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**OBJECTIVES**

**HYPOTHESES**

**RESEARCH METHODOLOGY**

**RESULTS & DISCUSSION**

**FINDINGS**

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**TECHNOLOGY BANKING IN INDIA: ANALYSIS OF PERFORMANCE**

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**ABSTRACT**

*In fact, the growth of electronic payments in India has been impressive in recent years. However, the comparative merits of modern electronic payment systems are not spread evenly across the different regions of the country. Despite multiple electronic methods of payment being available, cash is still the preferred mode of payment in India. Indian banking industry has witnessed positive developments due to sweeping changes that are taking place in the information and communication technology. Electronic banking has emerged as result of this tremendous development. The objective of the research paper is to analyze the progress made by scheduled commercial banks in adoption of information technology over the last couple of years. The study is mainly secondary data based and also analytical in nature. The progress in e-banking in Indian context is measured through various parameters such as growth in Automated Teller Machines, Transactions through Retail Electronic Payment Methods, mobile banking, etc. Different Statistical methods are used for the present study.*

**KEYWORDS**

E-banking, Information and Communication Technology, Electronic Payments.

**INTRODUCTION**

The last few years have witnessed an explosion of Information Technology based initiatives which have brought about a revolutionary change in the way how banking activities are conducted. Information and communication technology systems have improved the working of banks all over the world. The convenience and time factor of electronic banking have attracted many customers to go for E-Banking. As a result of adoption of Information Technology, Banking services have reached rural people of India and there is much scope for expanding banking activities with the help of technology solutions. It is a widely accepted fact that Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. Over a long time, banks have been practicing telecommunication networks for delivering a wide variety of value added banking services. Internet is increasingly used by banks as a medium for receiving instructions and delivering their services to their customers. This form of banking is generally referred to as Internet Banking or E-Banking, although the range of products and services offered by different banks vary widely.

**REVIEW OF LITERATURE****E-BANKING**

R.S.Raghavan (2006) holds the view that technology has played a vital role in the evolution of banking sector, through speed creation, accuracy and efficiency of operation and reduction in the transaction cost. Banking services are now oriented to "anyhow, anywhere, anytime and any type" banking. Daniel (1999) defines electronic banking as the delivery of bank's information and services by banks to customers via different delivery platforms that can be used with different terminal devices such as a personal computer and a mobile phone with browser or desktop software, telephone or digital television. E-banking is a brew of services that embody Internet banking, Mobile banking, ATM kiosks, Fund Transfer System, Real Time Gross Settlement, Credit/ Debit/Smart/Kisan Cards, Cash government services, as well as Data warehousing, Operational interpretation for MIS as well as Customer Relationship Management. Dheenadhayalan (2010) states that E-based banking is also known as Cyber banking, home banking, and virtual banking and includes various banking activities that can be conducted from anywhere. Thus the term E-banking includes RTGS, NEFT, ECS, Credit cards and debit cards, Cheque truncation, ATM, Tele banking, Internet banking and Mobile banking. Dr. B.S.Sawant (2011) opined that efficient use of technology has facilitated accurate and timely management of the increased transaction volume of banks that comes with larger customer base. By designing and offering simple, safe and secure technology, banks reach at doorstep of customer with delight customer Satisfaction.

Internet banking, a major constituent of e-banking framework, has changed the dynamics of commercial banking worldwide by virtually bringing the entire banking set-up at the doorstep of a common banking customer. In the recent times, technology enabled convenience banking has been leveraged upon by the private sector and foreign commercial banks towards attracting a major chunk of both retail and corporate customers. Public sector banks must view this as challenge and endeavor to become a part of the technology stream towards ensuring more convenient and secure banking environment for their customers. (Pallab Sikdari and Munish Makkad, 2013)

Dr. Komal and Dr. Vandna Rani (2012) shares the view that Banks must realize the seriousness of challenges ahead and develop a strategy that will enable them to leverage the opportunities presented by e-banking. E-banks need to shift now from product centric to customer centric i.e. to design services according to the needs dreams and expectations of the customers. ICT infrastructure facilities are also not well developed and the banks are unable to extend the e-banking services, therefore, good infrastructure need to be developed. ICT enabled banking system has replaced the traditional working pattern of banks. N.Jamliuddin (2013) found that among the card based payment systems debit card is more popular than credit cards. The number of ATMs in India, particularly in rural areas, is on the rise and customers irrespective of their profile started accepting ATM as a channel for banking transactions, both internet and mobile banking is gaining popularity but considering the rapid penetration of mobile phones in India, the potential for delivering banking services through mobile phones is immense compared to internet as a delivery channel.

In essence, there has been a rapid development in Information and Communication Technology, which has reflected in banks' business strategies, customer services and organisational structure. Innovative adoption in the form of internet banking, ATMs and mobile applications have created a profound impact on the delivery channels of banking services. Also, a number of innovative developments in retail payments have emerged, which affect the retail payment market by influencing users in their choice of payment instruments and by significantly reshaping the payment processes.

**OBJECTIVES OF THE STUDY**

The objective of the present investigation is to analyze the performance of Indian banking industry in offering banking facility with the aid of technology solutions over the last 4 years.

**RESEARCH METHODOLOGY**

The present study is secondary data based and also analytical in nature. Statistical and mathematical tools such as simple growth rate, percentages and averages are used. The major sources of data are Report on Trends and Progress of Banking in India and statistical reports published by Reserve Bank of India. The parameters of the study are the growth in Automated Teller Machines and Transactions through Retail Electronic Payment Methods such as Electronic Clearing services (ECS) - debit and credit, National Electronic Fund Transfer and Electronic Clearing Cards that is debit card and credit card. To analyze progress made by Indian banking industry in adoption of technology, averages, percentages and simple growth rate is calculated. (In this study, simple growth rate is indicated by GR.  $GR = \frac{Y_t - Y_0}{Y_0} \times 100$  where  $Y_t$  indicates value of given parameter in current year and  $Y_0$  indicates value of given parameter in base year).

**ANALYSIS AND FINDINGS****AUTOMATED TELLER MACHINE (ATM)**

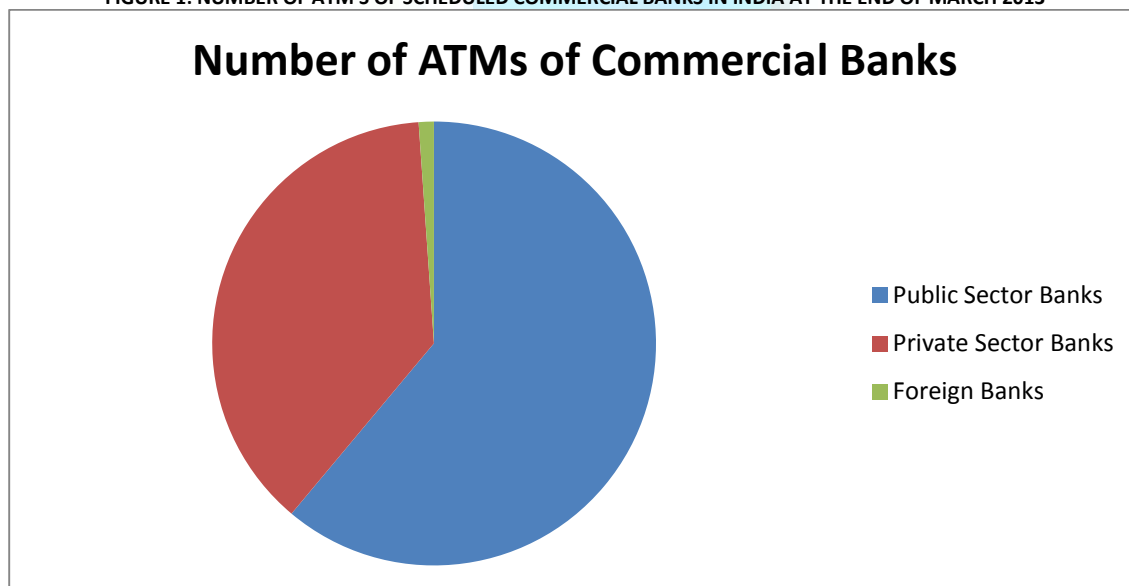
A milestone technological development, which has brought a tremendous change in the delivery channel in the banking sector, has been the Automated Teller Machines (ATMs). The penetration of ATMs in Indian Financial market increased in 2012-13 with the total number of 1,14,014 ATMs. While ATMs are an innovative technology to provide basic banking solutions to customers in a much faster and cost-efficient manner. From the feedback from the banking industry, it is evident that off-site ATMs are particularly more cost efficient since they operate without the paraphernalia of a bank branch. It is evident from (table No.1) that, the relative proportion of off-site ATMs has been much more than that of on-site ATMs in the case of new private sector banks and foreign banks. The share of Off-site ATMs is 42.2% in the case of public sector banks. Overall 51% of ATMs of scheduled commercial Banks constitute off-site ATMs and that is more economical compared to Onsite ATMs.

**TABLE 1: NUMBER OF ATM S OF SCHEDULED COMMERCIAL BANKS IN INDIA AT THE END OF MARCH 2013**

Bank group	On Site ATMs	Off Site ATMs	Total ATMs	Off Site ATMs as % of Total ATMs
1.Public sector banks	40241	29,411	69,652	42.2
1.1Nationalized banks*	20,658	14,701	35,359	41.5
1.2SBI Group	18,708	13,883	32,591	42.5
2.Private sector banks	15,236	27,865	43,101	64.6
2.1Old private sector banks	4,054	3,512	7,566	46.4
2.2.New private sector banks	7,566	24,353	35,535	68.5
3.Foreign banks	283	978	1,261	77.5
All SCBs	55,760	58,254	1,14,014	51

Note: \*: Excluding IDBI

Source: Report on Trend and Progress of banking in India, 2012-13

**FIGURE 1: NUMBER OF ATM S OF SCHEDULED COMMERCIAL BANKS IN INDIA AT THE END OF MARCH 2013**

As per the Table No.2, Automated Teller Machines of scheduled commercial banks have shown a positive growth rate over the last 4 years. There is 89.6% growth rate in the number of ATMs in 2013 as compared to the figure of ATMs in 2010. On Site ATMs have marked 70.6 growth rate in 2013 and it is 112% growth rate in the case of Off-Site ATMs. The growth rate of Off Site ATMs are more than growth rate of On Site ATMs during the period 2012 and 2013.

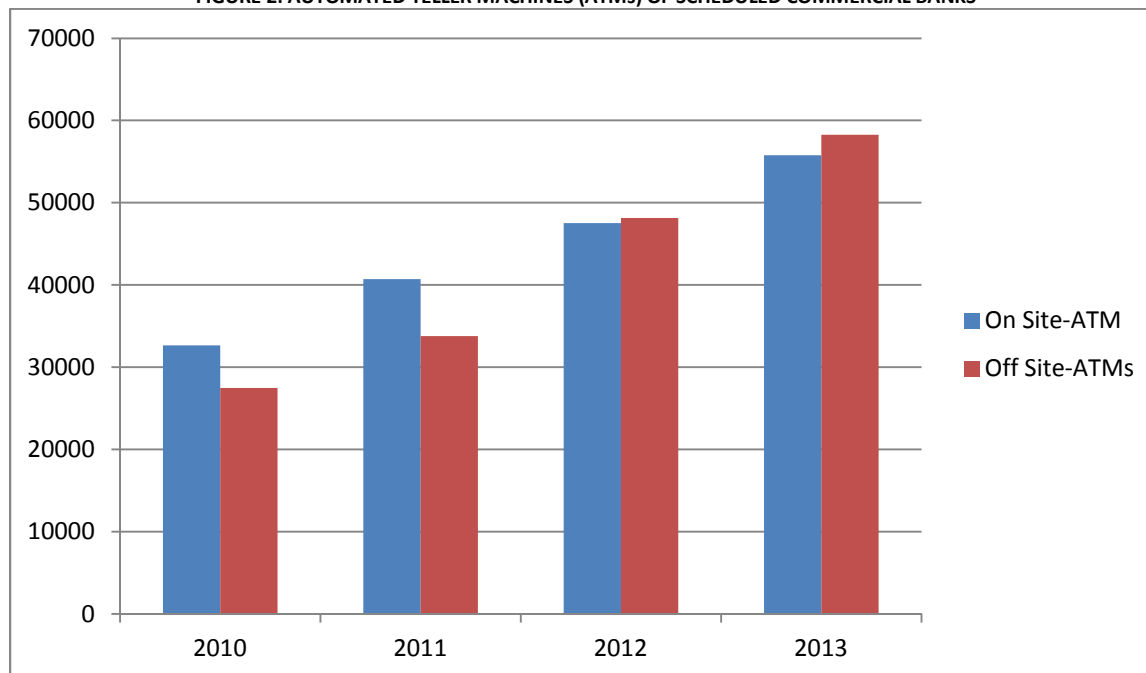
**TABLE 2: AUTOMATED TELLER MACHINES (ATMS) OF SCHEDULED COMMERCIAL BANKS**

Year	On site	GR	Off-site	GR	Total	GR
2010	32,679	-	27,474	-	60,153	-
2011	40,729	24.7	33,776	22.9	74,505	23.9
2012	47,545	45.4	48,141	75.2	95,686	59
2013	55,760	70.6	58,254	112	1,14,014	89.6

Source: compiled from RBI annual reports -various years



FIGURE 2: AUTOMATED TELLER MACHINES (ATMs) OF SCHEDULED COMMERCIAL BANKS

**NEFT, ECS (CREDIT), ECS (DEBIT)**

In the case of National Electronic Funds Transfer, the funds transfer takes place within the same day if it is within the cut-off time and the next working day if it is beyond the cut-off time prescribed. Funds are transferred to the credit account with the other participating Bank using RBI's NEFT service. Electronic Clearing Service (ECS) is a mode of electronic fund transfer from one bank account to another bank account through the clearing houses of Reserve Bank of India. This is normally for bulk transfers from one account to many accounts or vice-versa in the form of ECS-credit and ECS-debit. ECS (Credit) is used when an institution is required to make bulk or repetitive payments in the form of dividend to shareholders, interest to investors, salary/pension to employees etc. ECS (debit) is used when an institution is required to collect an amount, by raising a debit, at a prescribed frequency from many customers in the form of telephone or electricity charges, house tax, water tax, loan installments etc.

TABLE 3: NEFT, ECS (CREDIT), ECS (DEBIT) OF SCHEDULED COMMERCIAL BANKS (VOLUME)

year	ECS-CREDIT		ECS-DEBIT		NEFT	
	VOLUME	GR	VOLUME	GR	VOLUME	GR
2010-11	117.3	-	156.7	-	132.3	-
2011-12	121.5	3.5	164.7	5.1	226.1	70.8
2012-13	122.2	4.2	176.5	12.6	394.1	197.8
2013-14	152.5	30	192.9	23.	661	399.6

Source: compiled from RBI annual reports -various years

FIGURE 3: NEFT, ECS (CREDIT), ECS (DEBIT) OF SCHEDULED COMMERCIAL BANKS (VOLUME)

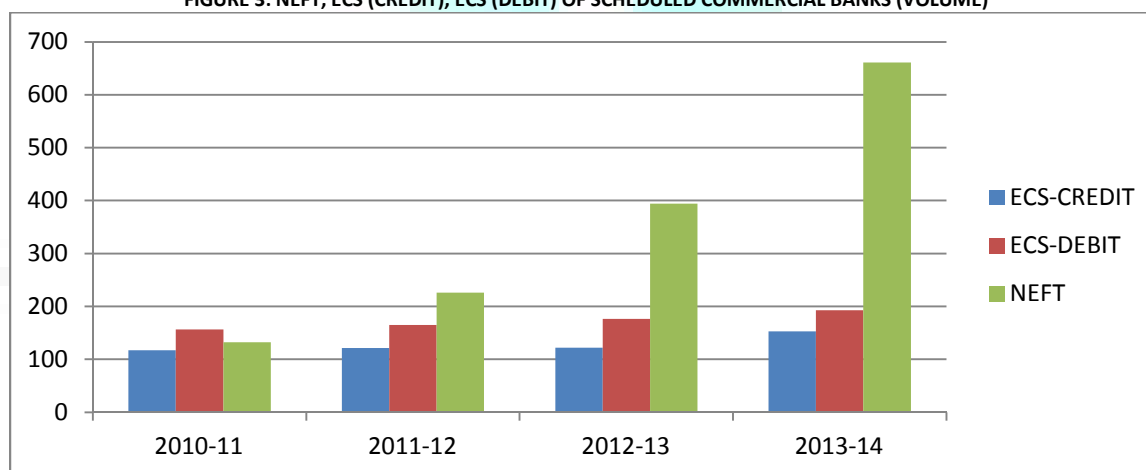
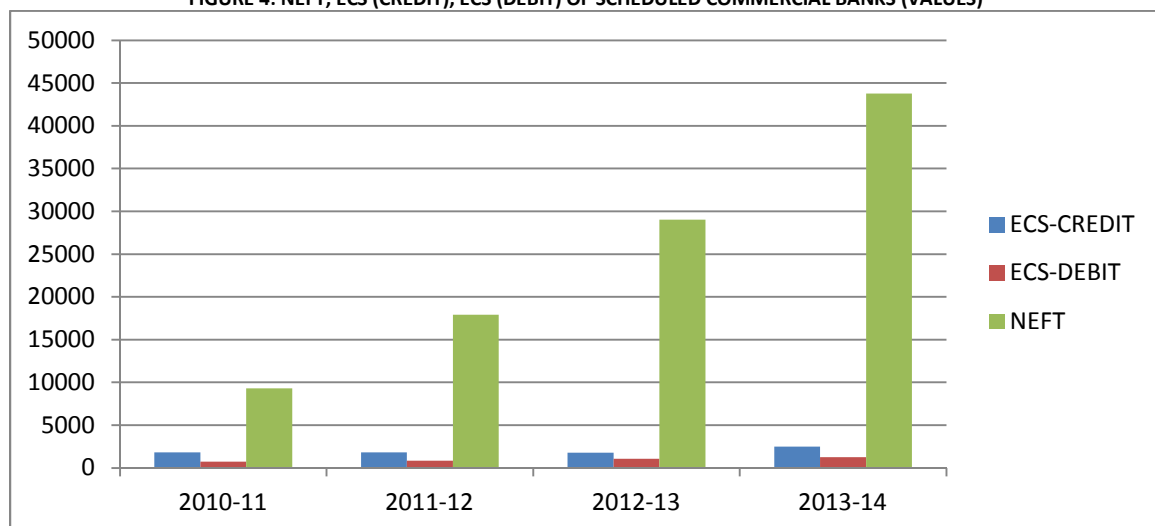


TABLE 4: NEFT, ECS (CREDIT), ECS (DEBIT) OF SCHEDULED COMMERCIAL BANKS (VALUES)

year	ECS-CREDIT		ECS-DEBIT		NEFT	
	Value	GR	Value	GR	Value	GR
2010-11	1816	-	736	-	9321	-
2011-12	1837	1.1	833	13	17903	92
2012-13	1771	-2.5	1083	47	29022	211.3
2013-14	2492	37.2	1268	72.2	43785	369.7

Source: compiled from RBI annual reports -various years

FIGURE 4: NEFT, ECS (CREDIT), ECS (DEBIT) OF SCHEDULED COMMERCIAL BANKS (VALUES)



The above table shows that During 2013-14, the electronic clearing service (ECS) debit-handled 193 million transactions valued at around 1,268 billion and ECS credit processed 152 million transactions valued at around 2,492 billion. With the gradual expansion of the regional electronic clearing service (RECS) operations, the volumes at many ECS centre have completely subsumed to RECS centre. As on April 30, 2014, the national electronic funds transfer (NEFT) facility was available at 111,619 branches of 158 banks. During 2013-14, NEFT handled 661 million transactions valued at around 44 trillion. ECS debit has marked 23% growth rate in 2013-14 as compared to the base year 2010-11. On the other hand ECS credit has marked 30% growth rate in 2013-14 as compared to the base year 2010-11. The percentage growth rate of ECS debit is more than ECS debit 2010-11, 2011-12 and 2012-13 except the period 2013-14.

#### RTGS, CREDIT CARD AND DEBIT CARD

Real Time Gross Settlement System (RTGS) is a mechanism of transferring funds from one bank to another on a 'real time' basis. This is the fastest mode of funds transfer available in India through banking channel. RTGS transactions are interbank as well as between customers through bank accounts. The fast growth in volumes indicates the increasing popularity of RTGS as a payment system among the banks and the customers as well. The transactions are settled as soon as they are processed. Gross settlement means the transaction is settled on one to one basis without bunching with any other transactions.

TABLE 5: RTGS, CREDIT CARD AND DEBIT CARD OF SCHEDULED COMMERCIAL BANKS (VOLUME)

year	CREDIT CARD		DEBIT CARD		RTGS	
	VOLUME	GR	VOLUME	GR	VOLUME	GR
2010-11	265	-	237	-	49.3	-
2011-12	320	20.7	327.5	38	55	11.5
2012-13	396.6	49.7	469	97.8	68.5	38.9
2013-14	509	92	619	161	81	64.3

Source: compiled from RBI annual reports -various years

FIGURE 5: RTGS, CREDIT CARD AND DEBIT CARD OF SCHEDULED COMMERCIAL BANKS (VOLUME)

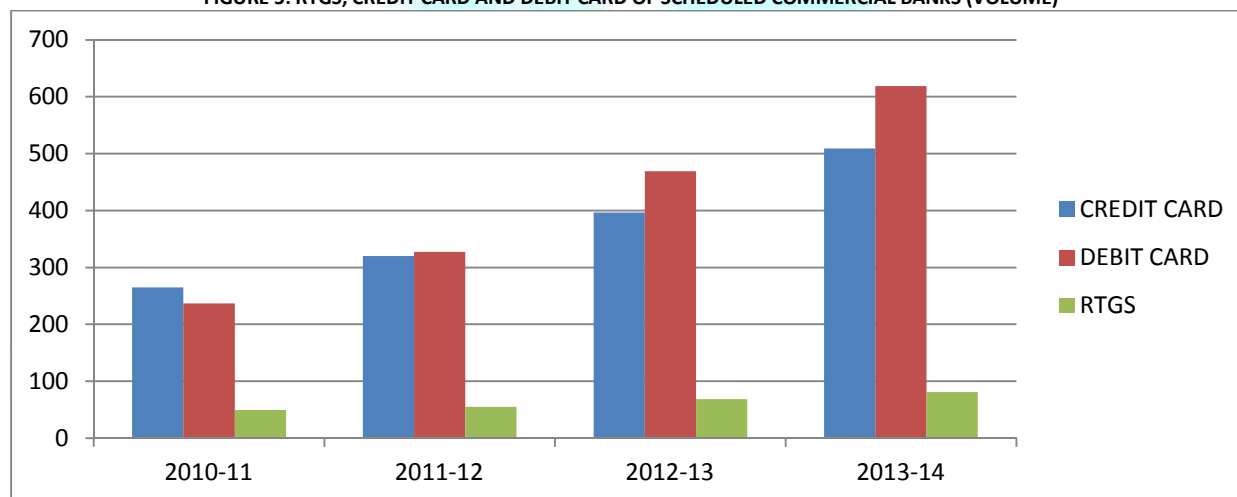


TABLE 6: RTGS, CREDIT CARD AND DEBIT CARD OF SCHEDULED COMMERCIAL BANKS (VALUE)

year	CREDIT CARD		DEBIT CARD		RTGS	
	Value	GR	Value	GR	Value	GR
2010-11	755	-	387	-	484872	-
2011-12	966	27.9	534.3	38	539307	11.2
2012-13	1229.5	62.8	743.4	92	676841	39.5
2013-14	1539.9	103.8	954	146.5	734252	51.4

Source: compiled from RBI annual reports -various years

FIGURE 6: CREDIT CARD AND DEBIT CARD OF SCHEDULED COMMERCIAL BANKS (VALUE)

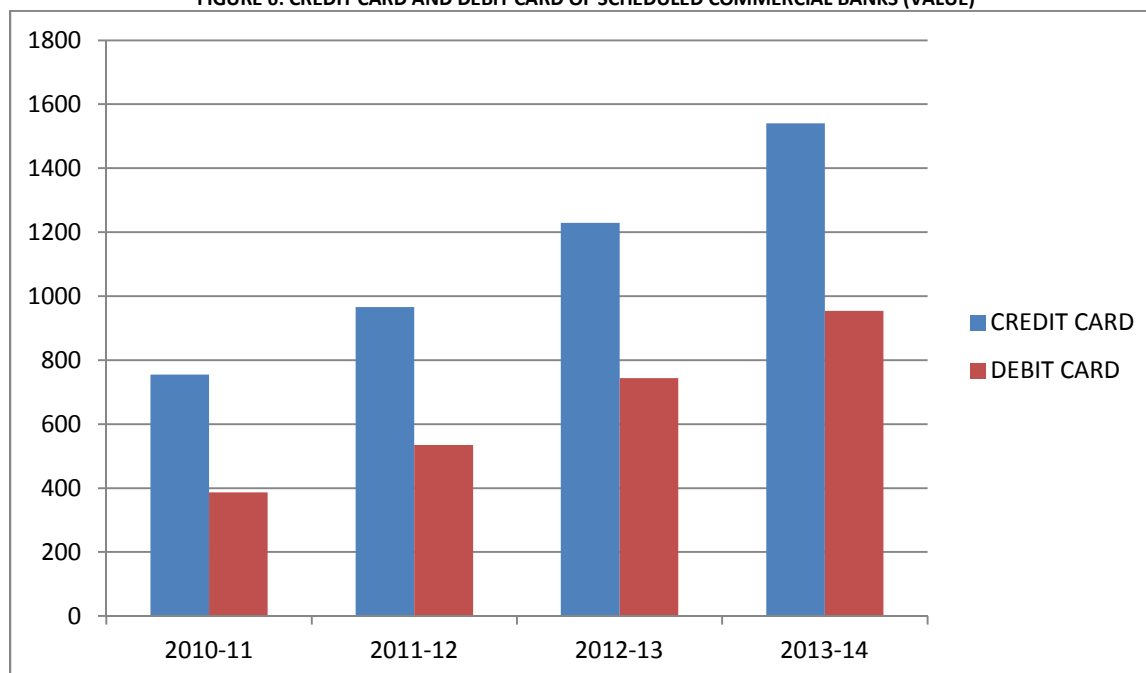
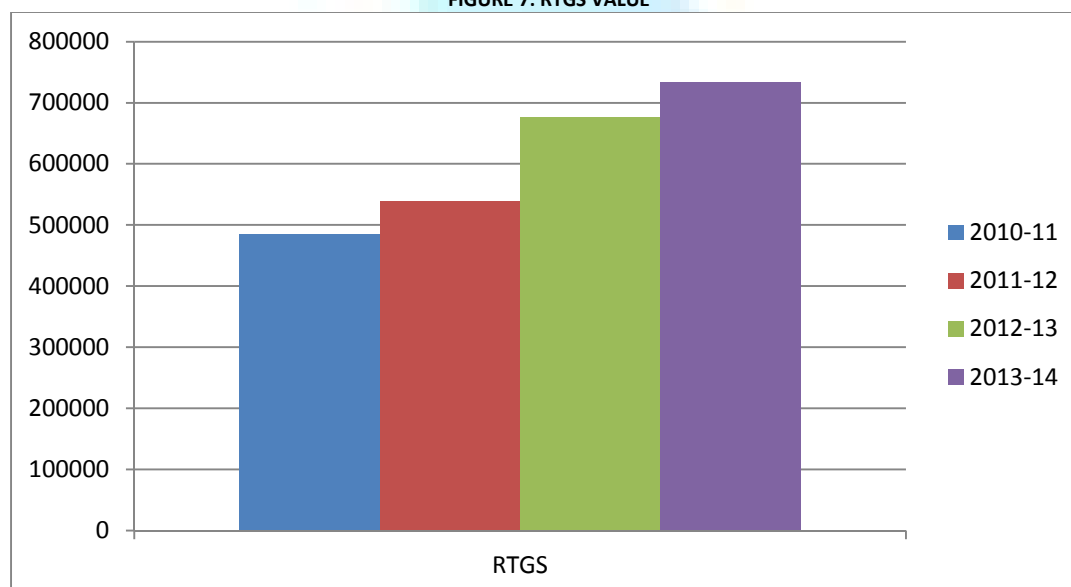


FIGURE 7: RTGS VALUE



During 2013-14, the RTGS processed around 81 million transactions valued at 734 trillion. As on April 30, 2014 the number of RTGS enabled bank branches stood at 109,506. During 2013-14, 509 million transactions valued at 1,539 billion were transacted through credit cards, while 619 million transactions valued at 954 billion were undertaken through debit cards. The number of outstanding credit cards and debit cards issued have shown positive growth rate for the period from 2010-11 to 2013-14. The volume credit card increased to 92% during the year 2013-14. It is 161% in the case of credit cards. The percentage growth in debit card is more than the percentage growth in credit cards in terms of volume and values.

#### MOBILE BANKING

Mobile banking is a recent addition to electronic banking technology. Banks have been offering mobile banking services to their customers through various channels such as SMS, USSD (Unstructured Supplementary Service Data) channel, mobile banking application etc. As per TRAI consultation paper on Mobile telephony in India has a huge potential with 873.44 Mn mobile connections as on 30.06.2013 in the country, of which about 350 Mn are in rural areas. Mobile banking transaction is cost effective and time saving compared to the traditional banking channels. Therefore, there is need for banks to encourage the mobile banking channel in a big way. Mobile banking offers a huge opportunity for banking industry to leverage upon the mobile density in the country. In recent years, the mobile banking has been reflecting a growing trend with the volume and value increasing by 108.5% and 228.9% respectively. The trend in usage of Mobile Banking in the last three years is given below:

TABLE NO. 7: GROWTH IN MOBILE BANKING OF SCHEDULED COMMERCIAL BANKS

Year	No. of Users (Million)	GR	Volume (Million GR)	Value (Billion Rs. GR)
2010-11	5.96	-	6.85	-
2011-12	12.96	117.45	25.56	273.14
2012-13	22.51	73.68	53.30	108.53
				59.90
				228.9

Source: Mobile banking, report of the technical Committee, RBI 2014

#### CONCLUSION

The growth in electronic payments is reflected in the high volumes witnessed under various electronic payment systems during the last couple of years. It shows that E-banking is becoming more popular in Indian banking industry. The declining trends in cost of internet and mobile charges and falling prices of PCs and

improved banking technology encouraged the banks to be more e-service oriented. The emerging payment system in India for large value transactions is RTGS, ECS for bulk payments and NEFT for one to one fund transfer. It is also concluded that debit card is more popular than credit card in terms of volume of transaction. ATM and mobile banking have become increasingly acceptable among the customers and there is need for banks to encourage the mobile banking channel in a big way keeping in mind the long term economic gains.

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