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India payments going digital: A study on credit card payments

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Abstract
The most crucial component of any nation's economic structure is its payment system. One method of making payments using digital means is called digital payment. Banks give their account holders cards, which are still the most popular way to make digital payments today. A lot of us make digital payments and transfer money using cards. As novel tools in the financial services sector, credit cards are provided by commercial banks. Transactions are made faster and safer with the shift from paper-based to electronic payment methods. Furthermore, tracking the movement is simple. Additionally, this strengthens the accountability for funds in an economy. Due to the high frequency of cash transactions, it might be difficult to track transactions, which can result in revenue loss from tax evasion.
In cognizance with this background, the study primarily aims to determine whether credit cards are becoming more and more popular as a means of making digital payments. The study's findings showed a relationship between payment value and transaction volume. Therefore, it is evident that when transaction volume rises, payment value rises as well, but not the number of outstanding cards that are available. Although the study is analytical in nature, secondary sources are also studied. Data spanning from the fiscal year (FY) 2013–14 to 2022–23 was used in the analysis. Trend, correlation, percentage, and multiple regressions examined by SPSS are the analytical tools utilized.

Keywords: credit cards, e-payments, e-banking, digital payments, digital vision, RBI

Introduction

India's banking system needs to be trouble-free and prepared to handle any new problems resulting from internal and external factors, including technology. India's economy must be strong in order for its financial system to be strong. Over the past thirty years, India's financial sector has achieved many remarkable things, but its wide-ranging impact is the most remarkable. It is no longer only practiced by urban or cosmopolitan Indians. In fact, it has spread to even to the most rural areas of the nation. One of the key causes of the Indian economy's growth is due to this. In the past, banks' primary responsibilities included taking deposits, approving loans and advances for customers, and funding international trade. However, banks now also carry out a wide range of completely new tasks, such as credit creation and agency work. Banks accomplish all these jobs efficiently by utilizing a range of modern e-payments instruments, such as credit cards, debit cards, and ATMs. (Gupta, 2007).

The digital payments market in India is expected to produce $700 billion in transaction value by 2022. Electronic payments will offer an open setting in which to compare the cost and quality of services offered by different banks. Consequently, personalised banking services will gain prominence over general financial services. In addition to cutting transaction times and reaching a previously unexplored market, banks now offer a wide range of financial services, including "internet banking," "mobile banking," "payment of bills on credit cards," and ATM withdrawals. These services have had a substantial impact on economic growth. With a credit card, the cardholder can make purchases of products and services without having to make a cash payment right away. It is also frequently referred to as plastic money. A credit card is essentially a "Buy Now Pay Later" card given to the consumer.

Review of Literature

In India and abroad, many studies have been carried out on the topic of "Plastic Money". Research has focused primarily on several topics, including fraud, security, usage patterns, new e-payment methods, etc. After the literature was reviewed, it became clear that very few significant studies had looked at how traders and users perceived the use of digital payments and plastic money.

According to Murugesan (2007) [4], there is a lot of room for business growth and expansion when using credit cards. Additionally, more innovative and user-friendly credit card programs should be launched to encourage more individuals to have credit cards. Parimala (2007) [5] emphasized Tiruchirappalli's credit card marketing environment. Her main findings show that there aren't enough merchant establishments to accept credit cards, that there isn't enough exposure and advertising, and that cardholders aren't aware of all the services that the issuers provide. Her recommendations to get around them and lower annual, penalty, and interest costs offer a lot of room for the credit card industry to grow and expand. Swarnalatha N. (2007) examined the outcomes of credit card services.

The basis of the research was the perspective of a certain set of credit cardholders in Chennai City from several issuing banks. This study found that those who own fewer cards are happy than those who own more. Perceptions like "credit cards lead to overspending," "savings as a source of payment," "unreasonable interest rates," and "credit card as status symbol" all had a substantial impact on the number of credit cards, according to a study by Gan *et al*. (2008).

According to Sumanjeet S. (2009), credit cards remain the most widely used payment method in e-commerce, even if there are many other options. According to Subramanian, S. and Swaminathan, M. (2009) [7], consumers now prefer to utilize payment cards because they are more secure to carry

and offer credit options. The current financial turbulence and credit crunch will affect the economic trend to some degree. Additionally, bankers will exercise a little more caution when assessing the risk of credit card applicants. However, the general trend will continue to be upward.

According to Linda Eagle (2010) research, hackers and money launderers have been using more inventive fraud techniques in the past several years as more bank clients start using electronic banking systems. According to Subramanian S. (2010), cardholders' awareness levels determine the results of the study; they appear more content when they are aware of the benefits of the bank-issued card. To ensure the long-term pleasure of their cardholders, issuers must take the appropriate actions to raise cardholder awareness.

Significance of the Study

Over the past few decades, credit card usage and ownership have increased dramatically worldwide. This trend is becoming more and more common as a preferred method of payment for online purchases, cross-border utility bill payments, and other services because it is a convenient way to pay instead of using cash, cheques, pay orders, or other payment methods. The Indian government took a big step in 2016 when it demonetized the currency to reduce the flow of black money across the nation and boost the use of digital payments. India has taken an incredible step towards strengthening its cashless economy, which has led to a dramatic rise in the number of digital payment methods available there. Business is being driven by shifting consumer behaviour, rising internet penetration rates, and government regulations. This is indirectly aided by the rising need for P2P payments, e-commerce platforms, utility bill payments, and other services. India's digital infrastructure development is notable for its robust technical environment.

In India, there were more than 85.303 million credit cards in use as of the end of March 2023, with a value turnover of about INR 5419.44 billion. Between 2013–14 and 2018–19, the growth rate went from 10.063% to 25.64%. The two-year growth rate decline from 2019–20 to 2020–21 was evident. The percentage of outstanding cards is trending downward, from 18.659 to 15.858 percent during 2021-22 to 2022-23. The value of payments is also expected to expand, from 3806.43 billion to INR 5419.44 billion in FY 2022–2023 from 2021–2022 in terms of both the volume of cards available and the value of payments.

Additionally, it is said that the value of payments is expected to expand at a rate of 35.57 percent to 42.38 percent. The market is anticipated to expand by 50% annually. The credit card industry is a high volume, low margin business. Thus, given the low income per card and the high initial investments by the bank, large volumes in terms of cards issued and the transactions financed are required to make the operations profitable. Additionally, it is said that the value of payments is expected to expand at a rate of 35.57 percent to 42.38 percent. The credit card industry is a high volume, poor margin enterprise. As a result, huge numbers of cards issued, and transactions financed are needed to make the operations successful due to the low income per card and the bank's heavy initial investment. In March 2014, the value of payments was only INR. 1539.85 billion and it increased to INR.5419.44 billion by 2022-23.

That indicates a 252 percent increase over a ten-year period. Although using plastic money or credit cards for payments is quite convenient, there are few drawbacks. Even though it has become an essential component of our way of life, it requires careful thought. It's safer to use a credit card than cash. In recent years, there have also been fewer defaults. In light of this, the researcher makes an effort to look into and assess if credit card payments are growing in popularity. Additionally, correlation between the volume of transactions, the value of the payments, and the number of outstanding cards has been searched in order to determine the viability of the study's digital vision approach.

Objectives

1. To study the growth and trend value of credit cardholders.
2. To study the relation between the volume of credit card transactions and the value of credit card payments.

Research Methodology

The study includes secondary sources of data gathered through citations from books, the IBA journal, the RBI Bulletin, published articles, and websites of associated banks. The analysis spans the time frame between the fiscal year (FY) ending March 31, 2013-14 and 2022-23. Trend, correlation, percentage, and multiple regression analysis are the analytical tools.

Analysis and Results

Table 1: Trend of Outstanding Credit card during the Period from 2013-14 to 2024-25

FY*	Outstanding cardholders** (in millions)	Growth rate	Trend value
2013-2014	19.18	-	11.815
2014-2015	21.11	10.063	19.295
2015-2016	24.51	16.106	26.776
2016-2017	29.84	21.746	34.256
2017-2018	37.48	25.603	41.736
2018-2019	47.09	25.640	49.216
2019-2020	54.5695	15.883	56.696
2020-2021	62.049	13.706	64.176
2021-2022	73.627	18.659	71.656
2022-2023	85.303	15.858	79.136
2023-2024	100.60	17.93	87.20
2024-2025	111.20	11.13	95.13

Source: Compiled from RBI monthly Bulletin.

*FY-12 months commencing from 1st April to 31st March every year.

**Cards outstanding issued by banks (excluding those withdrawn/blocked).

The number of outstanding cards issued for the various banks for the financial year ending in 2013–14 to 2022–23 can be found in Table 1. These figures clearly show that the quantity of outstanding cards is increasing at a phenomenal rate. From 2013–14 to 2022–23, it increased from 19.18 million to 85.303 million. During the period 2013-14 to 2018-19, the outstanding cards grew at an increasing rate from 19.18 million to 47.09 million with a growth rate of 10.063 percent in 2014-15 to 25.640 percent in 2018-2019. Owing to product cross-selling and other banking strategies implemented by issuers and banks, the number of outstanding cards increased from 21.11 million to 37.48 million (+77.55%) between 2014-15 and 2017-18. It is significant to remember that, at 25.640 percent, outstanding cards had the greatest growth rate in the current financial year. The number of outstanding cardholders increased later, although at a lowering rate of only 15.883 percent, and the growth rate of 13.706 percent in 2020–21 followed the declining trend. In 2021–2023, the growth rate had an increasing tendency at 18.659 percent; however, in 2022–2023, it again demonstrated a decreasing trend at 15.858 percent. It shows that bankers are eager to market their cards, and that consumers might be more knowledgeable about using digital money than they are about using paper-based payment methods.

Table 2: Trend volume of credit card transactions from 2013-14 to 2022-23

FY	Volume (in millions)	Growth rate	Trend value
2013-2014	509.08	-	709.517
2014-2015	615.12	20.83%	796.774
2015-2016	785.73	27.74%	884.032
2016-2017	1087.13	38.36%	971.289
2017-2018	1405.16	29.25%	1058.547
2018-2019	1762.59	25.44%	1145.804
2019-2020	1315.7355	-25.35%	1233.062
2020-2021	868.881	-33.96%	1320.319
2021-2022	1112.459	28.034	1407.577
2022-2023	1559.87	40.218	1494.834
2023-2024	1995.62	51.15	1723.245
2024-2025	2315.62	61.13	1853.62

Source: Compiled from RBI monthly Bulletin.

Table 3: Trend value of credit card transactions from 2013-14 to 2022-23

FY	Value (in billions)	Growth rate	Trend value
2013-2014	1539.85	-	2111.20
2014-2015	1899.16	23.33	2446.08
2015-2016	2381.2	25.38	2780.95
2016-2017	3283.82	37.90	3115.82
2017-2018	4589.65	39.76	3450.69
2018-2019	6033.48	31.45	3785.56
2019-2020	4420.585	-26.73	4120.43
2020-2021	2807.69	-36.48	4455.30
2021-2022	3806.43	35.57	4790.18
2022-2023	5419.44	42.37	5125.05
2023-2024	7075.52	52.96	5688.63
2024-2025	8368.20	62.34	6375.401

Source: Compiled from RBI monthly Bulletin.

Tables 2 and 3 display the volume and value of credit card payment channels from FY ending in 2013–14 to FY ending in 2022–23. This data unequivocally demonstrates that card payment volume and value are rising at an incredible pace. Between 2014–15 and 2017–18, the number of cardholders increased from 21.11 to 37.48 million (see table 1). In 2011–12, this figure was a mere 17.65 million. As a result, there has been a sharp increase in the quantity of card transactions.

The significant increase in card users in 2013–14 resulted in 509.08 million transactions. By 2016–2017, the number of transactions had more than doubled to 1087.13 million, growing at a rate of 38.359 percent, which was comparatively higher than in previous years. Subsequently, the number of credit card transactions dropped, falling from 1762.59 million in 2018–19 to 1315.73 million (-25.352%) in 2019–20. In 2020–21, the trend dropped even more, to 868.881 million (-33.962%). At a growth rate of 28.034 percent, the number of transactions increased to 1112.459 million in 2021–2022. The number of transactions grew at a rate of 40.218 percent, reaching 1559.87 percent by 2022–2023.

The share of card payments has increased significantly as a result of technological developments, both in terms of payment volume and value. This suggests that more people are making payments with cards. The overall volume of card transactions increased from 615.12 million to 785.73 million during the financial years 2014–15. This growth rate of 20.83 percent to 27.74 percent is shown, and the value of the transactions increased from INR 1899.16 billion to 2381.20 billion (+25.38%), indicating rapidly growing upward trends.

The number of card transactions increased steadily between 2013–14 and 2018–19, from 509.08 million to 1762.59 million, with a value of INR 1539.85 billion to INR 6033.48 billion.

It is evident that the overall growth in card transactions has increased by approximately three times both in volume and value. The volume of transactions increased from FY 2016–17 to FY 2017–18, reaching 1405.16 million (+29.25%) from 1087.13 million and INR 4589.65 (+39.77%) billion in value from INR 3283.82 billion. This suggests that current card users are becoming more comfortable using their cards to make frequent purchases. It's also crucial to note that a higher percentage of consumers chose card payments, suggesting that current card users use card banking for greater transactions. From 6033.48 billion in 2018–19 to 2807.69 billion in 2020–21, the value of card transactions dropped. Further, the value of credit card transactions increased in 2022–2023 to $5419.44 billion.

The volume of transactions and the value of card payments were also shown to have a high and positive association (0.999), suggesting that an increase in the number of transactions at the same time would also increase the value of payments. There seems to be an increase in the use of cards for payments in India. It has grown remarkably in the past few years. India has a large card user base, but their potential is still unrealized. The report claims that the government has pushed for the prompt adoption of digital payments and asked banks to provide their customers with additional services in an effort to promote a cashless economy. Additionally, it is identified that there is a sign of continued rise in card payments from the perspectives of financial inclusion and the digital vision. Thus, lenders ought to encourage continued card usage among their clients by providing a subsidy or other incentive. It was noted that more infrastructure development was required by the government to support digital payments.

"Transform India into a digitally empowered society and knowledge economy" is the primary goal of the Digital

India programme, without a question, card banking is a fantastic digital tool for attempting to financially integrate unbanked and semi-banked societies in nations with limited financial access. Therefore, the journey towards digital vision through card banking is unavoidable.

Multiple Regressions Equation for the Value of Card Payments

Dependent variable: Growth value of credit card payments (Y)

Independent variables

1. Number of cardholders/Outstanding cards (X_1)
2. Number/Volume of transactions (X_2)

Multiple R Value	0.9978
R Square value	0.9958
F Value	821.7
P Value	0.000**

Table 4: Multiple Regression Equation for the growth value of card payments

Variables	Unstandardized Co-Efficient (B)	SE of B	't' value	P Value
X_1	4.6783	1.9708	2.374	0.049
X_2	3.4781	0.1102	31.568	0.000**
Constant	428.0534	106.6148	4.015	0.005

Source: Computed data

** P value denotes significant at 1% level

The degree of correlation between the actual and projected values of the order of value for card payment is indicated by the multiple correlation coefficient, R = 0.9978. Because the predicted values are obtained as a linear combination of Number of Outstanding Cards/cardholders (X1), Number of card Transactions (X2), the coefficient value of 0.9978 indicates that the relationship between growth value of credit card payments and two independent variables is quite moderate and positive. The coefficient of determination, R-square measures the goodness-of-fit of the estimated value of R2 = 0.9958 shows about 99.58 per cent of the variation. This information is quite useful in assessing the overall accuracy of the model and significant at 1% level, since p value is less than 0.01.\

The Multiple regression equation is

$Y = 428.0534 + 4.6783X_1 + 3.4781X_2$

Since it is not possible to use the average level of dependable variable negatively, the constant a = 428.0534 cannot be understood. However, this value shouldn't be neglected. It is crucial when applying the calculated regression line or equation for prediction. The outstanding number of credit cards (X_1) dimension of holding other variables constant is represented by b1 = 4.6783. With every unit of growth in outstanding number cards, the value would increase by 4.6783, according to the projected positive sign, which suggests that the effect is positive. The volume /number of transactions (X_2) of holding other variables constant is represented by b1 = 3.4781. The expected positive sign denotes a favourable outcome and predicts that the value of card payments will rise by 3.4781 for each unit increase in volume or number of card transactions and usage.

It has been found that the value of card payments increased for every unit rise in the total number of outstanding cards. Similarly, the value of card payments grew with every unit rise in the volume and frequency of card transactions.

In addition, the increasing transaction volume component is far more significant than the total number of cards issued by banks, indicating that card issuers should restrict the number of cards they issue or block inactive cards to lower default risk and maintenance costs. It suggests that increasing the volume or number of transactions might raise the value of payments. The card issuing divisions of the banking institutions ought to employ efficient marketing tactics, such providing tax exemptions, waiving bank fees and commissions, and other benefits that encourage retailers to embrace card payments. In order to boost cardholder usage, cashback, discount, and other incentive programs must be made available.

Conclusion

Both the number of transactions and the total number of cards which are still outstanding affect the value of payments. This suggests that when the number of transactions rises, so does the value of payments. The study suggests that to increase the acceptance of value-based digital card payments, card issuers should increase transaction volume. Furthermore, the government is a strong proponent of electronic payments. It has also announced incentives for digital payments and reduced certain taxes.

It has introduced the Digi Dhan Vyapar Yojna for shopkeepers and the Lucky Grahak Yojna for customers. Digital payments have a very promising future. 16.71 million cards were added in the calendar year 2023—a substantial rise over the 12.24 million added in the previous year. This growing pattern has persisted over the past five years, with the total number of credit cards in use increasing by around 77% from 55.53 million in December 2019. Credit card transactions increased by 32% year over year in December 2023 from over 1.25 trillion in December 2022, indicating a strong expansion. A combination of the persistent push from banks and changing consumer spending habits is responsible for this surge.

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