

## **ROLE OF CREDIT CARD IN THE DIGITAL PAYMENT SYSTEM:**

### **GROWTH ANALYSIS**

**Dr.B. Angamuthu**

**Assistant Professor in Commerce, PSG College of Arts & Science,  
Avinashi Road, Civil Aerodrome (PO), Coimbatore – 641 014  
Tamilnadu, INDIA.**

**E-mail: muthuanga82@gmail.com**

### **ABSTRACT**

The present Government is aimed at transforming the country into a digital economy. It gives special attention for digital payments. In daily lives larger transactions are happening on payments and it has been resulted that enhance the better society, business and the economy at larger part. Over the past three years, digital payment system works with new payment modes along with existing payment system in order to increasing Person to Merchant (PtoM) as well as Person to Person (PtoP) payments. Among various modes of digital payments, credit card payment is one of the retail payment systems which have improved Person to Merchant payments. The usage of credit card depends on the users' willingness to spend on credit basis. Thus, this study measure the growth of credit card payments with respect to volume and value of credit card payment transactions. These two parameters play a vital role in order to observe the users' position in credit card payments. The 11 Financial Years from 2009-10 to 2019-20 were considered for the study. The analysis reveals that an average of 838.31 million transactions of credit card payment with the value of INR 2676.39 Billion has been takes place for the study period. Further, the growth prospect is expected that credit card payment takes place over INR 7000 Billion with over 2200 volume of transactions in 2022-23. Further, this study has been identified that most important credit card payment infrastructure namely number of outstanding credit cards, Point of Sales (POS) machines and volume of transaction on the growth on value of credit card payments for the reference period.

**Keywords: Digital Payment, Cashless Payment, Card Payment, e-payment, Credit Card**

### **I. INTRODUCTION OF THE STUDY**

#### **1.1 Introduction**

Presently, Indian economy tries to change into Digital or Cashless society, this becomes the edge of the next level economy. In order to the Government of India launched Digital India programme by 2014 which aims to transform the country into a knowledge-based economy and digitally empowered society by ensuring digital access, digital empowerment, and digital inclusion and also to bridging the digital divide. There are various modes of digital payments are available in the country to achieve main agenda namely "Faceless, Paperless, Cashless" of Digital India. They are Banking Cards, Unstructured Supplementary Service data (USDD),

Aadhar Enabled Payment System (AEPS), Unified Payments Interface (UPI), Mobile Wallets, Banks Prepaid Cards, Internet Banking, National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Electronic Clearing System (ECS), Immediate Payment Service (IMPS), Mobile Banking, Micro Automated Teller Machines (ATMs). Faster adoption of Smartphone with 4G network, rise of non-banking institutions, public readiness to technology acceptance, demonetization, implementation of Goods and Service taxation system was learning curves which gave a push to the payments market. It urged and compelled people to look beyond currency based transactions. Now, Indian digital payment industry has US\$ 200 billion and it is expected to reach US\$ one trillion by 2023 (Credit Suisse, 2017) due to various digitization in the country. The present digital payment system has been divided into Systematically Important Financial Market Infrastructure (SIFMIs) and Retail Payments. Credit card payment is one of the instrument in the retail payment segment. In the pre-internet era also electronic payments existed only through credit and debit cards. Central Bank of India was the first bank to introduce Credit card in 1980 along with Visa and Master Card. Mid-1990s is important stage for credit card market. In 1995 internet emerged in the country which leads to electronic commerce during 1999. Both the retailers and the consumers slowly started to adopt digital payment system for making quick payments. Over the past few years, the number of credit cards has grown due to severe competition in the financial sector and witnessed a increasing trend in particular post global crisis period. The number of outstanding credit cards has grown up from 18.33 million to 57.15 million during 2009-10 to 2019-20 (Refer Figure – 1). The primary growth driver on access of credit card by the individuals depends on increased proportion in sub-prime borrowers those with credit scores ranging from 580 to 669 and increased proportion in prime plus and super-prime borrowers those with credit scores from 680 to 739 and 740 and above, respectively (TransUnion, 2018). The additional growth drivers are increased bank customers share in the young age group, EMI financing option, faster adoptability of technology, increase number of Point of Sale (POS) terminals, supportive macro-environment, a rise in discretionary spending, higher product penetration, rise in e-commerce and other favorable regulations. The positive growth of outstanding credit card indicates not only the acceptance digitalization in payments but also indicates the increase of retail borrowers in the country. Still, the credit card penetration is very low in the country. For every 100 people, there are only three credit cards and only about 5 per cent of Indians’ consumption per capita takes place through credit cards (Bloomberg, 2019).

**{Figure – 1: Insert here}**

## **1.2 Objective of the Study**

- ❖ To analyze the growth of credit card payments in terms of volume and value of transactions
- ❖ To perform an analysis of the credit card payment infrastructure parameters and of their correlation with the value of credit card payments

## **1.3 Hypotheses of the study**

- ❖ Ho: There is no significant difference in the growth on volume and value of transaction in credit card payments for the reference period.
- ❖ Ho<sub>1</sub>: There is no significant and positive correlation of the credit card payment infrastructure with the value of credit card payments for the reference period.

## II. REVIEW OF LITERATURES

Prabhu (2018) suggested that cash back offer or reward point, extended payment period, benefit of taking loan and converting purchase in to EMI, safety, status and convenience (Linda Mary & Saravanan;2012), risk avoidance of carry huge money, possibilities of immediate payment, cash withdrawal benefits (Nagaraju, 2017) are the major reasons for using credit card. Most of the customers have attracted credit limit offered by the banks (Jasmine, 2017). The dimensions of Assurance, Reliability, Tangibility, Responsiveness, and Empathy have linear and positive correlation with the satisfaction level of credit card users (Hoang Quan, 2014). The cardholders are satisfactory with Comfortable to bills payment and grievances settled aspects (Patel, 2018). A little 2/5<sup>th</sup> of the credit card cardholders are having higher level of satisfaction (Nagaraju, 2017 & Jasmine, 2018) and it is determined by bank software, efficiency of the bank, competency of the bank and information provided by the bank (Maheswari & Palaneeswari; 2017). Satisfaction level associated with selected personal factors of the users namely types of bank account, number of year holding account (Deviranjitham & Thamilarasan; 2014), Age groups, (Maheswari, R., and Palaneeswari; 2017) but does not associated with Gender, Marital status, Occupation and Income level. The credit card users do not considered the interest rate when making purchase through credit card payment and also not intend to borrow for an extended period when they make purchases (Ausubel, 1991). According to Bowers (1979) longitudinal study, low income users to use their credit cards for the installment payment rather than for service features of credit cards namely safety, convenience etc. There is no recent study on the growth of credit card payments in the Indian Context. Therefore, the current research work mainly fulfill this research gap through analyze the growth of credit card in the digital payment arena.

## III. RESEARCH METHODOLOGY

This empirical and analytical research has been conducted growth analysis of credit card payments in particular post global crisis period. This study was considered two major parameters namely volume and value of credit card payment transactions in order to assess the growth movement for the financial year 2009-10 to 2019-20. Further, the number of Point of Sale (POS) machines and number of outstanding credit cards were used to find out how strong relationship between each of these parameters to the growth of credit card payments with volume and value of credit card payment transactions. The financial year starts from 1<sup>st</sup> April and extends up to 31<sup>st</sup> March. The secondary data were collected from various reports published by Reserve Bank of India. The collected data are compiled and tabulated according to the objective of the present study. The appropriate statistical tools namely mean, co-efficient of variation (CV), Compound Annual Growth Rate (CAGR), Linear trend, Chi-square ( $\chi^2$ ) and correlation analysis are used to draw the inference of the study

#### IV. ANALYSIS AND DISCUSSIONS

##### 4.1 Growth movement of Credit Card Payments

The growth of credit card payments from 2009-10 to 2019-2020 is given in the Table - 1.

{Table – 1: Insert Here}

{Figure – 2: Insert here}

{Figure – 3: Insert here}

**Growth on Volume of Transaction in Credit Card Payments:** The actual growth on volume of transaction has been steadily increased for the reference period. It ranges from 234.24 million to 1840.58 million with an average of 838.31 million and its CV is 0.71. The Index Number has shown that volume of transaction has been increased by nearly eight times during the period from 2009-10 to 2019-20. The CAGR for the reference period is 22.89 per cent which indicates a normal growth in the credit card payments in terms of its volume transaction (Refer Table – 1). The actual growth rate on volume of transaction has positive tendency during the study period but it has much variance than its linear assessment among different years (Refer Figure – 2). Moreover, volume of transaction in credit card payments is predicted on the basis of trend co-efficient ( $Y_t = -194.4 + 172.1x$ ), it is expected that 2215.36 million in 2022-23 (Refer Table-1) with respective increase of 20.36 per cent over the year 2019-20.

**Growth on Value of Transaction in Credit Card Payments:** The actual growth on value of transaction has been steadily increased for the reference period. It ranges from INR 618.24 Billion to INR 6118.39 Billion with an average of INR 2676.39 Billion and its CV is 0.77. The Index Number has shown that the value of transaction has been increased by nearly ten times during the period from 2009-10 to 2019-20. The value of transaction in credit card payments has grown at a CAGR of 25.76 per cent which indicates that there exists better growth during the study period (Refer Table – 1). The actual growth rate on value of transaction has positively moved during the study period but it has much variance than its linear assessment among different years (Refer Figure – 3). Moreover, the value of transaction in credit card payments is predicted on the basis of trend co-efficient ( $Y_t = -838.5 + 585.9x$ ), it is expected that INR 7364.34 Billion in 2022-23 (Refer Table-1) with respective increase of 20.36 per cent over the year 2019-20.

##### 4.2 Growth of Credit Card Payments: Application of Chi-square Analysis

###### Volume of Transaction in Credit Card Payments:

Ho: There is no significant difference in the growth on volume of transaction in credit card payments for the reference period.

Calculated Value of  $\chi^2 = 33.392^{**}$

Table value of  $\chi^2$  at 1% level 21.67 (d.f. 9)

**The equation of straight line (Y) is  $Y_c = 23.222 + 0.0535x$**

The calculated  $\chi^2$  value comes out 33.392 which is greater than table value 21.67 at one percent significant level. Therefore, null hypothesis is rejected and it is concluded that there exists a significant difference in the growth on volume of transaction in credit card payments for the reference period.

### **Value of Transaction in Credit Card Payments**

Ho: There is no significant difference in the growth on value of transaction in credit card payments for the reference period.

**Calculated Value of  $\chi^2 = 38.112^{**}$**

**Table value of  $\chi^2$  at 1% level 21.67 (d.f. 9)**

**The equation of straight line (Y) is  $Y_c = 26.172 + (-0.189)x$**

The calculated  $\chi^2$  value comes out 38.112 which is greater than table value 21.67 at one percent significant level. Therefore, null hypothesis is rejected and it is concluded that there exists a significant difference in the growth on value of transaction in credit card payments for the reference period.

### **4.3 Relationship of Credit Card Payment Infrastructure to the Credit Card Payments**

The correlation (r) analysis were performed to find out how strong the relationship between each of the selected independent variable and the dependent variable of the study.

Ho: There is no significant and positive correlation of the credit card payment infrastructure with the value of credit card payments for the reference period.

**{Table – 2: Insert here}**

The calculated value of 'r' shows that each of the independent variable to the value of credit card payments statistically significant at one percent level. So, null hypothesis is rejected and it is concluded that there exists significant relationship of the credit card payment infrastructure with the value of credit card payments for the reference period. Further, the estimated degree of dependence ( $r > 0.9^{**}; p < 0.01$ ) reveals that there exists strong and positive between credit card payment infrastructure and value of credit card payments (Refer Table – 2).

## V. CONCLUSION

Credit card payment has made a significant impact on the retail payment systems in the country. Therefore, both the volume and value of credit card payments steadily increased over the period 2009-10 to 2019-20, recording a CAGR of 22.89% and 25.76% respectively. It indicates that the country is gradually moving away from cash for making payments at retail outlets. The total transaction value of credit card payment is estimated that above INR 7,300 Billion with over 2200 million transactions in 2022-23. This study confirmed that the growth movement on value of credit card payments highly depends on its volume of transactions. Further, the increasing trend on volume of credit card payment has been influenced by adoption rate of POS and accessible credit cards in the country. Finally, this study suggests the financial institutions to provide more offers/rewards to increase the usage of Credit cards and POS Machines as well.

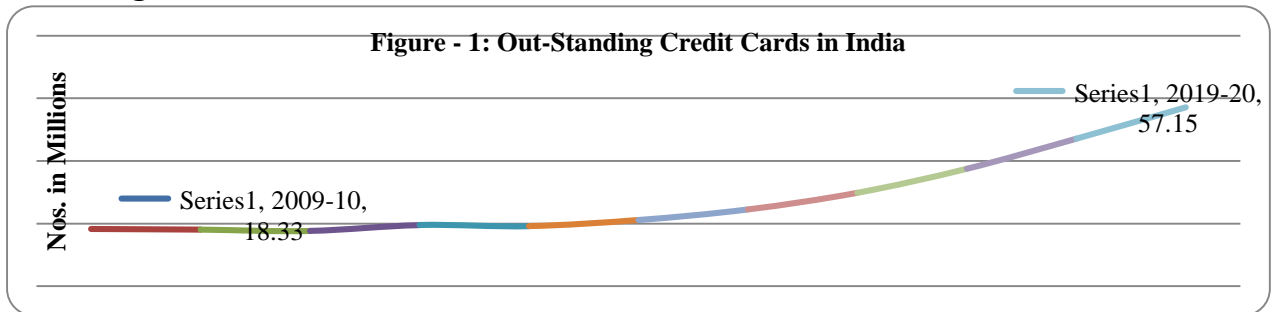
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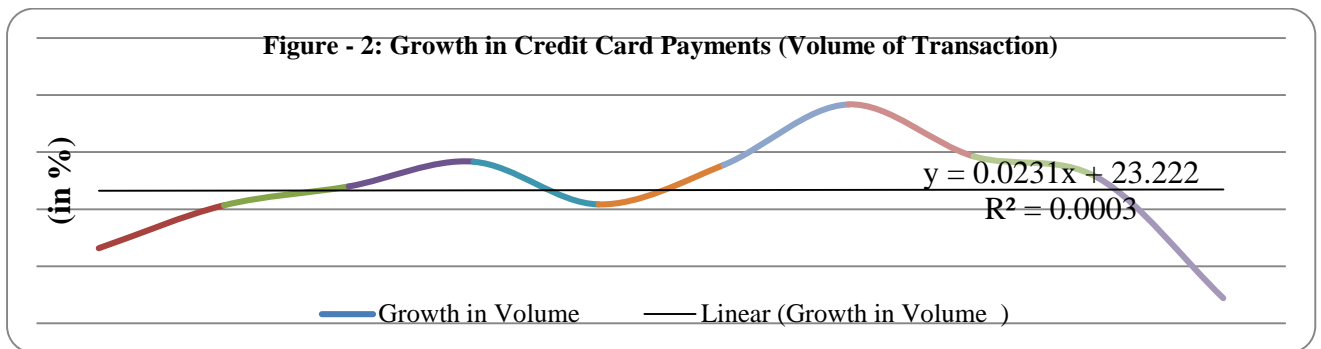
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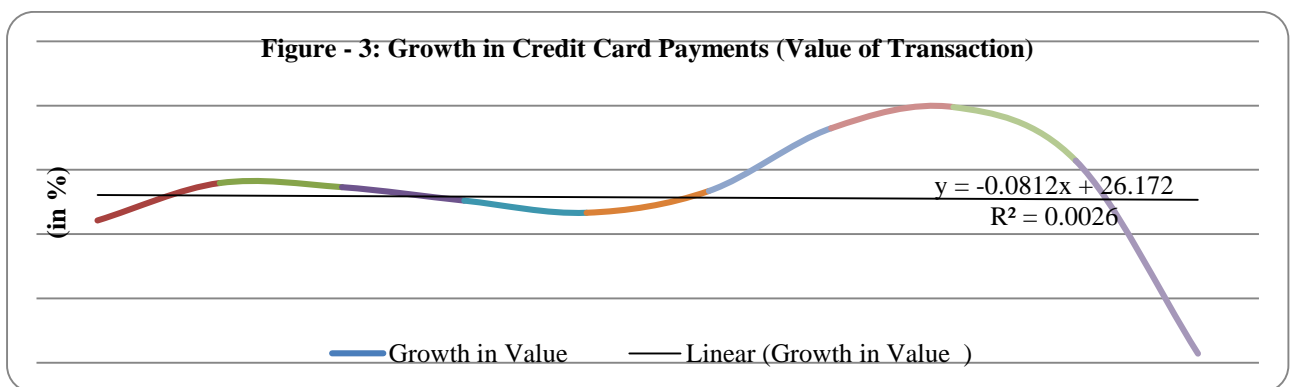
**List of Figures**



Source: Reports from RBI



Source: Computed by Author



Source: Computed by Author

List of Tables

<b>Table - 1: Performance of Credit Card Payments</b>				
<b>Financial Year</b>	<b>Credit Card Payments</b>			
	<b>Volume (in millions)</b>	<b>Index</b>	<b>Value (Rs. in Billion)</b>	<b>Index</b>
2009-10	234.24	100	618.24	100
2010-11	265.14	113.19	755.16	122.15
2011-12	319.96	136.59	966.13	156.27
2012-13	396.72	169.36	1229.84	198.93
2013-14	509.08	217.33	1539.85	249.07
2014-15	615.12	262.60	1899.16	307.19
2015-16	785.67	335.41	2406.62	389.27
2016-17	1087.13	464.11	3283.82	531.16
2017-18	1405.16	599.88	4589.65	742.37
2018-19	1762.59	752.47	6033.48	975.91
2019-20	1840.58	785.77	6118.39	989.65
2022-23*	2215.36		7364.34	
Mean	838.31		2676.39	
CV	0.71		0.77	
CAGR (%)	22.89		25.76	
<b>Source: Reports from RBI;</b>			<b>*Forecast</b>	

**Table – 2: Credit Card Payment Infrastructure and Value of Credit Card Payments**

Credit Card Payment Infrastructure		No. of Outstanding Cards	No. of POS Machines	Volume of Transactions	Value of Transactions
No. of Outstanding Cards	r	1	.988**	.970**	.973**
	n	11	11	11	11
No. of POS Machines	r	.988**	1	.985**	.982**
	n	11	11	11	11
Volume of Transactions	r	.970**	.985**	1	.999**
	n	11	11	11	11
Value of Transactions	r	.973**	.982**	.999**	1
	n	11	11	11	11

\*\*Sig. at 1% level and \*Sig. at 5% level