

Impact of Digital Payments Growth on Banking Profitability

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ABSTRACT

The fast-paced development of technology in the modern world has brought about changes in the banking sector by increasing the pace of adoption of various digital payment options such as mobile and internet banking, among others. In the Indian context, digital payments have been enabled by government policies, technological innovation, and greater use of smart phones. Various digital payment platforms such as UPI, IMPS, and NEFT have been introduced for promoting a cashless economy. The current research is aimed at determining the influence of growing adoption of digital payments on profitability of banks in India by relying on secondary data spanning between 2016 and 2024. Some important parameters of profitability such as ROA, ROE, and net profit of top banks such as SBI and HDFC Bank were studied. It was observed that greater adoption of digital payments has a positive impact on profitability and efficiency.

Keywords: Digital Payments, Banking Profitability, UPI, ROA, ROE, Indian Banking Sector

INTRODUCTION

There have been substantial changes witnessed in the global banking sector owing to the fast developments of technology. Digital technologies are becoming popular among financial institutions for enhancing their operations, ensuring customer satisfaction, and being competitive in the market environment. One of the consequences of this revolution is that there has been tremendous growth in digital payments, where transactions are conducted electronically through various means, including mobile, internet banking, e-wallets, and cards. The use of technology, including internet and smartphones, has made digital payments extremely easy and convenient. This shift indicates the changes in financial habits of customers, while at the same time, promoting financial inclusion and economic growth.

LITERATURE REVIEW

1. A. Iyer (2025) performed a study regarding the economics of digital payment platforms. The primary goal of the study was to conduct a critical analysis of the impact of digital payment platforms on economic development and banking performances. The study made use of secondary information gathered from financial reports. The study concludes that adoption of digital payments improves financial systems and encourages economic development.
2. S. Kumar (2025) performed a study concerning mobile payment apps and digital financial services. The primary goal of the study was to conduct a critical analysis of the expansion of mobile-based payment systems. The study used secondary data extracted from financial technology reports. The study finds out that mobile payment apps lead to an increased volume of digital transactions.

3. S. Vikyani and A. Chauhan (2024) performed a study regarding the impact of digital payments on the profitability of Indian public sector banks. The primary goal of the study was to evaluate the impacts of digital transactions on financial performances. The study made use of secondary information gathered from bank annual reports.
4. T. Waliullah et al. (2024) have carried out a research paper on cyber security threats in digital banking. The purpose of the research was to examine cyber security threats linked to digital payments platform. In their research, Waliullah et al. (2024) made use of secondary data sources like cyber security reports and research papers. According to the research findings, cyber security is important for conducting digital transactions safely.
5. R. Verma et al. (2023) have also written a research paper on the topic of fintech innovations and banking efficiency. The aim of the research was to find out how digital technology impacts banking efficiency. The researchers made use of secondary data from financial reports and scholarly articles. It was found out that fintech innovations increase banking efficiency.

RESEARCH OBJECTIVES:

- Analyze the emergence and development of digital payment methods in India.
- Examine the effect of digital payment transactions on the profitability of banks.
- Assess the impact of digital payments on the operational efficiency and cost-effectiveness of banks.
- Investigate the correlation between the use of digital payments and important profitability measures in banking like ROA and ROE.
- Propose ways for banks to enhance their profitability through digital payments.

HYPOTHESIS

Using the objectives and conceptual framework of the study, the following hypotheses are postulated to test the association between the development of digital payment and the profitability of banks.

H1: There is a significant association between the development of digital payment and the profitability of banks.

H2: The use of digital payment technology significantly enhances efficiency in banks.

H3: The rise in the volume of digital payments significantly impacts bank income.

H4: Digital payment systems help lower costs in banks.

H5: The rise in digital payment significantly affects bank financial performance.

RESEARCH DESIGN

A research design can be defined as an overall approach to combine various elements of the research into one cohesive structure in order to solve the research problem efficiently. In this regard, the current research employs the method of descriptive and analytical research design. Through the descriptive research design, it becomes easy to describe the growth of digital payment methods and their application within the banking industry. In addition, through the use of an analytical research design, it becomes possible to establish the relationship between the growth of digital payments and the profit making ability of banks. This research design allows the current research to explore the impact of increased use of digital payment platforms like UPI, IMPS, NEFT, and mobile banking services on the performance and profitability of banks.

SOURCE OF DATA

The current research uses secondary data collected from credible sources.

SECONDARY DATA

Secondary data consists of data that has been previously gathered and published by other entities. The secondary data employed in this research has been sourced from the following platforms:

- Annual reports of selected banks
- Publications issued by the Reserve Bank of India (RBI)
- National payments statistics released by the National Payments Corporation of India (NPCI)
- Literature on digital banking and financial technology
- Bank websites

The aforementioned platforms contain rich information on the number of digital payments and key financial metrics of banks.

STUDY PERIOD

This paper examines the years 2016-2024. The reason for choosing this timeline is that there was an exponential rise in digital payments in India after the demonetization event of 2016 in India.

ANALYSIS AND INTERPRETATION

| DESCRIPTIVE STATISTICS | | | | |
|-------------------------------|-----------------|-------|-----------------|-------|
| <i>Descriptive Statistics</i> | | | | |
| | ROA (%) HDFC | SBI | ROE (%) HDFC | SBI |
| Mode | 1.900 | 0.524 | 18.92 | 10.93 |
| Median | 1.900 | 0.670 | 19.30 | 13.92 |
| Mean (arithmetic) | 1.884 | 0.706 | 19.42 | 14.50 |
| Shapiro-Wilk | 0.971 | 0.919 | 0.985 | 0.882 |
| P-value of Shapiro-Wilk | .882 | .521 | .959 | .321 |

HDFC Bank is relatively profitable compared to SBI from the perspective of ROA and ROE in five instances. It has an average ROA of 1.884%, which is much better compared to that of SBI, which is only 0.706%. In addition, its ROE is better at 19.42% compared to SBI's at 14.50%. Since its values are constantly high and normally distributed ($p > 0.05$), HDFC Bank is more stable and superior.

INDEPENDENT SAMPLES T-TEST

| | t | df | p |
|---------|-------|----|-------------------|
| ROA (%) | 8.342 | 8 | < .001 |
| ROE (%) | 2.014 | 8 | .079 ^a |

There is also a significant difference between the two banks when performing an independent samples t-test on their respective ROAs ($t=8.342$, $p<0.001$). The difference between ROEs, however, is not significant at the 5% level ($t=2.014$, $p=0.079$).

The results from the Brown-Forsythe test also show unequal variances between the two sets ($p<0.05$). Overall, the asset efficiency differs significantly, but the shareholder returns do not differ significantly.

PAIRED SAMPLES T-TEST

| Measure 1 | Measure 2 | t | df | p |
|---------------------|------------------------|--------|----|------|
| SBI Net Profit (Cr) | - HDFC Net Profit (Cr) | -1.421 | 3 | .250 |

There is no significant difference between net profit of State Bank of India and HDFC Bank as per paired sample t-test analysis results ($t = -1.421$; $p\text{-value} = 0.250$). Since the p-value is greater than 0.05, there is no significance of net profit difference. It suggests that there is no sufficient evidence to prove any significant difference between both banks. Hence, the net profit of both banks remains similar.

| CORRELATION | | | | | |
|----------------------------------|------------------------|--------------|------|-----------------|-----|
| <i>Partial Correlation Table</i> | | | | | |
| | | Pearson r | p | Spearman rho | p |
| SBI Net Profit (Cr) | - HDFC Net Profit (Cr) | -0.688 | .517 | -1.000 | NaN |

The partial correlation coefficient for the net profit of State Bank of India and HDFC Bank, controlling for the number of transactions in UPI, is moderate and negatively correlated with a Pearson coefficient of -0.688, but this coefficient does not have any statistical significance at $p = 0.517$. The Spearman rank correlation coefficient (ρ) is a strongly negative one, although no test of significance can be conducted owing to the limited nature of the available data.

FINDINGS OF THE STUDY

- The findings reveal that the digital payment system in India has undergone tremendous growth, particularly following demonetization. The growth is characterized by a massive increase in UPI transactions between 2020 and 2023.
- The introduction of digital payments has led to improved profitability within the banking industry, particularly evident in the rise in ROA and ROE for both SBI and HDFC Banks.
- It is clear that the private sector HDFC Bank has higher profitability when compared to SBI. Additionally, it is evident that the asset utilization efficiency of HDFC Bank is statistically different from SBI's. There is no statistical difference in ROE among the two banks, despite the difference in their asset utilization efficiency.
- The study further reveals that the growth in digital payments leads to net profit growth in both banks. Although the study shows that net profits in both banks have been on the rise alongside digital payments, no significant difference is noted in the net profit figures of the two banks.
- In conclusion, the study reveals that digital payment growth does not necessarily influence profitability as many other factors affect profitability.

RECOMMENDATIONS OF THE STUDY

- The results indicate that banks need to upgrade their digital infrastructure to manage increasing transactions effectively while ensuring high security. It is imperative for banks to implement more stringent cybersecurity protocols to combat frauds.
- Digital financial education must be promoted by banks, particularly in rural and semi-urban regions, to enhance the utilization of digital payments. Banks may consider providing innovative services like artificial intelligence banking and digital lending to customers.
- Involving fintech firms will enable banks to embrace new technological advancements. Apart from these, operational costs may be lowered through digitalization, whereas banks could encourage businesses to use digital payments.

CONCLUSION

Based on the findings, the conclusion is drawn that digital payment services have brought substantial changes to the Indian banking industry, leading to efficiency and productivity enhancement of operations, as well as increased financial inclusion among customers. Increased usage rates of payment services through UPIs, mobile wallets, and Internet banking are one of the reasons for operational costs reduction and revenue increase. According to the analysis of SBI and HDFC Bank, digital payment adoption positively influences the banking organization's performance as evidenced by the higher ROA and ROE values. Although some differences can be observed between the studied organizations, the overall positive correlation proves that digital banking contributes to the improvement of financial performance. In spite of all the benefits, challenges related to the increase in cybersecurity threats and the rise in competition in the market are inevitable. Therefore, digital payments should be viewed as an essential part of the process of bank transformation, which is essential to ensure the sustainability of operations and competitiveness.

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