Digital Payments: Changing Paradigms of Indian Payment Industry

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Abstract

A payment is the transfer of wealth from one party (such as a person or company) to another. Payment system is a key component of any economic activity and financial system in any country. Efficient payment system is essential for timely and secure completion of financial transactions, as well as movement of money. Cash and cheques still dominate the Indian payments market. These are the potential transactions for conversion to the electronic or digital payments segments. Digital payment system can help India save money. This is possible if the usage of cash/cheques is reduced and e-payments are used more often. It cost about $16 billion to set up broad-band connections, transaction points in each village with a network of computers in government offices. India can save $23 billion every year by using this electronic payment infrastructure. This is almost 20 percent of Indian fiscal deficit. In this backdrop, this study is undertaken to study the origin and history of digital payment system globally and also in India. It intends to analyze the growth trends of digital/electronic based payments in India. It also examines the changing consumer payment trends in urban India.

Key Words: *Payment System, E-payments, Digital Payments, Digitized Transfers*

Introduction

A payment is the transfer of wealth from one party (such as a person or company) to another. A payment system is usually made in exchange for the provision of goods, services or both, or to fulfill a legal obligation. The simplest and oldest form of payment is barter, the exchange of one good or service for another. In the modern world, common means of payment by an individual include money, cheque, debit, credit, or bank transfer, and in trade such payments are frequently preceded by an invoice or result in a receipt. Payment system is a key component of any economic activity and financial system in any country. Efficient payments are essential for timely and secure completion of financial transactions, as well as movement of money. Electronic payment (or Digital Payments) is the term used for any kind of payment processed without using cash or paper checks. Forms of electronic payment include use of or Automated Clearing House (ACH), e-checks, direct debit, debit cards, and credit cards.

Cash and cheques dominate the Indian payments market. Currency is still a popular instrument in retail transactions in India due to convenience and the completeness of the transaction. The same could be a disadvantage when it comes to carrying large amount of cash (security risk) and making large-value payments. Cheques, on the other hand, are the next popular mode of payment and are generally used for bill payments and fund transfers. These are the potential transactions for conversion to the electronic payments segment.

Need of the study

India is definitely developing at a global level. But when looked inside, there are social evils which are deeply entrenched hindering the nation from growth. There are tiny aspects when noticed at the macro level might not actually seem to make a difference. When implemented at the micro level, one could see the difference very clearly. One such aspect is saving money. We all know how badly the nation is entrenched with poverty. However, there is always a way out with small measures being implemented. If we at look at the issue, the nation has the capacity to save enough to actually bring down the fiscal deficit by almost 20 percent, one-fifth rise in the income of those living below the poverty line, a 25 percent increase in the expenditure on welfare or even catering to the hungry.

Every one needs to realize that in order to save one does not have to spend. The logic is simple, this could be done if the usage of cash is reduced and instead, digitized transfers are used more often. This way, our country can save $23 billions, which means saving about a trillion rupees annually. Therefore there is a need to study how the digital payments are changing the way of payments in India.

Sources of Data

The study is based on the data collected from secondary source which is gathered from the Annual Reports of different banks, published materials in the form of books, articles from journals, websites and reports relevant to the study. The study of digital payments are changing the way of payments in India covers a period of 05-years, commencing from 1st April, 2005 to 31St March, 2010.

Objective of the study

This paper has the following specific objectives pertaining to the study.

- To explain the origin and history of electronic payment system globally and also in India.
- To analyze the paper *versus* electronic based payments in India.
- To examine the growth of retail electronic payments.
- To assess the retail electronic payments by cards in India.
- To identify the changing consumers payments trends in urban India.

History of Electronic Payments

In 1918, electronic money was born when Federal Reserve Banks first moved currency via telegraph. However it wasn't until the automated clearinghouse (ACH) was setup by the US Federal Reserve in 1972 that electronic currency became widespread. This provided the US Treasury and commercial banks with an electronic alternative to processing cheques.

In 1939, a serial inventor by the name Luther George Simjian created the Bankmatic automatic teller machine. He filed 20 patents and asked the company now known as Cititcorp to trial it. After six months the bank had reported that there was no demand for such a product.

However in 1968, Don Wetzel, Tom Barnes (mechanical engineer) and George Chastin (electrical engineer) conceptualized what is now known as the modern ATM. In 1969 and five million dollars later, the first prototype of the modern ATM was made and patents were then issued in 1973. The first working ATM was installed into the Chemical Bank based in New York City. The first ATM.s was off line machines, meaning that the money was not automatically withdrawn from users' accounts. Therefore only exclusive customers with good credit history were able to use ATMs. Today, almost everyone has access to the use of these devices and at last count there were over 352,000 ATMs in the US alone. These ATMs now perform over 1.1 billion transactions per month or 26,000 transactions a minute. Charge cards date back to as early as 1914 when Western Union provided metal cards, allowing deferred payment privileges to preferred customers. These cards were colloquially known as .metal money. By 1924, General Petroleum Corporation was allowing customers to use metal money to buy fuel.

In the late 1930s, American Telephone and Telegraph (AT&T) introduced the .Bell System Card. and before long, railroads and airlines had introduced similar cards. In 1950, Diners Club issued the first .plastic money. Charge card and in 1951 it issued the first credit card to 200 customers who could use it at 27 different restaurants in New York. Bank of America issued the BankAmericard (now Visa) - the first bank credit card - later in 1958. This was first promoted to traveling salesmen (more common in that era) for use on the road. By the early 1960s, more companies offered credit cards, advertising them as a time-saving device rather than a form of credit. But it wasn.t until the establishment of standards for the magnetic strip in 1970 that the credit card became part of the information age.

This saw companies such as American Express and MasterCard became huge successes overnight, which prompted moves by Congress to begin regulation of the credit card industry by banning practices such as the mass mailing of active cards to those who had not requested them.

In 1983, RSA encryption algorithm was invented by Ronald Rivest, Adi Shamir and Len Adelman, (hence the name RSA) at MIT.s Laboratory for Computer Science. The breakthrough was that it allowed for encryption in a multi-user environment, that is, no active participation was necessary between the sender and the receiver of data at the other end.

Unfortunately credit card security has not seen substantial growth during this time. Although some security improvements have been made, the actual process of reading numbers off a magnetic strip and possibly a signature to verify the user is realistically as far as the industry has progressed.

Indian Scenario

The payment systems in India have substantially evolved in recent years. These changes have had an impact on all types of payments - whether business-to-business or business-to-consumer. From the days of manual clearing operations, all the large business centers now have a Magnetic Ink Character Recognition (MICR) clearing process. The Reserve Bank of India (RBI) manages the clearing house at the key business centers and has been at the forefront in driving the initiatives towards a more electronic payment and clearing system.

The first steps taken by the RBI were the introduction of the electronic clearing service (ECS) in the mid-1990s that enabled electronic clearing of low-value, large-volume payments (e.g. dividends). ECS provided a four-day settlement cycle for low-value direct credits and direct debits. However, one of the key challenges to the growth of ECS payments in

India has been the degree of automation in the Indian banking industry. While most private sector banks have networked branches with highly automated systems, many other banks have limited automation with little or no inter-branch connectivity. This results in a lack of "last-mile connectivity". While the transactions are processed electronically at the clearing house, they are subsequently processed manually at the beneficiary banks, thereby largely obviating the benefits of an electronic settlement process. In spite of such issues, ECS is now quite popular in India for making large-volume payments, such as dividends.

ECS was followed by the electronic funds transfer (EFT) system. While participation in the EFT system was earlier restricted to state-owned banks, it was subsequently opened up to all banks. The EFT system enables an electronic transfer of funds inter-city and interbank, and is now available for high-value transfers as well (up to INR20m). Recently, the RBI further enhanced the EFT system with the introduction of the special electronic funds transfer (SEFT) system, which is expected to facilitate the migration to T+2 settlement in the securities market. The SEFT scheme provides for banks to define which of their branches will participate in the network, with the prerequisite that these branches be electronically linked with the coordinating branch in Mumbai, where all settlements take place. This system ensures that the beneficiary bank posts credits promptly, as the processing is electronic.

SEFT should address, to a large extent, the issue of last-mile connectivity and is another step in moving India towards a more electronic payments mechanism. The RBI has defined a clear vision for the development of payment systems in the country, and EFT and SEFT are key building blocks for further technological developments.

In addition to payment systems such as EFT and ECS, other payment mechanisms such as credit cards and debit cards are also gaining popularity in India. Many banks have recently started issuing debit cards with developments on smart cards; it is expected that their use will increase rapidly in India.

Paper *versus* Electronic Payments in India

Payment Systems are a vital part of the economic and financial infrastructure and contribute to the overall economic performance and financial stability by facilitating efficient financial intermediation. The Indian financial system is characterised by existence of a variety of payment systems and products reflecting continuation of traditional paper based mode of payments (High Value Clearing, MICR Clearing and Non-MICR Clearing) along with a significant growth in a range of diverse electronic modes of payments (Real Time Gross Settlement (RTGS), Financial Markets Clearing, Retail Electronic Clearing and Payment Cards) The increasing penetration and emergence of new forms of payment systems assure to bring in large number of people in the country who have so far been excluded from the benefits of the financial system. Therefore an analysis is done by examining the trends in the value of paper clearing versus electronic clearing over the past 5 years. The share of transactions values are presented in table – 1.

Table - 1: Paper *versus* Electronic Based Payment Transactions in India

Value (Rupees crore)

Years / Types	2005-06	2006-07	2007-08	2008-09	2009-10
Paper Based	1,13,29,134	1,20,42,426	1,33,96,066	1,24,31,202	1,04,03,988

Growth in %	***36.76***	***28.43***	***19.64***	***16.13***	***11.65***
Electronic Based	1,94,86,151	3,03,17,963	5,48,00,584	6,47,96,995	7,88,81,197
Growth in %	***63.24***	***71.57***	***80.36***	***83.87***	***88.35***
Grand Total	3,08,15,285	4,23,60,389	6,81,96,650	7,72,58,197	8,92,85,185

Source: *Reserve Bank of India Annual Reports 2009-10.*

Table - 01 reveals that the share of electronic transactions value has increased significantly; as the share of electronic transactions in India during the financial year ended March 2006 registered growth of 63.24% to 88.35% in March 2010. But, paper based transactions have been facing a crunch in their business, as the value of transactions in India during the financial year ended March 2010 declined to 11.65% from the financial year March 2006 base of 36.76%. This electronic transactions growth can be attributed to the following factors, the ever-increasing technology changes, growing Internet access and mobile subscriber base, rising consumer confidence, and convenient delivery/payment models. Technological advancement across the world has also had a positive impact on the Indian financial payment system.

Growth in Retail Electronic Payments in India

Retail payment system generally deals with low-value transactions made by bank customers. These are essentially the payments made from person-to-person, person-to-business, or person-to-government bodies. Retail and institutional customers now have a new way to transact, thanks to the technological advancement that has made e-payments a reality, over a period of time, proactively encouraging the introduction of electronic payment products that are superior to paper-based systems in terms of traceability, efficiency, speed and safety. These include large value payment options like the Real Time Gross Settlement (RTGS) as also retail payment options that facilitate multiple credit/debit transactions (Electronic Clearing Service (ECS) - credit/debit) or person to person electronic payments (National Electronic Funds Transfer - NEFT).

More Indians are now using retail electronic payments for several uses. The relevant data pertains to the last five years are analyzed and presented in Table 02.

Table – 02: Growth in Retail Electronic Payments

Value (Rupees crore)

Years / Types	2005-06	2006-07	2007-08	2008-09	2009-10
RTCS	1,767	3,876	5,840	13,366	33,241
Electronic Clearing Services (ECS)					
ECS (Debit)	35,958	75,202	1,27,120	1,60,055	1,50,214
NECS/ECS (Credit).	44,216	69,019	78,365	88,394	98,550
Electronic Funds Transfers (EFT)					
EFT/NEFT	3,067	4,776	13,315	32,161	66,357
Total	**85,008**	**1,52,873**	**2,24,640**	**2,93,976**	**3,48,362**

Source: *Reserve Bank of India Annual Reports 2009-10.*

An examination of table 2 reveals that the value of retail electronic transactions increased from Rs.85,008 crore payments in the year 2005-06 to Rs. 3, 48, 362 corers payments in the year 2009-10 registering an all around growth rate 310%. This momentous growth rate indicating that the Indian retail payment systems move to more advanced, efficient and reliable systems comparable to global standards. There are so many advantage and reasons to the growth of retail electronic payments growth in India. They are

- Electronic Clearing Service (Credit) is a facility of making payments wherein the account of the institution remitting the payments is debited to pay the beneficiaries account. This is also known as "One to many" or "Credit push" facility and mostly used for bulk payment transactions on a timely basis (monthly/quarterly/half-yearly or yearly) and payments like interest, salary, dividend, commission from corporations, government agencies, and any other organizations. ECS (Credit) has become one of the most convenient instruments to make bulk payments and is growing at a CAGR of over 100% from 2004 to 2008. National Clearing Cell (NCC) or the Clearing House (CH) is responsible for processing transaction information to sponsor bank, destination bank as well as the RBI's clearing agency. Banks that are willing to avail this facility should apply to NCC /CH for approval.
- Electronic Clearing Services (Debit) facilitates the collection of payments from customers on behalf of utility companies. This electronic service will eliminate handling paper instruments and ensures payment of utility-bills such as telephone bills, electricity bills, insurance premiums, online payments and card payments from banks/ government departments/corporate etc. This facility is also known as "Many to one" or "debit pull." Though ECS debit is a very convenient method of making utility bill payments electronically, lack of awareness among account holders can be cited as one of the main reasons for it not gaining much popularity.
- National Electronic Fund Transfer (NEFT) is a message-based fund transfer facility provided to bank customers to ensure secure one-toone fund transfer. There are six settlements during the day to speed up availability of funds to its customers. Unlike RTGS, which transfers in real time, NEFT works on a batch mode. NEFT facility is available at over 30,000 bank branches at more than 3,000 centers. NEFT has gained popularity due to its convenience and quick realization of transactions.

Growth of Retail Electronic Payments by Card Types

India has been one of the fastest growing countries for payment cards in the Asia-Pacific region. About 35–40% of India's population is working, with increasing disposable income year on year. Consumerism is set to add impetus to growth in the card base. In India, two varieties of payment cards are available namely credit and debit cards. A credit card entitles its holder to buy goods and services based on the holder's promise to pay for these goods and services. The issuer of the card grants a line of credit to the consumer (or the user) from which the user can borrow money for payment to a merchant or to draw a cash in advance to meet the requirements of the user. A debit card (also known as a bank card or check card) provides an alternative payment method to paying in cash in purchases. It is also used for

instant withdrawal of cash at Automated Teller Machines (ATMs). Debit cards also eliminate the risk of carrying cash.

An analysis is done by examining the payments through cards, both debit and credit issued by various banks over the past 5 years. The growth of both cards are tabulated and presented in table – 03.

Table – 03: Growth in Retail Electronic Payments by Card Types

Value (Rupees crore)

Years / Types	2005-06	2006-07	2007-08	2008-09	2009-10
Credit Cards	33,886	41,361	57,985	65,356	62,950
Debit Cards	5,897	8,172	12,521	18,547	26,566
Total	**39,783**	**49,533**	**70,506**	**83,903**	**89,516**

Source: *Reserve Bank of India Annual Reports 2009-10.*

An examination of table 3 reveals that the value of cards based transactions increased from 39,783 crore payments transactions in the year 2005-06 to 89,516 crores in the year 2009-10 registering an all around growth rate 125%. Though credit card based payment transactions have been in India for over two decades now, only the last five years saw a real upswing in the market. Credit card based payments grown from 33,886 corers transaction value in 2005-06 to 62,950 crores transaction value in the financial year 2009 – 10. Debit cards are the fastest growing card-based payment segment in India. Debit cards made their entry in India late 1998. Due to the nature of the product (buy now, pay now), it has experienced exponential growth. There is gradual increase in debit cards usage during the year when compared to previous years, though not in proportion to its growth in card base. Debit card based payment transactions grown from 5,987 crores value in the year 2005-06 to 26,566 crores value in the financial year 2009 – 10.

Trends among Indian Customers

Indian banking customers have a prominent payment pattern based on socio-cultural ecosystems. Despite the fact that there are various effective and efficient electronic payment systems and channels in place, over 50% of bills are still paid by cash. E-payments are said to be in infancy, where customers still prefer to pay standing "in line" than "online." Only 22–25% of bill payments take place electronically and majority of this in urban India; especially the metropolitan areas / top 10 cities. Table 4 reveals that Mumbai occupies the first place with 29% of the people making payments electronically. It is followed by Delhi with 23%. The cities where least number of people makes e-payments are Ahmedabad (2.4%), Lucknow (2.2%) and Indore (2.0%).

Table 4: Top 10 Cities by E-Payment Share

Name of the City	Share of E-Payments
Mumbai	29%
Delhi	23%

Chennai	13%
Bangalore	12%
Hyderabad	5%
Pune	5%
Kolkata	6.5%
Ahmedabad	2.4%
Lucknow	2.2%
Indore	2.0%

Source: ASSOCHAM (The Associated Chambers of Commerce and Industry of India

Conclusion

Indian payment industry is witnessing a slow and gradual change. It is steadily shifting towards electronic payments system. However, the large geographic spread of locations and slow acceptance of digitized payment mechanism by Indians are the major hindrances in this transition. Even in developed countries paper based payments still continue to co-exist with advanced electronic payment systems. It is therefore can be concluded that paper-based payments mechanisms will continue to exist in the Indian market. One thing is certain; the current trends do herald the beginning of a new era in the country's payments systems, and new chapters in the history of payments systems in India will soon be written.

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