



## A Study on Impact of Digital Payment on Profitability of Public Sector Bank in India

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### Abstract

The banking sector has been significantly impacted by digitalization. New financial services and products have resulted from it, and this has improved bank performance and reduce operating cost of bank and improve the customer services. However, there is limited research on impact of digitalization on Profitability of Bank. The main Objectives of this study is to examine the effect of Digital payment on Profitability of Public sector bank and explore the growth of Digital payment in India. Secondary data were collected from annual report of bank and make regression analysis to find out the impact of digital payment on Profitability of Public sector bank in India. The Analysis reveal that there is positive correlation between Growth of digital payment and Profitability of Public sector bank in India. The finding suggest that growth of digital payment may reduce operating cost for bank and improve the operation of bank which result into increase the profitability of Public sector bank in India.

**Key word:** Digitalization, Profitability, Digital payment.

### 1. Introduction

The banking sector is transitioning from an antiquated physical strategy to a proactive digital one. The digitization of banking is being driven by contemporary technologies like the Internet of Things, AI, ML, Block chain, and big data analytics, among others. Both the way banks conduct business and how their clients engage with them have changed as a result of the digital revolution. Traditional banks were the only reliable place to do banking until a few years ago. However, NBFCs, MFIs, and neo banks now operate in the digital sphere and offer financial services. Banks have seen cost savings from e-banking while also seeing an increase in user base, which has enabled them make more money through a variety of channels. Human mistake has decreased with digitization. The data can now be accessed and examined at any time. Public sector banks, often

known as government [1] banks in India, play a crucial role in the country's financial system and have a significant impact on its economic development. By actively supporting government programs like the Jan Dhan Yojana and Mudra Yojana, PSBs have accelerated financial inclusion and socioeconomic advancement. Their wide branch networks provide accessibility for everyone by extending financial services to even the most remote areas. [2]

### 2. Literature Review

(Luiz Antonio Bueno, Rosley Anholon, Tiago sigahi, Izabela simon, Walter Leal., 2024) Investigate the Impact of Digitalization on operational efficiency of banking industry and found out that Digitalization improve the performance of bank and customer services, Covid-19 has major impact on



digitalization of banking industry (Jihen Bousrih, 2023) investigate the impact of Digitalization on banking industry and found out that There is positive correlation between Digital payment and ROA of Bank.(John Anderson, 2023) studied Risk of Banking Transformation in Digitalization and found out that due to digitalization there is significantly increase the client base of banks and reduce the costs of banking services. (Mr. Ahsan Ahmed, 2020) examine the impact of Digitalization of Indian Banking Industry and found out that there is positive effect of digitalization on environment sustainability and prompting concept of Green marketing in Indian Baking industry.(Uma Raghavendra and Anudeep velagapudi, 2020) investigate the effect of Digitalization on Traditional Banking and found out that E-Baking reduce cost for bank. [3]

### 3. Research Gap

Previous research has explore the Impact of digitalization on Banking industry in respect to customer services, Return on Assets, Operation of bank, cost of operation, connivances of customer but there is a lack of studies that focus on specifically on effect of digital payment on Profitability of Bank There is further research need to examine the relationship between digital payment and Profitability of Bank.

### 4. Objective of Study

- To study the trends and patterns of the growth of digital payments in India
- To study the relationship between digital payments and Profit of Public sector bank in India.
- To study the effect of digital payments on Profitability of Public sector bank in India

### 5. Research Methodology

**Period of study:** The Five-year study period that this research paper covers runs from 2017-18 to 2021–2022. **Population:** All public sector banks of India is population for my Study. **Sampling:** The top five Public sector bank are chosen based on Market Cap on NSE As on 1st August 2024. **Data Collection:** The data collected is purely secondary in nature. The data Related to Value of Digital payment has been

collected from the website of NPCI and RBI and the data of Profit of Public sector Bank have been collected from Annual Report of Company. Tools and Techniques: The instruments for data analysis are simple multiple regression and ANOVA techniques is applied. Hypothesis: H01: The impact of Digital Payment on Profit of State bank of India is statistically insignificant. H02: The impact of Digital Payment on Profit of Punjab National Bank is statistically insignificant. H03: The impact of Digital Payment on Profit of Bank of Baroda is statistically insignificant. H04: The impact of Digital Payment on Profit of Indian Overseas Bank is statistically insignificant. H05: The impact of Digital Payment on Profit of Canara Bank is statistically insignificant. [4]

### 6. Limitation of Study

- This study only looked at the top five Public sector bank that were chosen.
- The study can only be conducted over a five-year period. [5]

### 7. Model of Regression

To study the impact of Value of digital payment on Profitability of Indian Public sector Bank during 2017-18 to 2021-22, Simple Multiple Regression has been applied. Independent variable Value of digital payment and dependent variables Profit of SBI, Profit of PNB, Profit of BOB, Profit of IOB, Profit of Canara Bank. The model is as follows:

Model Building  $Y = a + b X$

- **Model (a):** Profit of SBI=  $a + b$  (Value of digital payment)
- **Model (b):** Profit of PNB=  $a + b$  (Value of Digital payment)
- **Model (c):** Profit of BOB=  $a + b$  (Value of Digital payment)
- **Model (d):** Profit of IOB =  $a + b$  (Value of Digital payment)
- **Model (e):** Profit of Canara Bank =  $a + b$  (Value of Digital payment)

Where  $a$  = intercept  $b$  = slope,  $Y$  = Dependent Variable,  $X$  = Independent Variable The outcome of Regression Analysis is portrayed in the tables below.

## 8. Data Analysis

**Table 1 Year Wise Value of Digital Payment and Profit of Public Sector Bank (In Crore)**

Year	Value Of Digital Payment	SBI	PNB	BOB	IOB	Canara Bank
2017-18	196200000	-6,547.45	12,282.82	2,431.81	6,299.50	-4,222.24
2018-19	248200000	862.23	-9,975.49	433.52	3,737.88	347.02
2019-20	295300000	14,488.11	336.19	546.19	8,527.40	-2,235.72
2020-21	300000000	20,410.47	2,021.62	828.96	831.47	2,557.58
2021-22	302100000	31,675.98	3,456.96	7,272.28	1,709.54	5,678.41

**Table 2 Model Summary**

Regression Statistics	SBI	PNB	BOB	IOB	Canara Bank
Multiple R	0.88	0.99	0.44	0.29	0.35
R Square	0.78	0.99	0.20	0.08	0.12
Adjusted R Square	0.67	0.98	-0.21	-0.37	-0.31
Standard Error	7370.32	767.84	3665.73	5525.43	3850.26

**Table 3 Anova**

Model		DF	SS	MS	F	Sig.
SBI	Regression	1	385030085.6	385030085.6	7.087	0.1168
	Residual	2	108643519.5	54321759.77		
	Total	3	493673605.2			
PNB	Regression	1	110153867.8	110153867.8	186.83	0.0053
	Residual	2	1179178.756	589589.3778		
	Total	3	111333046.6			
BOB	Regression	1	6568302.184	6568302.184	0.488	0.5568
	Residual	2	26875278.78	13437639.39		
	Total	3	33443580.96			
IOB	Regression	1	5601094.54	5601094.54	0.183	0.7101
	Residual	2	61060715.73	30530357.86		
	Total	3	66661810.27			
Canara Bank	Regression	1	4183470.238	4183470.238	0.282	0.6483
	Residual	2	29648929.56	14824464.78		
	Total	3	33832399.8			

**Table 4 Co-efficient**

Model		Co-efficient	Standard error	t-stat	P- Value
SBI	Intercept	-109759.62	47702.12	-2.30	0.15
	Digital payment	0.00	0.00	2.66	0.12
PNB	Intercept	-68765.46	4969.65	-13.84	0.01
	Digital payment	0.00	1.73	13.67	0.01
BOB	Intercept	-14267.55	23725.33	-0.60	0.61
	Digital payment	5.77	8.26	0.70	0.56
IOB	Intercept	-17702.77	35761.58	-0.50	0.67
	Digital payment	0.00	0.00	0.43	0.71
Canara Bank	Intercept	-11611.52	24919.55	-0.47	0.69
	Digital payment	4.61	8.67	0.53	0.65

## 9. Hypothesis Testing

**H01:** The impact of Digital Payment on Profit of State bank of India is statistically insignificant Based on the aforementioned data, the researcher has determined that the p-value for Profit of SBI and the value of digital payments is 0.116864426, which is less than 0.05 at the 5% significant level. Therefore, there is enough data to disprove the null hypothesis, which indicates that there is a statistically significant relationship between Profit of SBI and digital payments.

**H02:** The impact of Digital Payment on Profit of Punjab National Bank is statistically insignificant. Based on the aforementioned data, the researcher has determined that the p-value for Profit of PNB and the value of digital payments is 0.005309824 which is less than 0.05 at the 5% significant level. Therefore, there is enough data to disprove the null hypothesis, which indicates that there is a statistically significant relationship between Profit of PNB and digital payments. [6]

**H03:** The impact of Digital Payment on Profit of Bank of Baroda is statistically insignificant.

Based on the aforementioned data, the researcher has determined that, at the 5% level of significance, the p-value for the value of digital payments and Profit of BOB is 0.556830181, which is greater than 0.05. Therefore, there is insufficient data to rule out the null hypothesis, which indicates that there is no statistically significant relationship between Profit of BOB and Digital Payment. H04: The impact of Digital Payment on Profit of Indian Overseas Bank is statistically insignificant. Based on the aforementioned data, the researcher has determined that, at the 5% level of significance, the p-value for the value of digital payments and Profit of IOB is 0.710133585, which is greater than 0.05. Therefore, there is insufficient data to rule out the null hypothesis, which indicates that there is no statistically significant relationship between Profit of IOB and Digital Payment. H05: The impact of Digital Payment on Profit of Canara Bank is statistically insignificant. Based on the aforementioned data, the researcher has determined that, at the 5% level of significance, the p-value for the value of digital



payments and Profit Of Canara Bank is 0.64835703, which is greater than 0.05. Therefore, there is insufficient data to rule out the null hypothesis, which indicates that there is no statistically significant relationship between Profit of Canara Bank and the Digital Payment. [7]

### Findings

- There is continues growth in value and Volume in Digital payment
- The value of digital payment is closely correlated with the Profit Of SBI ( $r = 0.88$ ) and Profit of PNB ( $r = 0.99$ )
- The value of digital payment is Moderate correlated with the Profit of BOB ( $r = 0.44$ ) and Profit of Canara Bank ( $r = 0.35$ )
- There is Below moderate correlation between Profit of IOB and the value of digital payments. ( $r = 0.28$ )
- The Growth of digital payments has benefited Profitability of SBI and PNB.
- The growth of digital payments has little bearing Profitability effect on BOB, IOB, and Canara Bank.
- Due to Expansion of Digital Payment operating cost may reduce which result into increase profitability of Bank.

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