Management of Payment and Settlement Systems in India: Critical Review and Challenges

ABSTRACT

Introduction

Payment system is considered as one of the major components of the infrastructure of any modern country. As economy develops and moves to a sharper growth path, economic transactions among individuals and institutions tend to increase rapidly. In order to facilitate these transactions smoothly and effectively, there is a need to develop an efficient payment and settlement system. Modernization of the payment system of any country is a necessity to ensure efficiency of the economy in general and the financial system in particular.

The instruments for payment in India have evolved over time from precious metals to currency to cheques and finally to e-payments. Correspondingly, the payment systems in the country also evolved over time, but the changes were more rapid during the last decade, especially from the year 2004 onwards. These changes were necessary to facilitate the ever-increasing volume of transactions taking place as a result of faster economic development in India during the decade. Rapid advances in information technology, changes in regulatory framework, setting up of new institutions like CCIL, NPCI, etc., have initiated the emergence of new payment processes, products and delivery channels for small as well as large value and ‘time critical’ payments.

The payment system of any country, though advanced and sophisticated, does face various risks, viz. bank failures, frauds, counter-party failures, etc. Such eventualities may trigger a chain-reaction, which might ultimately result in disruption of the payment system of the entire country. Such systemic failure of the payment system can hamper effectiveness of monetary policy and adversely affect the real sector. Minimization of systemic risk is, therefore, a critical challenge facing the regulator. The Central bank in any country is, therefore, keenly involved in promoting a sound and efficient payment system and in initiating appropriate measures to reduce potential systemic risks.
In the year 1999, the Committee on Payment and Settlement Systems of the BIS developed certain core principles for important payment systems. These principles provide guidelines to improve the efficiency of payment systems to handle the increasing volumes, and, the value of payment flows both within the country as well as in international transactions. Each country, however, has to evolve its own approach and strategies in the design of its own fabric of the payment system to suit its unique requirements. The present study aims to analyze the issues involved in ensuring efficiency in the functioning of the payment systems in India in the light of the progress made during the last two decades, more especially during the recent period.

**Hypotheses of the Study**

The study sets out the following hypotheses:

1. The efficiency of the payment systems in the country depends on the role played by the regulator to ensure safety of the payment systems, and, prevention of any occurrence of systemic risk.

2. The systemic risk shall be observed as the size of payment systems grows in size and becomes varied in nature.

3. Improved efficiency in payment and settlement systems would result in improved operational efficiency of banks.

4. Strong and efficient payment systems in the country would lead to enhanced banking business and its profit.

**Objectives of the Study**

The study examines the evolution and performance of the Payment and Settlement Systems of India and benchmarks the same with advanced economies like the European Union, the USA, the UK and the Asian economies like Japan and China. This is done with a view to suggest certain measures to make the Indian payment system more efficient, less vulnerable to various risks and make it more cost-effective. In particular, the objectives of the study are:

1. To examine the evolution of the payment system in India, especially during the period 2005-10, when the country witnessed a rapid growth in economic activities.
2. To assess the importance of the efficient and effective payment and settlement systems in improving the financial performance of the economy.

3. To understand the real impact of information technology on payment and settlement systems.

4. To examine the various issues relating to the efficient functioning of the payment and settlement systems like security, risk management, cost, etc.

5. To suggest measures to aggressively promote e-payment systems by banks.

**Methodology**

Initially, an extensive literature survey was carried out in order to gain insights into the various areas of concern and the issues involved in the design, structure and efficiency in the functioning of the payment systems in various countries including India. Secondary data was then collected mainly from the RBI Annual Reports, Report on Payment Systems in India (RBI, 1998) and Payment System Development Reports of selected countries. As the specific focus of the study was the period covering 2005-06 to 2009-10, which has recorded a massive rise in the volume and value of transactions handled by the Payment and Settlement system in our country, relevant data was captured from the RBI Annual Reports. Similar data was also collected from the RBI website for individual banks.

For the purpose of this study, the purposive stratified random sampling method was adopted for the selection of 20 banks. As nearly 80 per cent of the total banking business in the year 2005-06 was handled by public sector banks and the rest by the private sector banks and foreign banks (IBA, 2005-06), 18 public sector banks out of 27 and 2 out of 25 private sector banks were selected for this study.

Public sector banks were further grouped into three categories in descending order of their size of total business. The first category (termed as Large Banks) included five banks: namely, State Bank of India, Punjab National Bank, Canara Bank, Bank of India and Bank of Baroda. The next category of seven banks (termed as Mid-Size Banks) included the Union Bank of India, Central Bank of India, UCO Bank, Syndicate Bank, Indian Overseas Bank, Oriental Bank of Commerce, and Allahabad Bank. The third category (termed as Small Banks) included Indian Bank, Corporation Bank, Andhra
Bank, Vijaya Bank, Bank of Maharashtra and Dena Bank. From the private sector banks’ category, one new generation private sector bank and one old generation private sector bank were picked randomly; thus the two private sector banks selected for the study were: the Axis Bank, and the Lakshmi Vilas Bank Ltd respectively. The relationships of technology vis-à-vis net profit were analyzed for all the 20 banks.

The annual reports of the selected 20 banks were studied in order to assess the initiatives of these individual banks in introducing new products and services using the payment system as the backbone to garner new business. In order to get an in depth and holistic picture of the state of art in payment products and services in Indian banks, primary data were collected from two of the 20 selected banks that were willing to share such information through structured questionnaire and personal interviews.

**Payment Systems : Global Scenario**

In the European Union (EU), technological developments, financial innovations and globalization have all contributed to reshape the infrastructure that affects payments. In the USA, the increase in the volume of electronic payments and the corresponding decline in the usage of cheque is the outcome of the technological and financial innovations, which have also influenced the payment instrument choices of consumers and businesses. According to Bank of England, the UK Payment Systems have been able to meet the challenges posed by the recent market turbulence. The value and number of transactions processed by the major Payment and Settlement Systems in Japan had broadly remained constant since the latter half of 2007, but decreased substantially following the bankruptcy of Lehman Brothers – Japan in September 2008. State-owned commercial banks in China hold the dominant position in payment business, handling about 53.4 per cent and 42.2 per cent of the total HVPS transactions and values respectively.

**Evolution of Payment Systems in India**

In India, as the volume of paper-based instruments and the time taken for clearing these instruments increased, MICR clearing was introduced in 1986 with a view to improve system efficiency and customer service. It is found that the RBI took the lead role in driving the initiation and modernization of payment systems in India. In the early and mid-90s, ACH services such as ECS and EFT were introduced by the RBI. Almost simultaneously, card-based payments like debit card, credit card, etc., were introduced in
India by the global players. The RBI initiated the efforts and set up the telecommunication network – INFINET – in the year 1999 to serve the needs of the industry. The implementation of the RTGS by the RBI in March 2004 revolutionized the large value payment system in the country by facilitating faster movement of funds across the country. The RBI inaugurated the NEFT system in November 2005 to cater to the retail payment requirements. In order to enhance the efficiency of the paper-based clearing system, the RBI introduced the CTS in February 2008 in the NCR.

Consequent to the above developments, and, in order to facilitate e-commerce and m-commerce, banks introduced the internet e-commerce payment gateways and mobile payment schemes during 2005-06. Currently, banks are leveraging modern technologies, such as mobile telephony, smart cards and biometric authentication to provide banking and financial services to the rural populace. With a view to bring about reforms in tax administration and payment mechanism, the Government of India has introduced an e-payment system known as the OLTAS. The BPSS was constituted by the RBI in March 2005, and, subsequently, the PSS Act, 2007, was introduced to provide the legal basis for the payment systems introduced in the country.

**Indicators of Growth of the Indian Payment Systems**

The total volume of transactions through the payment and settlement systems grew by 36 per cent, from 157.42 crore in 2005-06 to 213.34 crore in 2009-10. There was a three-fold increase in the value of the total transactions during the said period: the total value of transactions under the payment and settlement system steadily climbed from Rs. 308.15 lakh crore in 2005-06 to Rs. 892.85 lakh crore in 2009-10. In terms of its ratio to GDP at current market prices, the value of total transaction was 8.6 per cent of GDP in 2005-06 and went up to 14.3 per cent in the year 2009-10. It may also be noted that the Indian payment and settlement systems remained unaffected during the global financial crisis.

**Study of Payment Systems of Select Indian Banks**

Banks are today increasingly using the payment-system structure, created by the RBI, to facilitate customers’ transactions. In addition, Indian banks are also using information technology to offer innovative and tailor-made products and services with the ultimate objective of enhancing the value of the services offered to their customers. Banks are today offering a wide array of payment solutions by way of RTGS, NEFT, ECS, debit
cards, credit cards, pre-paid cards, cards acceptance service and the Internet Payment gateway. In order to relieve branches of the cumbersome back-office operations, most Indian banks have set up centralized back offices to handle the entire clearing and collection functions.

Specific findings of the study and related suggestions are as follows

Findings

- Cheque clearing and ECS payment systems are being run on a decentralized basis across several clearinghouses spread throughout India. The cost of processing payment instructions, as a result, is very high.

- In India, NEFT is a centralized retail electronic payment system which processes one-to-one payments; whereas, ECS is an electronic payment system which processes bulk and repetitive types of payments. The users of these systems at times get confused due to these multiple payment systems delivering the same jobs like in the case of ECS Credit and NEFT.

- At present, the NEFT payment system cannot be used for processing payments that are of urgent/critical nature on a 24 x 7 real time basis.

- Retail payment systems do not have any foolproof risk-mitigation mechanism except resorting to ‘unwinding’ in case of failure of any bank in fulfilling its obligation.

- The RTGS system in India adopts a pure gross settlement mechanism for funds settlement. In this mechanism, as banks are unaware of the incoming credits, it creates strain to manage liquidity requirements to meet the debit obligations on real time basis, resulting in high liquidity costs for the banks. This might result into settlement risk, in case a bank fails to meet its obligation.

- The Reserve Bank of India owns and operates the major interbank funds transfer systems, like RTGS, NEFT and NECS, in the country. The said approach termed as ‘Public Service Approach to Payment Systems Development’ is not considered very efficient since a large share of fixed costs is absorbed by the Central Bank and the cost recovery is based on subsidization.
In the absence of a domestic price setter, today Indian banks incur significant costs for affiliation to international card associations like VISA/MASTERCARD. Moreover, in the process, domestic card transactions, which account for more than 90 per cent of the total, are routed to switches located outside the country. This, apart from posing security concerns regarding customer privacy, also results in the migration of valuable foreign exchange.

As of now, there are no standards in place for various ‘financial inclusion’ operations and components. As a result, in spite of the banks agreeing to share their networks, their customers cannot use their smart cards at other banks’ terminals.

The analysis of relevant data for the period 1990-91 to 2009-10 for the selected banks indicated that, irrespective of their size, there existed a strong relationship between profitability and technology investment. One bank however stood out of the rest. This bank has been able to exploit the power of technology much faster than the others. Technology adoption has also led to increased efficiency of its Payment Systems which is quite evident from the increasing number of RTGS and NEFT transactions emanating from its branches and alternate delivery channels.

Taking into consideration the progress of the selected banks in the year 2009-10 over the base year 2005-06, it was observed that all the sample banks were successful in more than doubling their total business. However, two banks expanded their business by 3.5 times and 4 times respectively. As these two banks had taken steps to provide the maximum banking services using information technology extensively, they reflected the highest progress among all the sample banks. Both these banks have also recorded significant progress in its payment and settlement systems.

By considering the month-wise volumes and values of RTGS, for the period June 2008 to April 2011 for the selected banks, it is observed that the majority of banks covered by the study have created enabling features to significantly increase the volume and value of their transactions.

In terms of the month-wise progress of NEFT from June 2008 to April 2011, it is seen that all the 20 sample banks indicated lower rates of growth in their NEFT volumes and values up to June 2009; but they attained higher rates of growth during
the following period. This trend is due to the stabilization of their NEFT systems by mid-2009, and, these banks were making sincere efforts to migrate low value payments to NEFT.

- While analyzing the payment products of selected banks, it was observed that banks, which were early implementers of technology (CBS), have also been pioneers in introducing the maximum number of products and services. These banks also had a clear strategy to innovate and market their products.

- Three of the banks in the sample have created a new business vertical, namely ‘Transaction Banking’, to give a thrust to products that involve payment and collection transactions. This vertical also states the percentage of the total transactions that have migrated to electronic mode, and, also sets targets for the next year in its annual report.

- Currently, there are manifold choices and multi-channels for customers to make payments. This has led to tremendous complexity of relationships between payment channels (ATM, mobile phone, etc.), payment instruments (credit cards, RTGS, etc.) and customers. Banks are maintaining and servicing these relationships as separate payment silos with separate processing entities for each payment method leading to infrastructure duplication.

**Suggestions**

- Steps should be initiated towards consolidation of the payment processing centers to ensure reduction in cost and eventually achieving economies of scale. NEFT and ECS should be merged into one and India should eventually move over to an Automated Clearing House (ACH) as is prevalent in the USA (ACH), China (BEPS) and Japan (ZENGIN). This system should have the capability of doing one-to-one payments (credit transfers), one-to-many payments (bulk credit transfers), many-to-one payment (bulk debit transfers) and also one-to-one payment (debit transfers).

- In order to make NEFT operate on a 24 x 7 basis, the following model can be adopted: A pre-funded account can be established which will settle the members’ obligations arising out of the interbank settlement in NEFT. An interbank settlement
at predefined intervals can be carried out on a 24 x 7 basis. If net debit caps are reached, settlement of some payments can be deferred till the next cycle.

Leads may also be taken from the operations of ‘Faster Payment Service’ in the UK which is a 24 x 7 running payment system.

- To mitigate the settlement risk in retail payment systems, appropriate steps, similar to the BACS payment system in the UK, need to be taken. In fact, mechanisms, like the soft net debit caps and the new referral type regression in appropriate circumstances, and, the introduction of the Liquidity Funding and Collateralization Agreement have been implemented in the BACS.

- To mitigate the settlement risk in RTGS, it may be migrated to a Hybrid System, i.e. either to a Continuous Net Settlement system (like the new CHIPS Payment System in the USA) or to a Queue-Augmented RTGS System (like the RTGS plus system in Germany). The RBI has also initiated steps to revamp the current RTGS system by proposing to introduce technological and liquidity saving features.

- Like in the USA, India should gradually migrate to ‘The Competitive Approach to Payment Systems Development’ whereby both the public and private sectors own and operate interbank payment systems so that cost recovery is fully taken care of.

- A national payment Point of Sale (POS) switch using the IDRBT’s INFINET network should be established to take care of domestic transactions by creating an INDIACARD, with the rest being handled by VISA/MASTERCARD. This will reduce costs and also minimize the value of interbank liabilities (interchange fees) arising out of the card transactions.

- Standards need to be prescribed by an apex level agency for various ‘financial inclusion’ operations and components, as is currently being done for credit and debit cards by VISA and MASTERCARD. This will address the non- interoperability issue.

- Indian banks should exploit the power of technology smartly/vigorously to increase efficiency of their payment systems. They should also constantly focus on
augmenting non-interest income through diversification of income streams by using the payment backbone and introducing new e-payment products and services.

- Indian banks, in order to give more thrust to products that involve payment and collection transactions, should create ‘Transaction Banking’ as a separate business vertical. This would further hasten the transition to electronic mode of payments.

- Banks should create a streamlined IT architecture like a “Payment Hub”, which will eliminate point-to-point interfaces for various payment products. This would allow consolidation of multiple payment systems into one centrally managed mid-office payment system, which brings in better efficiency, reduces cost, enables more transparency in processing and improves customer service, thereby improving profitability in the long run.

**Scope for Further Research**

In India, the share of paper-based transactions is still very high: in terms of volume, it still continues to be 65 per cent. In the CBS mode, today it is possible for banks to identify customers who make paper payments and the purpose thereof. Banks should therefore be able to analyze and understand the customer payment requirements and habits and workout appropriate strategies to facilitate their migration to electronic payment modes. Further, banks should analyze the feedback of their customers on various payment products and services launched by them in the recent past and also their expectations from the banks in the future. The analysis of such data would not only provide a deeper insight into the expectations of their customers but also enable banks to design and deliver tailor-made products – payment solutions – to meet the requirements of their customers.

Similarly, the dominant (almost monopolistic) position of Indian commercial banks over retail payment systems and services is being increasingly challenged by a variety of non-bank payment service providers and products. Indian Banks’ Association may like to initiate appropriate study to find out the areas where the new service providers are trying to enter and suggest ways and means so that banks maintain their lead by continuously innovating new payment methods, products and services. In the same way, a successful payment model also requires the building up of good bilateral and multilateral partnership arrangements, which can leverage on the respective strengths of the stakeholders. Such a study can also suggest collaborative initiatives, so that both banks and non-banking
financial institutions can benefit in the long run. A clear demarcation of the role of each service provider can also be worked out so that each one has a level playing arena.

**Chapter Design**

*Chapter 1*: Introduction

*Chapter 2*: Methodology

*Chapter 3*: Payment Systems: Global Scenario

*Chapter 4*: Evolution of Payment Systems in India

*Chapter 5*: Indian Payment Systems: Growth Indicators

*Chapter 6*: Risk Management in Payment Systems and the Regulatory Framework

*Chapter 7*: Analysis of Payment Business in Select Banks and Findings

*Chapter 8*: Summary and Recommendations

Appendices

Bibliography

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