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Digitalization of Payment System in Indian Banks

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Abstract— The Financial System of a country is an important tool for economic development of country. In recent years Indian financial system have been undergoing from modernization phase and implementing many innovation ideas in the system. This study is focused on only payment and settlement system and it is based on secondary data sources. Data consist in it has been analyzed by the simple statistical tools. This study consists ICT based payment system and services provided by RBI and banking institutions in India as well level of transaction volume, value as well as include threats of e-payment system as suggest applicable measures to enhance payment system.

Keywords – ICT, MICR, Card Based Clearing, ECS, EFT, NEFT, RTGS

JEL. Classification – G21, D80, G28, L89, O33

Introduction:

The financial system of any country consists of banking and non banking financial institutes, these institutes are providing various types of financial services to the customers'. In the financial services, financial clearing and fund transfer service is most important service than other services. Payment systems improve financial intelligibility, stimulating business growth and consumption .The success of the financial system has depends upon the efficient and quality of clearing system of the industry. If we overlook the worldwide this system has changing drastically with technological advancements. Last few years evident that, Information and Communication Technology (ICT) have become a mean for improvement of financial system worldwide. In India, most of banks and financial institutions are offering ICT based financial products and services to improve their business efficiency and speed of services e.g. called e-banking, internet banking, electronic fund transfer, electronic clearing etc.

Review of Indian Financial System:

In Indian financial system 19 nationalized commercial banks, SBI group of 08 banks including State Bank of India, 15 old and 09 new private sector banks and 31 foreign banks are dealing banking business. The mechanization and computerization of banking were started from 1985 by the first phased plan of bank automation in India. Now in India, 97 percent of public sector bank branches, cent percent private and foreign banks are computerized. These banks are offering lots of ICT based banking service to bank customers and using modern technology to internal business operations. After financial reform period 1991, various foreign and new private sector banks are entering in Indian banking industry with their high-tech banking services. It leads to competition of ICT based banking services in Indian financial system and creates efficiency. For the further developments the Reserve Bank of India (RBI), Institute for Banking Research and Development of Technological has continuously trying to enhance the system by required facilities to banking and financial institutes in India.

Traditional Payment System in India:

Payment instruments and mechanisms have a very long history in India. The earliest payment instruments known to have been used in India were coins, which were either in gold, silver and copper. In the Mughal period, Indian has starting use of bills of exchange in the commercial centres. In the Muslim period traders' were use Pay orders it was issued from the Royal Treasury on one of the District or Provincial treasuries. They were called *Barattes* and were akin to present day drafts or cheques. In the in the twelfth century one of the most important financial instrument were evolved that is *Hundi* it has continued till today. Till 1835 there were variety of currency systems and coinage in India, but in 1835, the East India Company introduced the

Company's Rupee to bring about uniformity of coinage over British India. A paper currency system were implemented in 18th century, earliest issues of paper currency were issued by Bank of Hindustan, then after issued by the General Bank in Bengal and Bihar, the Bengal Bank and three Presidency Banks. The Paper Currency Act of 1861 conferred the monopoly of the Government of India and presidency banks working in India. After the establishment of the RBI all rights of currency system has given to the RBI in India.

Modern Payment System in India:

The Reserve Bank of India (RBI) has played a significant role in developing the payment and settlement systems in the nation from its establishment. The emergence of e-commerce has created new financial requirements that in many cases cannot be effectively fulfilled by the traditional payment systems. To recognizing these needs the RBI has implemented bank computerization project in India and providing ICT based networking facilities to the banks and financial institutions in India. Since 1991 the RBI has started *'BANKNET'* it is network for banking institutes other than *BANKNET* The *'INFINET'* - Indian Financial Network is a satellite based wide area network using VSAT (Very Small Aperture Terminal) technology set up in June 1999. The Centralized Funds Management System (CFMS) facilitates centralized balance viewing of and funds transfer between own accounts of a member bank maintained with the Bank at different locations. In Indian banking system ATM also providing better alternative to traditional payment system it can be used for payment of utility bills, funds transfer between accounts, deposit of cheques and cash into accounts, balance enquiry and several other banking transactions. Apart from these facilities RBI has enhancing the payment system by introducing MICR technology, ECS, EFT, NEFT, Card Based Clearing and RTGS etc. Payment Systems in India - Vision 2005-08 is implemented to enhance payment system in India, the four broad tenets of the mission relate to the Safety, Security, Soundness and Efficiency. It is called the ' *Triple-S + E'* principle in short, each of the principles support to customer satisfaction and enhancement of payment system. In the Vision document 2009-2012 two more principles are added as *accessibility and authorization* in payment system.

MICR Clearing:

Traditional cheque clearing process is time consuming and lengthy it affects value of transaction of settlement. To enhance speed of cheque clearing the RBI has started MICR cheque and MICR clearing system. Magnetic Ink Character Recognition (MICR) is a character recognition technology adopted mainly by the banking industry to facilitate the faster processing of cheque. It is called MICR clearing system. There are 64 MICR clearing centres are operated in India in 15 divisions in India. MICR technology transformed cheque processing systems by enabling the introduction of automated clearing houses. The system is well stabilized in India with the overall reject rates of around 1% while international reject rates are around 2%. Cheque clearing accounts for over 95% of the retail payment and more than 70% of cheque clearing is based on MICR technology (M V Nair).According to the available data volume of MICR based clearing has been growing rate of 13.83 percent and value is increased 0.33 percent in 2009-10 to 2016-17. Amount of MICR based clearing rose from Rs. 1, 09, 47,391 Crore to 1, 04, 00,308.7 crore in same period. See the table no. 1

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Table No. 1 – Cheque Clearing (Numbers in Lakh & Amount in Rs. Crore)						
Year	**Total**		**Total MICR* Centres**		**Total Non-MICR Centres**	
	Number	**Amount**	**Number**	**Amount**	**Number**	**Amount**
2009-10	9,015.0	1,25,75,254.0	5,377.0	1,09,47,391.0	3,638.0	16,27,863.0
2010-11	10,139.0	1,34,24,313.0	5,980.0	1,09,78,762.0	4,159.0	24,45,551.0
2011-12	10,228.0	1,15,95,960.0	6,241.0	91,78,751.0	3,987.0	24,17,209.0
2012-13	11,668.5	1,04,58,894.9	9,414.6	93,56,252.2	2,253.9	11,02,642.7
2013-14	12,867.6	1,13,29,133.5	10,318.4	94,74,370.8	2,549.2	18,54,762.8
2014-15	13,672.8	1,20,42,425.7	11,441.0	1,04,35,436.1	2,231.8	16,06,989.5
2015-16	14,605.6	1,33,96,065.9	12,229.6	1,15,28,690.2	2,376.0	18,67,375.7
2016-17 (P)	13,959.1	1,24,61,201.7	11,623.4	1,04,00,308.7	2,335.7	20,60,892.9
CGR	7.21	0.14	13.83	0.33	-8.56	-0.47

Source: Statistical Tables Relating to Banks in India 2009 to 2017

Electronic Clearing System:

Electronic Clearing System (ECS) is a retail payment system which facilitates bulk payments, that facilitate payments from one-to-many and receipts that are from many-to-one. ECS Scheme operated by the RBI since 1996-97, helps to make payment from a single account at a bank branch to any number of accounts maintained with the branches of the same or other banks. ECS (Credit) facilitates the bulk payments whereby the account of the institution remitting the payment is debited and the payments remitted to beneficiaries' accounts. This facility is now available at 67 major centres in the country. ECS (Debit) facilitates the collection of payments by utility companies. In this system the account of the customers of the utility company, in different banks are debited and the amounts are transferred to the account of the company. Amount of ECS based credit is increased from Rs.10, 228 crore to Rs.7, 82,222.30 crore in 2011-12 to 2015-16 and ECS based Debit transaction has been increased from Rs. 2,253 crore to Rs.66, 975.89 crore in 2011-12 to 2015-16. See the table no. – 2

Table No. - 2 ECS Clearings In India				
Year	**ECS (Credit)**		**ECS (Debit)**	
	Volume (in Lakh)	**Amount (Rs. Crore)**	**Volume (in Lakh)**	**Amount (Rs. Crore)**
2011-12	203.00	10,228.00	79.00	2,253.58
2012-13	400.51	20,179.81	153.00	2,921.24
2013-14	442.16	32,324.35	359.58	12,986.50
2014-15	690.19	83,273.09	752.02	25,440.79
2015-16	783.65	7,82,222.30	1,271.20	48,937.20
2016-17 (P)	883.94	97,486.58	1,600.55	66,975.89
CGR	32.36	93.98	88.20	110.71

Source: RBI Annual Reports 2009 to 2017

Electronic Fund Transfer (EFT) & NEFT :

EFT System hosted and operated by the RBI, permits transfer of funds, unto Rs. 5 lakh from any account at any branch of any member bank in any city to any other account at any branch of any member bank in any other city. This system utilizes the Service Branches of the member banks and the nodal offices of RBI. The Reserve Bank of India acts as the service provider as well as regulator. The NEFT was introduced in 2005. Since its inception the coverage of NEFT has increased. It is called Special Electronic Fund Transfer SEFT also. It is covering about 3000 branches in 500 cities. This has facilitated same day transfer of funds across accounts of constituents at all these branches. Overall EFT and NEFT based clearing grow from Rs. 17,124.81 crore to Rs. 2,51,956.38 crore at 60.27 CGR in 2011-12 to 2016-17. See the table no -3

Table No. - 3 Electronic Funds Transfer EFT/NEFT		
Year	**Volume (In Lakh)**	**Amount (Rs. Crore)**
2011-12	8.19	17,124.81
2012-13	25.49	54,601.38
2013-14	30.67	61,288.22
2014-15	47.76	77,446.31
2015-16	133.15	1,40,326.48
2016-17 (P)	321.61	2,51,956.38
CGR	97.13	60.27

Source: RBI Annual Reports 2009 to 2017

Card Based Clearing (CBC):

Credit and Debit cards have been in use in the country for many years now. In India card fashion increasing day by day due to its convenience and utility. Many banks have providing customized credit and debit cards to increase their business in India. However the card base as well as the usage has picked up during the last five years drastically. In the year 2011 to 2017 credit card based transaction are increased from Rs. 17,662.72 crore to Rs. 65,355.80 crore and debit card based transactions are increased from Rs. 4,873.67 crore to Rs. 18,547.14 crore. See the table no. 4-

Table No. - 4 Card Payments (only Related to Point of Sale (POS) transactions) (Number in Lakh and Amount in Rs. crore)						
	Credit			Debit*		
Year	Number of Out-standing Cards**	Volume (in Lakh)	Amount (Rs. Crore)	Number of Out-standing Cards**	Volume (in Lakh)	Amount (Rs. Crore)
2011-12	-	1,001.79	17,662.72	—	377.57	4,873.67
2012-13		1,294.72	25,686.36		415.32	5,361.04
2013-14	173.27	1,560.86	33,886.47	497.63	456.86	5,897.14
2014-15	231.23	1,695.36	41,361.31	749.76	601.77	8,171.63
2015-16	275.47	2,282.03	57,984.73	1,024.37	883.06	12,521.22
2016-17 (P)	246.99	2,595.61	65,355.80	1,374.31	1,276.5 4	18,547.14
*: Debit Cards figures for 2011-12 and 2012-13 are estimated based on 2013-14 figures. **: Cards issued by banks (excluding those withdrawn/blocked).						

Source: Statistical Tables Relating to Banks in India 2009 to 2017

Real Time Gross Settlement System (RTGS):

RTGS is system for large value clearing operated since 2011; the minimum amount to be remitted through RTGS is Rs.1 lakh. There is no upper ceiling for RTGS transactions. It provides facilitates to settlement of transactions on a gross basis. This system ensures settlement of payments with no credit risk involved. It is therefore, essentially a system for settlement of large value and time critical payments. The system facilitates Inter-bank as well a customer payments. In India all bank branches are not RTGS enabled because only core banking (CBS) enabled bank branches can extend this facility. As on January 31st, 2009 more than 57000 bank branches were enabled for RTGS system. In year 2012-13 to 2016-17 transactions related customers remittances have raised from Rs. 2,49,662 crore to Rs. 2,00,04,107 crore. In 2011-12 to 2016-17 amount of inter-bank remittances raised Rs. 1,965 crore to Rs. 1,22,75,773 crore, and total amount of transaction has been raised from Rs. 1,965 crore to Rs. 6,11,39,912 crore. It shows that increasing popularity of RTGS in Indian banking system. See the table no. 5-

Table No. 5 - Large Value Clearing and Settlement Systems (Amount in Rs. crore)					
Year / Period	Real Time Gross Settlement System				
	Customer Remittance	Inter-Bank Remittance	Inter-bank Clearing Settlement**	Total Inter-bank	Total
2011-12	0.00	1,965.49	-	1,965.49	1,965.49
2012-13	2,49,662.00	38,16,522.00	—	38,16,522.00	40,66,184.00
2013-14	25,70,212.29	89,70,623.96	—	89,70,623.96	1,15,40,836.25
2014-15	71,67,807.91	1,13,13,346.69	61,38,025.39	1,74,51,372.08	2,46,19,179.99
2015-16	1,61,00,172.88	1,12,18,157.41	2,09,76,228.68	3,21,94,386.10	4,82,94,558.97
2016-17 (P)	2,00,04,107.80	1,22,75,773.49	2,88,60,031.15	4,11,35,804.65	6,11,39,912.44
* : Inter-Bank Clearing Settlement pertains to the MNSB batches. MNSB settlement in RTGS started from 12 August, 2006. ** : The MNSB Settlement relates to the settlement of ECS, EFT, NEFT, REPO, Outright, FOREX, CBLO and Cheque Clearing at Mumbai.					

Source: Statistical Tables Relating to Banks in India 2009 to 2017

Results and Discussion:

In Indian banking system we have evident that, the payment and settlement system has changing according to market need. ICT revolution has availed new means to financial transaction and settlement process than traditional payment system.

MICR technology has providing faster cheque collection and clearing facilities to customers in India, but there are only 64 MICR clearing centres working in India than 1103 Non-MICR clearing centres. Till now transaction of Rs. 20,60,892 crore has been managed by Non-MICR clearing centre, these centres are clearing cheques only once in per week. Hence there is essence need to increase MICR clearing houses and modify the Non-MICR clearing centres in MICR clearing centres to enhance payment system.

ECS has available only mostly city and semi urban area in India it is not available in rural branches. So, the RBI should provide such facilities in rural branches to provide facilities to rural peoples.

EFT and NEFT is network based service now it covers only urban areas so; there is an urgent need to ramp up technology based delivery channels particularly in the rural areas. It should extend the benefit of the financial system even to remote areas. All NEFT centres are working in Indian office hours but they should provide 24 hours services to provide more facility the bankers and customers'.

Credit and Debit cards are being extensively used in the nation as they provide a convenient form of making payments for goods and services without the use of cheques and cash. Issue of credit cards is exhibiting a phenomenal growth in recent years. Card based transactions are increasing continuously in India but is ahs not to assured service according to Indian customers experiences. Because there are so many complaints are registered in RBI's banking ombudsman offices. It clears that, it is not so good and secure facility in India. Hence, RBI should enhance the quality and security of card based transactions.

In Indian banking system, there are competition of provide modern banking facilities to their customers, but some banks are ignoring security in transaction and convenience of the customers.

In India all branches of commercial banks have not under core banking solution hence they have not extending RTGS facilities , therefore remaining banks should adopt core banking to use the RTGS and other efficient services. RBI has installed capacity of 150000 transactions per day but their server has only processes 38000 transactions per day, the speed should enhance to more transactions will take place.

The electronic clearing and settlement system is useful to bankers and customers but there is need of controlling non-secure transaction, EFT fraud, mistakes in settlement etc.

Other than 6 principles (Safety, Security, Soundness, Efficiency, Authorization and Accessibility) used to develop payment system of the vision document 2009-2012 there is need of international standard, transference, user-friendly techniques, assurance and convenience also.

In the financial transaction having transactional risk it affects assurance about the services. For this reason there is need to minimize the transactional risks in the electronic payment system.

Conclusion:

Now Indian financial system has undergone a significant transformation over time in terms of diversity and innovation. The developments in information and communication technology resulted in numerous innovations in the payment system of India. There are a variety of electronic clearing options are available in banking system. But these options are to limited than demand of bank customers in India. In the sense of rural India these facilities are not provided sufficient level by the banking institutions due to lack of ICT connectivity and other infrastructural facilities.

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