CAR but significantly and negatively impacts ROA. There could be many reasons why ATM and POS do not significantly impact ROA and CAR does not have a mediating effect on their relationship. Since, ATMs and POS are limited by their physical availability, even though they provide quite a lot of convenience and easy access banking services- clearly, they are not always at our finger-tips or available anytime and anywhere. The same does not hold true for the mobile banking transactions, where the customer can conduct any transaction online from the safety of their homes. It significantly impacts ROA but negatively and CAR has a positive effect on the direct relationship between them. It is clear that something is holding it back from having a positive impact on ROA. These reasons could possibly be expense related and many times be service related as well. It could also be that the people are not yet readily accepting the technology that comes with mobile banking. People could also be apprehensive about using the banking applications developed by the respective banks.

6.0 SCOPE FOR FURTHER RESEARCH

The research is limited by the sample of only 5 public sector banks in India. It is also limited to a time period of 10 years. Further research is encouraged, taking the other public banks into account. It is also important to do this analysis on private sector banks and compare the models, to get a better understanding of what parameters could be improved for the banking industry in our economy. Further research is also crucial to understand the negative impact that mobile

banking transactions have on the ROA. Other performance and efficiency indicators should be taken into account to study if mobile banking transactions have the same impact on them. The study has also been limited in the context of financial innovation and risk management tool; this gives a further research scope in this particular area.

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8.0 TABLES & FIGURES

TABLE 1: PEARSON'S CORRELATION MATRIX

Correlations

		ATM	POS	MOB_TRANS	CAR	ROA
ATM	Pearson Correlation	1	.977**	.807**	.699**	0.143
	Sig. (2-tailed)		0.000	0.000	0.000	0.322
	N	50	50	50	50	50
POS	Pearson Correlation	.977**	1	.881**	.688**	0.024
	Sig. (2-tailed)	0.000		0.000	0.000	0.870
	N	50	50	50	50	50
MOB_TRANS	Pearson Correlation	.807**	.881**	1	.532**	-0.222
	Sig. (2-tailed)	0.000	0.000		0.000	0.121
	N	50	50	50	50	50
CAR	Pearson Correlation	.699**	.688**	.532**	1	.296*
	Sig. (2-tailed)	0.000	0.000	0.000		0.037
	N	50	50	50	50	50
ROA	Pearson Correlation	0.143	0.024	-0.222	.296*	1
	Sig. (2-tailed)	0.322	0.870	0.121	0.037	
	N	50	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output

TABLE 2: ATM, CAR & ROA

Outcome: CAR — **Part 1**

Model Summary

R	R-sq	F	df1	df2	p
.699	.489	45.972	1.000	48.000	.000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.998	2.000	-.499	.620	-5.018	3.023
ATM	.468	.069	6.780	.000	.329	.607

Outcome: ROA — **Part 2**

Model Summary

R	R-sq	F	df1	df2	p
.309	.095	2.476	2.000	47.000	.095

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.848	1.136	-.747	.459	-3.133	1.437
CAR	.161	.082	1.973	.054	-.003	.326
ATM	-.035	.055	-.644	.523	-.145	.075

Total effect of X on Y — **Part 3**

Effect	SE	t	p	LLCI	ULCI
.040	.040	1.000	.322	-.041	.121

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.035	.055	-.644	.523	-.145	.075

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
CAR	.076	.059	-.038	.194

Source: SPSS Output

TABLE 3: POS, CAR & ROA

Outcome: CAR — **Part 1**

Model Summary

R	R-sq	F	df1	df2	p
.688	.473	43.161	1.000	48.000	.000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.723	1.499	1.816	.076	-.291	5.737
POS	.369	.056	6.570	.000	.256	.482

Outcome: ROA — **Part 2**

Model Summary

R	R-sq	F	df1	df2	p
.386	.149	4.103	2.000	47.000	.023

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.595	.839	-.710	.481	-2.283	1.092
CAR	.223	.078	2.859	.006	.066	.381
POS	-.077	.042	-1.840	.072	-.162	.007

Total effect of X on Y — **Part 3**

Effect	SE	t	p	LLCI	ULCI
.005	.033	.164	.870	-.060	.071

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.077	.042	-1.840	.072	-.162	.007

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
CAR	.083	.044	-.010	.164

Source: SPSS Output

TABLE 4: MOB_TRANS, CAR & ROA

Outcome: CAR — **Part 1**

Model Summary

R	R-sq	F	df1	df2	p
.532	.283	18.967	1.000	48.000	.000

Model

	coeff	se	t	p	LLCI	ULCI
constant	6.806	1.324	5.141	.000	4.144	9.468
MOB_TRAN	.223	.051	4.355	.000	.120	.326

Outcome: ROA — **Part 2**

Model Summary

R	R-sq	F	df1	df2	p
.537	.288	9.526	2.000	47.000	.000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.494	.699	-.706	.484	-1.901	.913
CAR	.243	.061	3.973	.000	.120	.366
MOB_TRAN	-.093	.026	-3.645	.001	-.145	-.042

Total effect of X on Y — **Part 3**

Effect	SE	t	p	LLCI	ULCI
-.039	.025	-1.580	.121	-.089	.011

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
-.093	.026	-3.645	.001	-.145	-.042

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
CAR	.054	.022	.019	.109

Source: SPSS Output

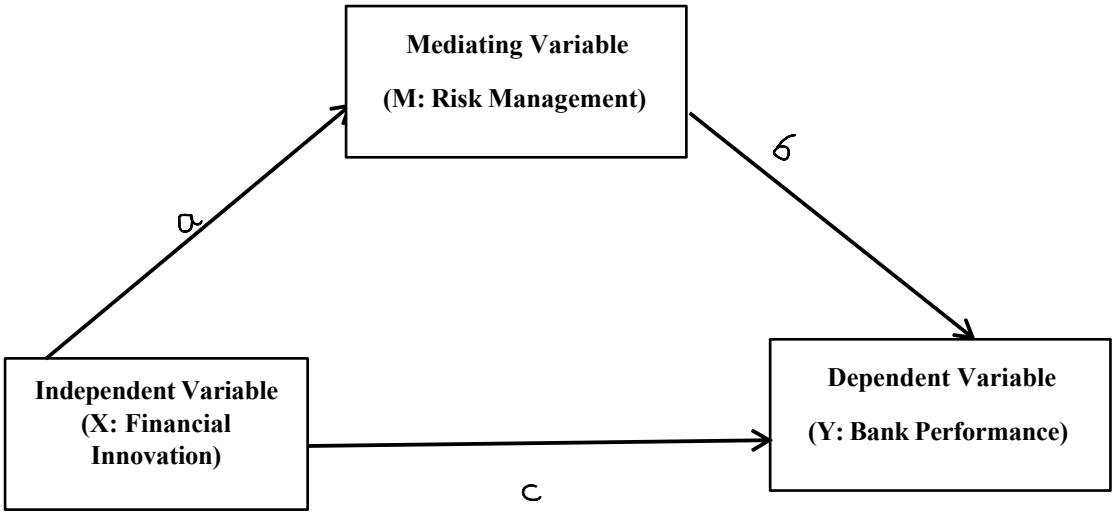

Figure 1: Conceptual Framework of Mediation in this study