

EFFECT OF MOBILE BANKING ON PERFORMANCE OF CO-OPERATIVE BANKS IN DHARWAD

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Abstract-

Introduction: This article introduce on mobile banking is the use of mobile devices to perform financial transactions and access bank services. Mobile banking started in India in 2002 and since then there has been a period of rapid expansion and numerous technological innovations making mobile banking among the main technological tools used in the provision of bank services.

Purpose of study: The purpose of this article is to examine the role mobile banking plays towards the performance of Co-operative Banks in Dharwad and aim of this article to achieving four main objectives: the effect of mobile banking revenues, mobile lending, customer adoption and operational costs on performance of Co-operative Banks in Dharwad.

Methodology: Research Design: A quantitative research design was used and **Sources of Data:** Secondary data was extracted from the quarterly electronic Banking reports. **Data Collection and Analysis:** A regression model was used to prove a relationship between two variables: performance and mobile banking using profit before tax as a measure of the dependent variable. Several pre-estimation tests were carried out; they included unit root tests co-integration tests, heteroskedasticity tests and multi-collinearity tests.

Data was analysis: This article analysis the data by using SPSS and regression analysis showed a positive association between mobile banking revenues, mobile lending, customer adoption and operational costs.

Suggestion: The suggestion of this article was to drive numbers by improving the mobile platform and ensuring that they are customer friendly and easy to access as well as providing affordable loans through Google Pay, Phonepe, Paytm and BHIM app their primary mobile lending tool as this translates to improved profits for banks.

Conclusion: This article concludes on the study of mobile banking were mobile banking revenues, customer adoption , mobile lending and operational costs .

Keywords: Mobile Banking, Mobile Lending, Customer Adoption, Operational Costs

INTRODUCTION:

This article introduce on Mobile Banking is among the forms of technological tools used in facilitating banking transactions to customers. It is defined the act of conducting financial and banking transactions through mobile devices. The first form of mobile banking invented in the early 1990s was called Short Messaging Service (SMS) Banking. In its earliest form it was used to send messages such as alerts and notifications which would enable customers perform financial transactions, back then mobile phones were not as common as they are today. The 21st Century revolutionized mobile banking, it innovated it from providing simple text messaging to online banking. Customers could not only create signals but also perform activities for example transfers, deposit taking using mobile devices . Since then mobile banking has become a vital channel used in daily operations of banks.

Mobile banking in India plays a substantial role in the financial sector and thus can negatively or positively affect the stability of commercial banks. As a digital channel, it can be difficult to quantify, however various indicators can be used to monitor and measure the development in mobile banking. The indicators include customer adoption and transactions volume, mobile banking revenues, mobile lending and operational costs. Transactions volume is a common measure of mobile banking that analyses the amount of transactions processed through the mobile platform after a certain period. Financial institutions track the volume of mobile money transactions as this project the level of cost efficiency in comparison with other digital channels and reduces the cost to income ratio. Customer adoption is the rate at which users embrace the usage of a new invention. Any mobile banking platform needs to be customer friendly, the interaction between the provider and the customers in addition to its accessibility also increases the rate at which customers embrace the platform and is thus able to be attractive to new customers.

Mobile money innovation enabled provision of financial services to lower income households this increased the number of possible customers and increase in financial inclusions. Technology products like online and mobile banking have given customers multiple options to choose from. The earlier manual way of operation has been programmed reducing time and improving efficiency. This in turn increases revenues for banks through transaction costs.

Extensive studies on mobile banking began in early 2000 and projected an increase in popularity of the business model. This was a period when the adoption of mobile banking had just begun and its full impact had not been felt. Studies conducted by focused on its implementation and factors affecting it. As its acceptance continued to grow and financial institutions began embracing it, studies began to focus on customer and bank's perceptions towards mobile banking. The preferred research methods included use of primary data such as customer-based questionnaires and interviews to assess impact on commercial banks performance.

Recent studies conducted by researchers such as began to focus on financial inclusion and customer behaviour as a measure for mobile banking. This study deviated from these studies by measuring mobile banking impact on banks performance using indicators such as mobile banking revenues, mobile lending, customer adoption and operational costs.

While the implementation of mobile banking has increased revenues for the banks, the picture has not been so rosy, it has also led to increased risks and operational costs faced by Co-operative banks. Immense competition from non-financial institutions and international banks which have entered the market has caused it to adapt by taking aggressive risks as a result their charter value is endangered. Increased risks of fraud have necessitated adoption of more security controls which in turn translated to increased maintenance costs of the platform. In addition, as the volume of transactions has grown using the channel there has been a need to hire more skilled manpower leading to increased labour costs.

The study aimed at determining the costs outweigh the benefits of adoption of mobile banking and its impact has been on the overall performance.

REVIEW OF LITERATURE

This article paper outlines the theoretical and empirical literature done on similar studies.

According to Tiwari, R. Buse, S and Herstatt, C, (2006). Analysed mobile banking as a tool used to influence customer behaviour and consequences for the banks. The study was conducted at a time when mobile banking was gaining acceptance within the world hence a lot of research aimed at identifying opportunities to grow revenues. The study used primary data by conducting a survey of 452 respondents and findings revealed that mobile banking had brought about a differentiation in the services provided by the banks and foresaw the potential of mobile banking becoming widely accepted as channel by the world. The study paved way for researchers and provided a guide to be used in analysing the effect of mobile banking. This research study deviates from their study by focusing not only on customer behaviour but expand more by incorporating more indicators of mobile banking such as customer adoption, mobile banking revenues, mobile lending and operational costs to determine its impact on banks. The study used a case study of one successful bank, Co-operative Banks in Dharwad to understand more on role of mobile banking and its impact on performance.

According to Kigen, K.P.(2010). Constricted the study on mobile banking on microfinance institutions to identify its impact on transaction costs. The study used primary data and adopted an experimental research design. By collecting samples from 15 microfinance institutions, the study was able to conclude that volume of transactions had grown since implementation of mobile banking however the transaction costs had not been altered and as such more business processes needed to be carried out by the institutions to reduce transaction costs involved with mobile banking. The study however, only analysed one aspect of mobile banking i.e. transaction costs and only looked at microfinance institutions. The study focused its analysis on the performance of Co-operative Banks that was used as a representative of commercial banks in Dharwad and analyzed. all the aspects of mobile banking.

According to Aduda. J. & Kingoo, N, (2012). Aimed at establishing an association between financial performance and all forms of electronic banking among commercial banks. In their study, secondary data using descriptive and inferential statistics was collected and a significant relationship was established. Enabling easier transactions of services using the various forms like ATMs, mobile banking and debit cards had enabled commercial banks to improve their results. The current research deviates from this study by focusing only one form of e-banking channel, mobile banking. The current study also aimed at analysing the performance of mobile banking using one representative sample i.e. Co-operative Banks in Dharwad.

According to Njoroge, N. B., (2014). Performed a comparable research study by using various variables such as volume of deposits as well as uptake of loans and created a linear regression to evaluate their relationship to the bank's financial performance. The research method employed was descriptive research study and various descriptive and correlation statistics used. The research was able to record improved performance post mobile banking implementation. Mobile banking technology had promoted financial inclusion and improved services provided by commercial banks. The study was helpful in understanding key determinants of mobile banking, however as the study was founded on the Transfer Technology Fit theory the research centered mainly on the espousal of mobile banking which differs from the current study which intends to evaluate mobile banking based on profit maximization theory.

According to Abong'o, D., (2016). Carried out a parallel study, by collecting a sample size of 10 banks to represent all the banks and to used primary data by employing a descriptive research design and conducting a regression analysis. The study established mobile banking as channel for exchange of money was positive. The study dwelt mainly on mobile banking as a form of exchange with its emphasis mainly on the magnitude to which mobile banking was used as a component storage for safe keeping. The study differed from this current study as its emphasis was on the different roles played by mobile banking as a channel of accessing commercial banks services while the present research aimed at analysing its impact on performance using a case study of one bank.

According to Bagudu, H.D., Khan, S.J., & Roslan, A.H., (2017). Conducted a similar study where they investigated the mobile banking effects and its relation to various commercial banks performance. For this study they selected 22 commercial banks and used descriptive statistics involving simple graphical charts to present and analyse data. The research study used primary data to find the relevant data and analyse the relationship. The study had a challenge as it had a very low response rate and hence was not able to concretely establish the effect mobile banking had. Furthermore, the study was more focused on respondents' perception towards mobile banking and not on the actual performance derived from mobile banking. The current study intended to use secondary data and focused less on attitudes and perceptions towards mobile banking but rather on actual performance indicators such as profitability.

According to Ngeno, R., (2018). Performed an analysis to explore the determinants of financial performance and targeted investment banks and collected secondary data from a sample of 10 investment banks for the period between 2013 and 2017. The

study concluded that the most significant indicator of financial performance was operational efficiency which was brought about by financial innovation such as mobile banking. The study however only focused on causes of financial performance and did not emphasize on the role of mobile banking as a cause of performance which this current study intended to establish. Additionally, the study focused on 10 investment banks for a limited period of four years which can be difficult to gain conclusive results. This study used a sample of one commercial bank from the period 2017 to 2022, which allowed the study to gain more meaningful results as the data was over a long period.

According to Mohammed, H, (2019). Conducted a similar study and used primary data obtained from senior employees of banks. By adopting a descriptive research design, the study was able to conclude that mobile banking had revolutionized the industry and institutions which had factored in mobile banking had been able to notice a positive correlation in their performance. The study however varies from the current study mainly due to the objectives employed. The researcher focused on mobile banking access, mobile banking loans and mobile risks to measure mobile banking.

The major findings in most of the studies have been improved performance relative to pre-mobile banking. Most studies focused on measuring opinions on mobile banking, these measures were highly subjective and difficult to accurately attribute it to a banks' performance. Some of the studies were done on countries with different economic situations compared to Dharwad which has achieved greater success in mobile banking. This study measured various mobile banking indicators such as mobile banking revenues, mobile lending, customer adoption and operational costs to determine its effect on overall performance of Co-operative Bank.

METHODOLOGY:

1. Research Design:

This study opted to employ a quantitative research design. Statistics collected from mobile banking indicators was able to offer a definite conclusion concerning the how the independent variable (mobile banking) relates with the dependent variable (performance) using Co-operative Banks in Dharwad as a case study. The study was modeled from the economics of profit maximization theory²². In order to gain market power, commercial banks employ various efficient strategies to reduce costs. This in turn translates to more revenues and improved profitability. As a result, the study attempted to develop a relationship between the efficient strategy (mobile banking) and its response to commercial banks performance.

2. Sources of Data:

The study used secondary data and focused on the period 2017-2022. Data on the profitability indicator, Profit before tax, independent variables: mobile banking revenues (MBR), mobile lending (MBL), customer adoption (CA), operational costs (OC), non-performing Loans (NPL) and liquidity ratio (LR) was obtained from quarterly electronic banking reports derived from Cooperative Banks in Dharwad website and Banks annual reports .

3. Collection and Analysis:

The study used Augmented Dickey Fuller (ADF) test. If a variable was seen to contain a unit root then the first differential was obtained until the variable became stationary . ADF test was chosen as its can be used in complex equations and works even with cases with serial correlation. The research study used SPSS to perform the test, if the computed p-value is less than 5 percent then we reject the null hypothesis and deduce the data collected on variables has no unit root. . Johansen co-integration test was used to test the hypothesis that the relationship between the variables are statistically significant. To ensure that the data did not violate this assumption then heteroskedasticity tests was carried out . SPSS was used to perform this test. White test was used to conduct the heteroskedastic test where null hypothesis was the residuals did not have unit roots and alternative hypothesis was residuals had unit roots . Once the pre-estimation tests were carried out and data was proven to be genuine, a multiple regression analysis was conducted using SPSS. The tests was conducted with the aim of achieving the four research objectives which ultimately provided guidance in answering the research topic. Performance (Profit before tax), was regressed against Mobile banking revenues (MBR), mobile lending (MBL), customer adoption (CA), Operational costs (OC), Non-Performing Loans (NPL) and Liquidity ratio (LR).

DATA ANALYSIS:

This article analysis the data by using SPSS and regression analysis showed a positive association between mobile banking revenues, mobile lending, customer adoption and operational costs.

Regression Analysis:

Regression analysis was conducted using SPSS. The tests was conducted with the aim of achieving the four research objectives which ultimately provided guidance in answering the research topic. Performance (Profit before tax), was regressed against Mobile banking revenues (MBR), mobile lending (MBL), customer adoption (CA), Operational costs (OC), Non-Performing Loans (NPL) and Liquidity ratio (LR).

Table No.1: Statistical analysis on Mobile Banking Revenues of Co-operative Banks in Dharwad

Independent variable	Coefficient	Standard Error	T-statistic	Probability
Mobile Banking Revenues	0.251	0.304	2.473	0.016

(Sources: Banks annual reports)

Above table No. 1 shows that Regression analysis results proved that mobile banking revenues was statistically significant and had a positive relationship to performance. It had a coefficient of 0.251 implying that a 1 percent increase in mobile banking has 22 percent increase in the bank's performance.

Table No.2: Statistical analysis on Mobile Banking Lending of Co-operative Banks in Dharwad

Independent variable	Coefficient	Standard Error	T-statistic	Probability
Mobile Banking Lending	0.338	0.303	-3.427	0.001

(Sources: Banks annual reports)

Above table No. 2 shows that Mobile lending results showed that mobile lending was statistically significant and had a positive relationship to the performance of Co-operative Bank. An increase in mobile lending provided additional sources of revenues for the bank which resulted in improved performance of the bank. The results of mobile lending showed mobile had a coefficient of 0.338 meaning that a 1 percent increase in mobile lending improved the performance of Co-operative Bank by 19.2 percent.

Table No.3: Statistical analysis on Mobile Banking Customer Adoption of Co-operative Banks in Dharwad

Independent variable	Coefficient	Standard Error	T-statistic	Probability
Mobile Banking Customer Adoption	0.873	0.101	8.671	<0.0001

(Sources: Banks annual reports)

Above table No. 3 shows that customer adoption was statistically significant in determining the performance of commercial bank. The variable had a positive relationship to the dependent variable profit before tax and had a coefficient 0.873 implying that one percent increase in customer adoption had a 10.5 percent increase in the profit before tax of Co-operative Bank. This agrees with the expectation of the study, as an increase in customers adopting mobile banking results in an increase in efficiency level, which ultimately improves the performance of the bank.

Table No.4: Statistical analysis on Mobile Banking Operational Costs of Co-operative Banks in Dharwad

Independent variable	Coefficient	Standard Error	T-statistic	Probability
Mobile Banking Operational Costs	-0.116	0.077	2.827	0.006

(Sources: Banks annual reports)

Above table No. 4 shows that operational costs were statistically significant however it had a negative relationship to the performance of Co-operative Bank. The coefficient of mobile banking operational costs was -0.116 meaning that a 1 percent increase in mobile banking operational costs would result in 11.6 percent decline in performance of Co-operative Bank. The results were consistent with the studies such as, increase in mobile banking operational costs resulted in a decrease in performance of commercial banks.

Table No.5: Overall performance findings of Co-operative Banks in Dharwad

Independent variable	Coefficient	Standard Error	T-statistic	Probability
Intercept	0.681	0.802	-0.849	0.399
MBR	0.251	0.304	2.473	0.016
MBL	0.338	0.303	-3.427	0.001
CA	0.873	0.101	8.671	<0.0001
OC	-0.116	0.077	2.827	0.006
NPL	-0.118	0.053	0.345	0.731
LR	0.099	0.068	1.458	0.150
Sum of weights	64			
DF	57			
R ²	0.886			
Adjusted R ²	0.874			
MSE	0.397			

(Sources: Banks annual reports)

Above table No. 5 shows that Overall performance findings of Co-operative Banks in Dharwad a positive association between mobile banking transactions volume and revenues. The coefficient was 0.236 meaning that a 1 percent increase resulted in 23.6 percent increase in financial performance of banks. , also showed a positive correlation between ROA of banks and transactions volume and revenues of mobile banking. Benefits derived from use of mobile banking resulted in increase in the profitability indicator ROA.

The results are consistent with , which showed a positive association of mobile banking loans to financial performance. ROA measured the financial performance and a coefficient of 0.953 was established implying a significant positive relationship to financial performance of banks.

Additional studies by , showed mobile banking loans was important and positively affected the ROA of banks' agreeing with the results of the study. , in their study found a mobile banking loans had a coefficient of 0.296 in relation to ROA of commercial banks signifying a significant positive relationship between mobile banking loans to banks performance.

The results from the study concurs with the findings from past researchers such as research study revealed that profitability of Tier 1 banks had increased following an increase in number of registered users. The increase in users had translated in an increase in transactions leading to an increase in ROA and ROE of Tier 1 Banks, research also revealed a positive association between mobile banking customer adoption and mobile banking revenues. Customer adoption had a coefficient of 0.037 meaning that a 1 percent increase in customer numbers led to 37 percent increased mobile revenues resulting in improved performance of banks.

This article analysis on conflicts with the results of this study. Their research revealed a negative association between registered users' growth on mobile banking and the ROA. The coefficient of number registered numbers was negative meaning that a 1 percent increase in number of mobile banking users would result in a decrease in ROA. The research study conducted by , also revealed a negative relationship in implementation of mobile and internet banking with the bank's performance. While banks which had adopted mobile and internet banking had noted improved efficiency, that had also experienced lower profitability. The results of the study differed with the expectation and outcomes of the current study.

Mobile banking costs coefficient was -0.129 and a p-value of 0.0000 in relation to the bank's performance. This led to the conclusion that costs had a negative relationship to banks performance which corresponds to the results of this study. , also found similar results, the study revealed that operational costs had a -0.112 coefficient with respect to ROA, meaning that a 1 percent increase in the operational costs led to a 11.2 percent decrease to ROA.

The results of the current study and research from other scholars show that while banks had adopted mobile and improved efficiency, the operational costs greatly affected the performance of commercial banks.

SUGGESTION:

This article suggested mobile banking components such as mobile banking revenues, customer adoption and mobile lending significantly affect profits before tax and improves the performance of banks. To derive the full benefits of mobile banking, banks should aim at growing these two components by driving customer numbers and ensuring that mobile lending is accessible to bank customers. Given that mobile lending and customer adoption increase profits for the bank by 19.2 percent and 10.5 percent respectively, Co-operative bank should aim to drive numbers by improving the mobile platform and ensuring that they are customer friendly and easy to access. Affordable loans through Mco-op Cash their primary mobile lending tool should also be a focus, as this translates to improved profits for banks. As mobile banking is an electronic banking tool there is need to study the effect of other tools and their net effect on performance of banks. There is also need to research further on other attributes of performance such as customer satisfaction and service delivery on the platforms used by banks.

CONCLUSION:

This article was able to conclude that mobile banking returns outweighed its overall operational cost. Hence the study proved that mobile banking positively affected performance of Co-operative Bank which is consistent with studies conducted by several scholars such as. The implementation of mobile banking had come with several challenges such as increased operational costs. Operational costs negatively affected the profits before tax of Co-operative Bank by 10.7 percent leading to reduced performance. This costs however do not outweigh the revenues and benefits derived from implementing mobile banking as shown in the results of the data analysis. Mobile banking customer adoption and mobile lending were all positively related to performance of the bank. This therefore means that all banks should aim at adopting these tools as it has a direct positive relationship to the profits Co-operative Bank in Dharwad.

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