

Digital Transformation in Indian Banking: A Study of Cheque Truncation System and other Technological Advances

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Abstract

Implementation of Cheque Truncation System (CTS) in India by the Reserve Bank of India (RBI), the banking regulator of the country, has proven to be a revolutionary step in the history of digital transformation in Indian banking. CTS replaces the traditional paper-based cheque clearing with the most modern digital mode clearing. CTS is faster, efficient and more transparent. In the context of the ongoing measures of demonetisation (DeMo) and digital transformation in India by the RBI, the paper makes a closer look into the progress of CTS in India and suggests steps for more refinements in the system.

Keywords—ICT, Digital banking, CTS, Demonetisation (DeMo)

1. INTRODUCTION

From time immemorial, trade and commerce has been a part of human civilization. In respect of the mode of effecting the payments in business transactions, however, there have been many changes over the years, a few of which being quite radical and revolutionary in their nature. Accordingly, on a closer analysis, it may be observed that the humanity have so far come across three very prominent landmarks in our journey towards improvising payment settlements; starting from the earliest form of trade known as 'barter' system to the ever-latest form called 'e-commerce' system. Firstly, because of the increase in the number and kind of transactions barter goods became unwieldy to carry and trade, and thus barter systems gave way to the 'currency' system as a more convenient mechanism for conducting business. Secondly, owing to safety and convenience problems associated with currency, 'cheques' replaced currency as the most preferred payment mode for business transactions, thus resulting in tremendous increase in cheque-based transactions across the sound banking channels connecting different parts of the globe. The delay in realization of money after the business transaction is the main drawback of cheque-based transactions. Traditionally, cheques have to traverse through a series of stages before it reaches the payee bank and fund transfer is effected. This process normally takes considerable time ranging from one week to a fortnight. Further, the infrastructure that should be maintained for facilitating the entire clearing process as above also posed problems for banking institutions. However, with the advent of computers and wide area networks (WAN) that linked banking institutions via secure and private networks like 'INFINET'- regulators and banking professionals wanted a new generation technology to get rid of the

above-mentioned problems associated with cheque-based transactions. This has paved the way for the third major shift in the mode of effecting business payments, by developing an alternative which is primarily based on the latest advances in the field of Information and Communication Technology (ICT) as pointed out above. This methodology can very effectively replace the current paper-based (and also 'MICR'ised) banking transactions involving physical movement of cheques with one that is in the electronic form and revolutionize clearing and settlement transactions of banks. This process is known as the 'Cheque Truncation'. Cheque Truncation System (CTS) in banks has already proven to be a superior alternative to the current paper-based systems. Worldwide, in most of the progressive banks effectively use CTS. Besides, because of the explosive growth in the number of banking transactions day by day, the existing systems are becoming all the more cumbersome and unwieldy. So, CTS is now an imperative for banks rather than a choice. Besides the convenience that CTS ensures, there are unmatched benefits in terms of huge reduction in the cost and time involved in transactions. World over, banks have either adopted CTS or are seriously in the process of migrating to CTS from their respective traditional paper-based systems.

In India too banks have been following the traditional practice of paper-based transactions for payment and settlements. This practice being based on physical movement of cheques, it has been causing many problems as procedural delays, high cost of maintaining the requisite infrastructure etc. So, development of a safer, secure and sound payment and settlement system has long been one of the most important policy objectives of the central bank of the country viz. the Reserve Bank of India (RBI). Due to the unwieldy and cumbersome dealings involved in paper-based systems; so as to gain high operational efficiency through tremendous cost and time savings, and hence to catch up with the best global banking practices; the RBI has initiated a number of measures to enhance the efficiency in payment settlements by embracing ICT, as ICT ensures greater functionality and modernisation of payment and settlement systems. In January 2003, RBI had constituted a Working Group on Cheque Truncation and E-Cheques. Also, RBI constituted the Board for regulation and supervision of Payment and Settlement Systems (BPSS). With the Government of India announcing Demonetisation on 08.11.2016, CTS got a major impetus.

2. LITERATURE REVIEW AND RESEARCH GAP

A macro level study by Manoj P. K (2012)[14], "Information and Communication Technology (ICT) for Effective Implementation of MGNREGA in India: An Analysis" has noted the vital significance of ICT for faster, hassle-free, and transparent implementation of MGNREGA. Need for ICT, its benefits, ICT success stories (eg. MGNREGA in Rajasthan), challenges in ICT adoption etc. are discussed. Neeraja James and Manoj P K (2014) [17] in their paper "Relevance of E-Banking in the Rural Area – An Empirical Investigation" have studied the relevance of E-banking services with a focus on a rural area in Kerala and have suggested measures for better reach of banking in rural areas. An empirical study on e-CRM by Manoj P K, Jacob Joju, and Vasantha (2014) [16] "Impact of E-CRM on Commercial Banking: An Empirical Investigation with Reference to Private Sector Banks in Kerala" in International Journal of Applied Financial Services & Marketing Perspectives (IJAFSMP) has revealed that most of the customers of private sector have used CRM including different ICT-based services. Majority of customers and bank officials preferred e-CRM and ICT-based services and bank marketing. In a study by Jacob Joju, Vasantha S and Manoj P.K. (2015)[19], "E-CRM: A Perspective of Urban and Rural Banks in Kerala" in International Journal of Recent Advances in Multidisciplinary Research, the authors have compared the acceptance of e-CRM among the urban and rural customers. It has been noted that e-CRM is more accepted among the urban customers, and that rural customers have more preference of 'human factor' in the services than their urban counterparts. In his recent paper, Manoj P. K (2016) [22], "Bank Marketing in India in the Current ICT Era: Strategies for Effective Promotion of Bank Products" in International Journal of Advance Research in Computer Science and Management Studies the need for adoption of ICT for effective delivery of bank products is highlighted. Of the six strategies suggested for marketing of bank products, the sixth strategy is about the effective use of e-CRM. Another study on e-CRM in the Indian context done using field survey of bank customers, by Jacob Joju, Vasantha S., & Sony Joseph (2016) [24], "E-Leveraging e-CRM for Future" in Indian Journal of Science and Technology, has pointed out the need for leveraging e-CRM in today's competitive scenario for survival and growth of banks. Reserve Bank of India (RBI) publication authored by Maiti, Sasanka, S. (2017)[25], "From Cash to Non-cash and Cheque to Digital" has studied the impact of the RBI initiatives to promote non-cash (digital) mode transactions, the progress of such initiatives, and has noted that there has been 'fundamental shift' towards non-cash (digital) transactions in the ongoing 'DeMo'era, ie. since 8 Nov. 2016. A study by Lakshmi and Manoj P. K (2017) [26], "Rural Customers and ICT-based Bank Products A Study with a Focus on Kannur District Co-operative Bank and Kerala Gramin Bank" in International Journal of Economic Research (IJER) has noted the growing acceptance of ICT-based products among rural customers. While ICT adoption is required, equally important is staff training and their skill development. Above all, a 'human

touch' needs to be ensured by the bank staff in their services. Despite many studies on the impact of ICT on Indian banks, studies that focus on CTS are scarce. This is the research gap located for this study.

OBJECTIVES OF THE STUDY

- (1) To study the RBI initiatives in promoting digital banking modes like Cheque Truncation System (CTS), the impact of such initiatives particularly in the demonetization era (since 08.11.2016) and the current status in this regard;
- (2) To study in detail the concept of CTS, the process involved in CTS, and also the benefits of CTS; and
- (3) To suggest strategies for more efficient adoption of CTS and other digital banking initiatives in India.

3. MATERIALS AND METHODS

The study is of descriptive in nature (ex post facto research) to the extent that it is a fact-finding enquiry relating to the relevance and significance digital banking modes in India, particularly the concept of CTS. So, it involves an in-depth study of all the relevant regulatory initiatives, while at the same time fully appreciating all the major global practices as well as market developments in this regard. Research approach adopted is of qualitative nature. Data sources include the all the relevant publications of the Reserve Bank of India (RBI) – the central bank of the country over the last few years till November 2017; publications of Federal Reserve Board (FRB), USA; reports of BIS (Bank for International Settlements) and BCBS (Basle Committee for Banking Supervision); and bare acts like Check 21 Act, 2003.

4. RELEVANCE AND SIGNIFICANCE OF THE STUDY

Worldwide, cheque truncation may be seen to be one of the most vital activities involved in the replacement of legacy systems in banks. Cheque truncation would continue to account for a sizeable chunk of IT-based investment in the banking and financial services industry. Globally, the investment in this regard was about 8 per cent in 2005. This has gone up to over 20 per cent as of 2017. In India too, the RBI had launched its pilot CTS project in New Delhi way back in December 2007. Later, CTS was formally launched in New Delhi (01 Feb. 2008), in Chennai (24 Sept. 2011) and in Mumbai (27 April 2013). In India RBI has envisioned the use of a 'Grid-based' approach for the roll-out of CTS throughout India. In this approach the whole cheque volume in the country (which was earlier cleared through 66 MICR Cheque Processing locations) is merged into three grids (New Delhi, Chennai and Mumbai). After migration of the entire cheque volume from MICR system to CTS, the traditional MICR-based cheque processing has been discontinued across the country. [RBI, as of 30 Nov. 2016]. Heavy investments are being made by the banks in India in ICT-based initiatives during the last few years, to keep in pace with the regulatory requirements and also to align themselves with the international banking practices. The recent observations of the RBI of sustenance of

increasing usage of cash-less (digital) modes and 'a fundamental shift being underway in payment habits' [RBI, Nov. 2017] special mention here. In view of these facts, it is relevant to study in detail the concept of CTS, process involved in CTS, its implementation progress including issues, if any, etc. so that strategies can be developed for more effective adoption of CTS in India.

5. CHEQUE TRUNCATION: CONCEPT AND BENEFITS

Cheque truncation is the process in which an image based clearing system seeks to replace the physical movement of cheques within individual banks or between different banks or between banks and the clearing house. Here, the physical movement of cheques is curtailed or eliminated and is replaced in whole or in part, by electronic records of their content (with or without the images) for further processing and transmission (RBI, 2003). The term 'truncation', here, stands for removal of an original paper cheque from the cheque collection or return process. Instead of the original paper cheque, a substitute cheque or, by agreement, information relating to the original cheque (including data taken from the MICR line of the original cheque or an electronic image of the original cheque), whether with or without subsequent delivery of the original paper cheque (Check 21 Act, 2003). Cheque Truncation compels any party in the chain to truncate any cheque (business or commercial) and convert it to an image at the presenting bank level. Benefits of cheque truncation include the following:

❖ Clearing and forwarding times will reduce:

The existing cheque realization time span varies from 1 to 10 days and even a fortnight. The cheque truncation system will try to minimize this to T + 1 (or, even T+0 in some cases) where the T is the cheque receiving date. In a large country like ours the process of clearing of out station cheques could take anywhere between a week to a fortnight.

❖ Fraud can be detected at early points and addressed more effectively:

Minimize risks and introduce a secured cheque clearing system. Make cheque clearing process more efficient through electronic transmission of cheque images.

❖ Operational costs can be brought down dramatically along with cycle times:

Cheque imaging will result in cost savings due to lower cost in physical transportation of cheques. Cost reduction results due to the non-reliance of courier/postal agencies for the movement of cheques. Physical and human resources utilized for manual processing of cheques could be re-deployed for better operational efficiency of banks.

❖ Minimizing Float and hence the misuse of float funds and preventing scams:

Cheque truncation would ultimately mean the death of distance and hence that of time involved in clearance of cheques. Customer credits on a T+1 basis (i.e. credit after one day of the day of presentment) and even T+0 (credit on the same day). This in turn, means elimination of the misuse of float funds as well as the

resultant scams, both from the part of customers and bankers.

❖ Inter branch reconciliation will be smoother:

Because of the 'virtually instantaneous' kind of clearance of cheques under the cheque truncation system (CTS), inter branch reconciliation becomes quite easy and the same becomes a part of the clearance process itself as all these are integrated in a full-fledged cheque truncation system (CTS).

PROCESS OF CHEQUE TRUNCATION

The process of cheque truncation is explained below with the help of the process model shown in Figure (1). The eleven steps involved in a typical cheque truncation process as depicted in the Figure is explained hereunder.

- **Step 1:** Cheque Truncation process starts with a customer presenting a MICR cheque to a teller in the "Presenting Bank".
- **Step 2:** Teller at the presenting bank collects the MICR cheque and arranges for 'truncating' it.
- **Step 3:** Physical cheque is truncated by processing it through a cheque scanner hardware and software. After the process of the "electronic imaging", truncated electronic image of the cheque is referred to as 'substitute cheque' or 'image replacement document' (IRD). Figure 2 & 3 shows the Front and Back of physical cheque after truncation.
- **Step 4:** Truncated cheque / IRD is presented for clearing to a 'Automated Clearing House' via existing or new wide area network (WAN) the bank branch have access with. To ensure confidentiality and integrity of the IRD, it is encrypted using a suitable encryption-decryption technique. PKI is the most preferred technique prevalent right now internationally and Working Group recommends the same for Indian system.
- **Step 5:** Automate Clearing House is an electronic equivalent of clearing houses existing presently. Automate Clearing House acts as an exchange which accepts and dispatches IRD from presenting to paying banks. Automate Clearing Houses routes the IRD utilizing the MICR data present in the IRD data bundle.
- **Step 6:** Working Group envisages the need of a national authority which would keep an archive of all IRDs generated. A centralized agency could be the legal custodian of the IRDs and should maintain them for the legally stipulated time which is set as eight years in India. Presence of such an agency could relieve banks storage and security infrastructure of IRDs processed by them.
- **Step 7:** IRD is sent to the Paying Bank for payment. Transfer is made through electronic medium as in Step 5.
- **Step 8:** 'Paying Bank' makes a verification of IRD after receiving it. IRD is an electronic document and electronic tools too can be used for fraud detection or verification.
- **Step 9:** If there are sufficient funds in the account of the cheque issuer the sum denoted in the cheque is released.

If there is lack of fund or other issues (mismatch of signature or stop payment) the banks rejects the IRD.

- **Step 10:** Depending upon the outcome of the fund transfer/denial, 'Outward Returns' could be fund transfer or intimation of denial. In the case of non-clearing of the IRD, it is modified suitably and send back to the 'Presenting Bank'.
- **Step 11:** 'Presenting Bank' receives the transferred fund or returned IRD as 'Inwards Returns'. The customer's account is credited with the fund received or in case of non-clearing of the IRD customer is given an image of the returned IRD with suitable explanation.

Image courtesy: Federal Reserve Board, USA.

As explained in the process diagram (Figure 1), once a cheque is truncated the paper cheque is not used for any further transactions; instead a 'substitute cheque' or IRD is used. A substitute cheque is a special paper copy of the front and back of an original cheque. The substitute cheque may be slightly larger than the original cheque. Substitute cheques are specially formatted so they can be processed as if they were original cheques. The front of a substitute cheque should state: "This is a legal copy of your cheque. You can use it the same way you would use the original cheque." (Federal Reserve Board, USA, 2004) Figure 2 shows front side of a substitute cheque. Figure 3 shows back side of a substitute cheque

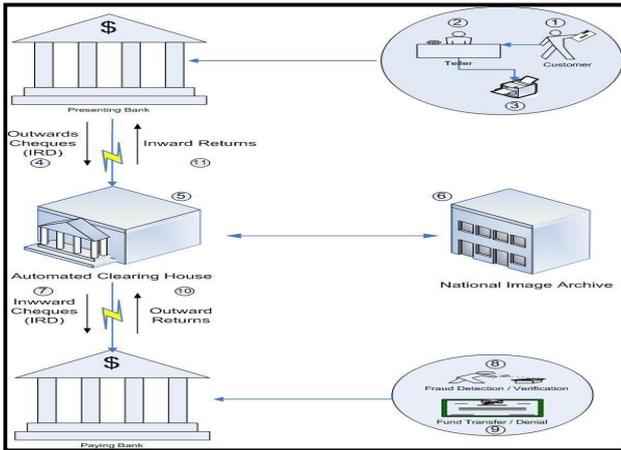


Figure 1 Block diagram of Cheque Truncation Process

6. DEMONETISATION AND THE BANKING SECTOR IN INDIA

The RBI has intervened several times for the promotion of digital mode transactions in the place of paper-based ones. For instance, with effect from 01 April 2008, the RBI mandated the use of electronic payment modes for payment of Rs.10 Million or more. This limit was later reduced to 1 Million with effect from 01 August 2008. Incentives offered in the form of lower service charges promoted this digital shift in multiple modes, like, Real Time Gross Settlement (RTGS), Electronic Clearing System (ECS), National Electronic Funds Transfer (NEFT). In fact, CTS denotes the latest technology implemented in the field of cheque banking systems in banks. Demonetisation and initiatives in the direction of cash-less economy are aggressively being promoted by the Government of India, ever since it announced demonetisation on 08th Nov. 2016. CTS and other digital modes have gained utmost significance in Indian banking today, post-demonetisation. Figure 4 shows the growth pattern in different types of financial transactions in terms of number (volume) terms, whereas Figure 5 shows the same thing in value terms. (RBI, 2017) [25].

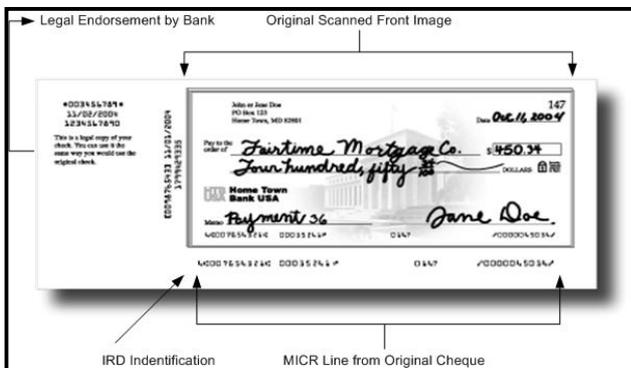


Figure 2: Forward Original IRD of Personal-Size Cheque, Front

Image courtesy: Federal Reserve Board, USA.

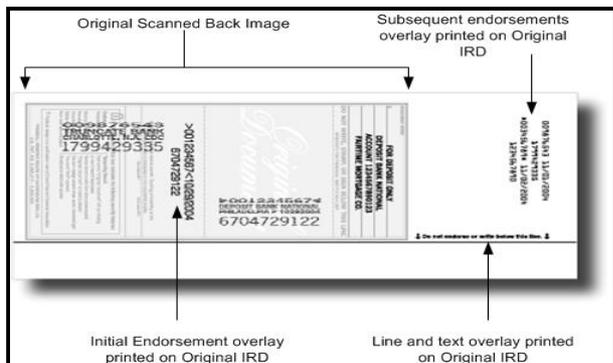


Figure 3: Forward Original IRD of Personal-Size Cheque, Back

From Figure 4 and Figure 5, it may be inferred that the growth rates in the first type viz. Real Time Gross Settlement (RTGS) transactions over the years in volume (number) terms have been very low, but very high (maximum) in value terms. Reverse trend is seen in respect of the second type viz. Card transactions i.e. the use of Credit / Debit Cards etc. at Point of Sales (POS). Though the use of Cards has been growing fastly and constantly, in value terms the growth is quite lower. In respect of the third type viz. Retail Electronic transactions there has been a marked and constant growth, both in volume (number) and value terms. In respect of the fourth type viz. Paper-based transactions (like, Cheques) there has been a gradual decline. (Figure 4 and Figure 5).

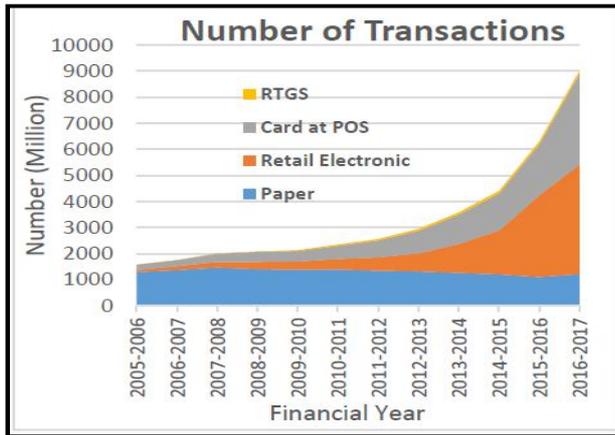


Figure 4: Number (Volume) of Transactions: Year-wise

Source: Adapted from RBI (2017) [25]

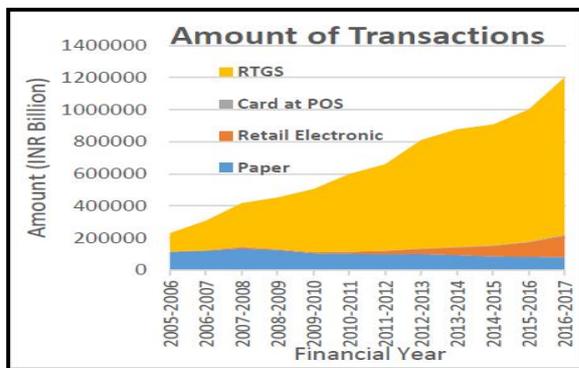


Figure 5: Amount (Value) of Transactions: Year-wise

Source: Adapted from RBI (2017) [25]

In respect of Cheque transactions, a very popular mode of non-cash transactions, there is a gradually falling trend in the growth rates in the usage of cheques throughout the period, from FY 2009 to FY 2016; both in volume (number) and value terms, in general. Trend reversal is noticed in last year (FY 2017), both in volume and value terms; this sudden rise in cheque usage being definitely attributable to the RBI's intervention through Demonetisation (08 Nov. 2016) and other initiatives like promotion of non-cash transactions.

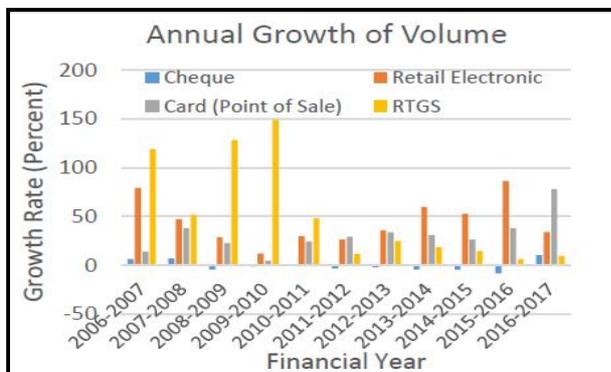


Figure 6: Growth in Non-Cash Transactions (Volume)

Source: Adapted from RBI (2017) [25]

Figure 6 shows in volume terms the growth pattern in Cheque transactions and the other three major modes of non-cash transactions viz. Retail Electronic, Cards (Point of Sale) and RTGS. Figure 7 depicts the same thing in value terms. It may be noted that there was a declining trend in the usage of cheques during the pre-monetisation period as evidenced by the very low or negative growth rates (in volume) ever since FY 2009 till FY 2016 (Figure 6) and a similar pattern in value terms as well (Figure 7), except for FY 2013. In respect of RTGS, a rather growing trend is noticed (both volume and value) throughout the period FY 2009 to FY 2017. Similar trend is noted in respect of Retail Electronic transactions.

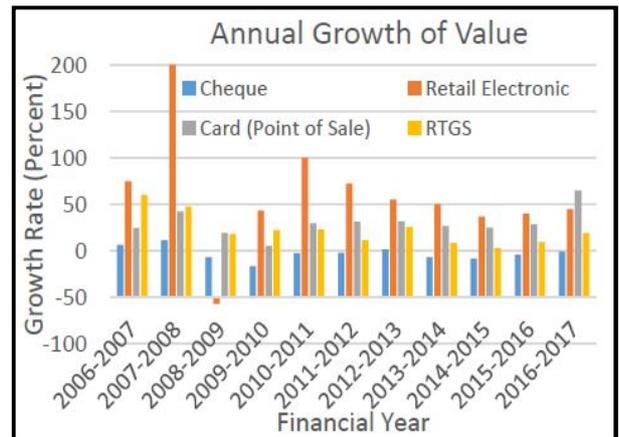


Figure 7: Growth in Non-Cash Transactions (Value)

Source: Adapted from RBI (2017) [25]

The marked shift towards usage of Cheque and also the usage of Cards since FY 2017 onwards (ie. Demonetisation era) needs to be studied further. For detailed analysis of the pattern of usage of Cheques and Cards, let us divide the entire time period into three time buckets (viz. pre-demonetisation, monetisation, and post-demonetisation), based on the RBI's vital intervention ie. Demonetisation (8.11.2017) (Table 1).

Table 1: RBI Demonetisation and Three Time Buckets

| Criterion | Specification | Time-Buckets (Titles) |
|--|----------------------|----------------------------|
| Demonetisation initiated on 08 Nov. 2016 | April 2016-Oct. 2016 | Pre-demonetisation period |
| | Nov. 2016-March 2017 | Demonetisation period |
| | April 2017-Aug. 2017 | Post-demonetisation period |

Source: Adapted from RBI (2017) [25]

The pattern of non-cash transactions prior to, during and post the Demonetisation ('DeMo', in short) is shown in Figure 8 (by volume) and Figure 9 (by value).

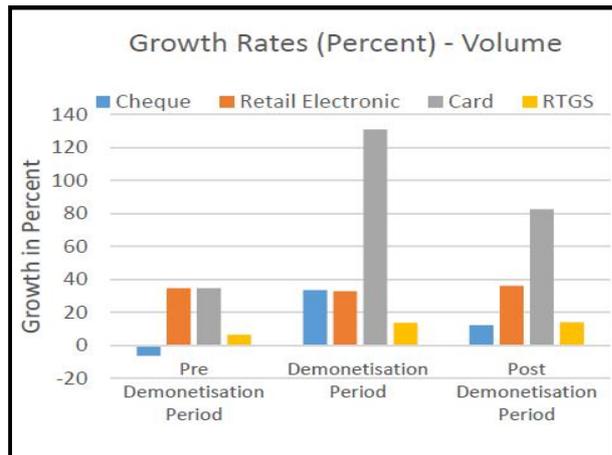


Figure 8: DeMo and Non-Cash Transactions (Volume)

Source: Adapted from RBI (2017) [25]

It is seen that transaction by both Cheques and Cards have recorded very high growth rate during DeMo period and the same sustained almost fully even in the post-DeMo era.

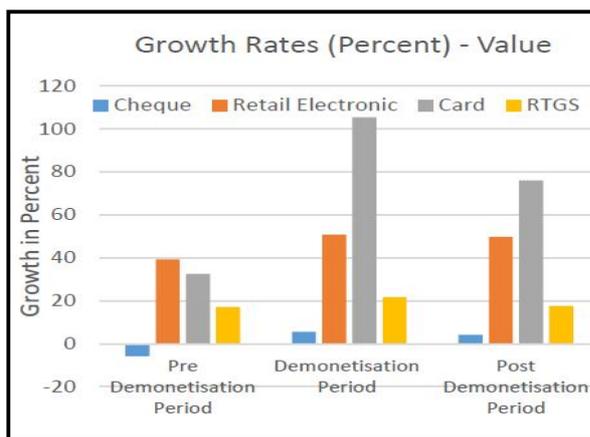


Figure 9: DeMo and Non-Cash Transactions (Value)

Source: Adapted from RBI (2017) [25]

The huge surge in the volume Cheque transactions and Card transactions because of DeMo effect (Figure 8) is reflected in value terms too (Figure 9), both during and after DeMo. This trend may continue in the future, as RBI has foreseen a ‘fundamental shift’ towards non-cash transactions from cash transaction because of DeMo. (RBI, 2017)[25].

Table 2: Transaction Modes: DeMo Effect

| Payment Category | Monthly Average | | | Mean Equality Test Results | |
|----------------------------|-----------------|----------|-----------|----------------------------|---|
| | Pre-DeMo | DeMo | Post-DeMo | | |
| Cheque | Vol | 88.50 | 119.88 | 97.45 | $\bar{x}_1 < \bar{x}_2 = \bar{x}_3$ |
| | Val | 6623.86 | 7095.49 | 6819.41 | $\bar{x}_1 = \bar{x}_2 = \bar{x}_3$ |
| Retail Electronic payments | Vol | 306.93 | 391.57 | 432.04 | $\bar{x}_1 < \bar{x}_2 = \bar{x}_3$ |
| | Val | 9087.21 | 12950.59 | 13808.39 | $\bar{x}_1 < \bar{x}_2 = \bar{x}_3$ |
| Card at POS | Vol | 192.53 | 406.56 | 373.18 | $\bar{x}_1 < \bar{x}_2 = \bar{x}_3$ |
| | Val | 390.37 | 726.52 | 714.29 | $\bar{x}_1 < \bar{x}_2 = \bar{x}_3$ |
| RTGS | Vol | 08.49 | 09.54 | 09.73 | $\bar{x}_1 = \bar{x}_2; \bar{x}_1 < \bar{x}_3; \bar{x}_2 = \bar{x}_3$ |
| | Val | 74410.61 | 87531.27 | 89561.59 | $\bar{x}_1 = \bar{x}_2; \bar{x}_1 < \bar{x}_3; \bar{x}_2 = \bar{x}_3$ |

Source: Adapted from RBI (2017) [25]

7.OVERALL PICTURE

An analysis of the trend and progress of commercial banking during post-deregulation era (ie. right from the early 1990s) clearly suggests two major developments. First, there has been considerable improvement in the financial performance and stability of banks in India, particularly since FY 2001-'02; notwithstanding the fact that there have been some apprehensions regarding asset quality (issue of mounting NPAs), of late, in the current decade (mid 2010s). Second, in respect of ICT-based initiatives in banking, though there have been notable progress almost throughout the period, particularly since the early 2000s. Initiatives in the direction of CTS adoption have been very active right from 2005. Still, there is enough scope for further improvements. Special thrust given to non-cash transaction ever since the announcement of Demonetization (DeMo) on 08 Nov. 2016 deserves special mention here.

Over the last 5 years there has been constant growth in the technology-enabled transactions, particularly through PoS (Point of Sales) mode. (Table 3, Figure 10).

Table 3: Trend of Technology-Enabled Transactions

| Fin. Year | Online (PoS) Point of Sale | ATMs(Automatic Teller Machines) | Transactions per Card | |
|-----------|----------------------------|---------------------------------|-----------------------|------|
| | | | ATMs | PoS |
| 2013 | 8,41,000 | 1,14,000 | 1.46 | 0.14 |
| 2014 | 10,50,000 | 1,60,000 | 1.45 | 0.14 |
| 2015 | 13,08,000 | 1,81,000 | 1.13 | 0.14 |
| 2016 | 15,85,000 | 1,99,000 | 1.11 | 0.17 |
| 2017 | 27,37,000 | 2,09,000 | 0.83 | 0.32 |

Source: M.S. Sriram. *Inclusive Finance India Report 2017* [8]

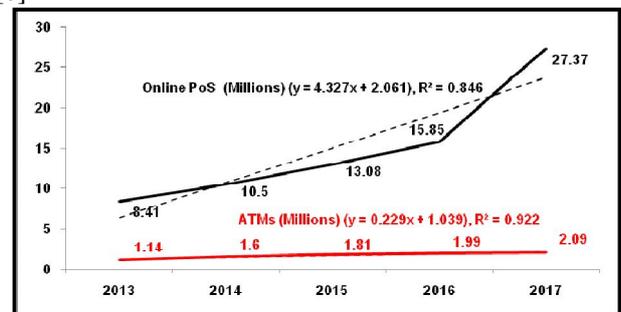


Figure 10: Trend of Digital Transactions (Pos and ATMs)

Source: Based on, M.S. Sriram. [8], as given in Table 3.

It is worth noting that while there is steady growth in PoS mode transactions, the growth in transactions through ATMs has been nearly stagnant. (Table 3, Figure 10). Besides, while transactions per card have been slowly growing for PoS, the same in respect of ATMs fast declining. (Table 3, Figure 11).

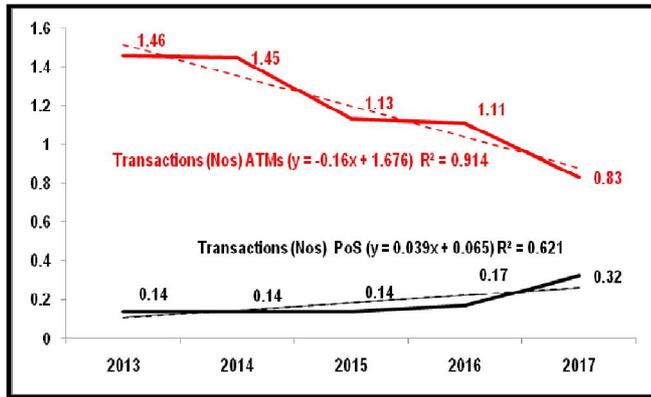


Figure 11: Trend of Transactions per Card (Pos and ATMs)

Source: Based on, M.S. Sriram. [8], as given in Table 3.

The recent initiatives of the RBI suggest that in the ICT front, especially in promoting digital banking and non-cash transactions, Indian banking system would be in the forefront within a few years hence. This new development in turn would contribute tremendously towards further improving the financial performance and stability; primarily because of the substantial cost savings and operational efficiency as are enabled by the ICT-based initiatives like the CTS. Regarding the specific area of payments and settlement systems in banks, Cheque and Card modes have gained momentum in the current DeMo era. Table 4 shows the latest position relating to the trend of payment systems in India.

8. FINDINGS AND CONCLUDING REMARKS

As India is moving fast towards a non-cash economy ever since its DeMo initiative in Nov. 2016, the growth in the non-cash modes would continue in the future also. While RTGS and Retail Electronic modes have been almost steadily right from the pre-DeMo period, the growth in Cheques and Cards modes have been very pronounced ever since the DeMo experience; this 'trend reversals' being evident during the DeMo and post-DeMo period. The most modern banking technologies like CTS hold much promise in the days to come as they seek to enhance the transparency, cost effectiveness and efficiency of financial transactions. Because, in spite of the advent of many innovative payment mechanisms like debit/credit cards, e-cheques or electronic payment systems etc., usage of cheques remains as one of the most preferred payment methods in India. The data on cheque usage in the post-DeMo era highlights this fact. Analysis of the recent statistics suggests that even in many of the advanced countries of the world, there is only a marginal decline in the volume of cheques transacted over the last one decade. Hence, banking channels in those advanced economies are investing resources heavily in developing CTS and allied systems to bring in more efficiency and faster turn-around time for processing cheques. The same is an imperative in Indian banking in this DeMo era. Introduction of CTS and allied systems can mitigate frauds considerably, physical movement of cheques being eliminated in CTS-

based processing. This in turn minimizes the operational risks in banks.

It may, however, be admitted that implementation of CTS may pose a few intrinsic technological and non-technological issues in the near future. The probable non-technological issues include building of procedural framework required for smooth transition to new system, customer education and awareness to be undertaken prior to implementation, etc. Lack of proper customer education may result in mass scale dishonoring of cheques initially; till the system stabilizes itself. Another major issue is the procedural guidelines required to meet eventualities like legal disputes where truncated cheques alone are available, particularly after physical cheques are discarded. Moreover, banks have to make substantial capital investment initially. But, considering the significant benefits that accrue from CTS, issues as noted above are rather immaterial. As performance indicators of Indian banking system are increasingly converging to international benchmarks, the current initiatives of RBI would definitely enhance the operational efficiency and hence further strengthen the financial stability of Indian banks in the days to come.

Table 4: Payment System Indicators in India - Latest Status (Sept. 2017)

| System | Volume (in Millions) | | | | Value (in Rs. Billions) | | | |
|--|----------------------|------------|-----------|-----------|-------------------------|------------|------------|------------|
| | 2016-17 | FY 2017-18 | | | 2016-17 | FY 2017-18 | | |
| | | July | Aug. | Sep. | | Jul. | Aug. | Sep. |
| 1 RTGS | 107.86 | 9.38 | 9.46 | 9.61 | 1,253,652.08 | 110,562.10 | 113,827.58 | 127,730.70 |
| 1.1 Customer Transactions | 103.66 | 9.07 | 9.16 | 9.33 | 849,950.51 | 77,675.80 | 79,137.81 | 91,521.65 |
| 1.2 Interbank Transactions | 4.17 | 0.31 | 0.30 | 0.29 | 151,953.25 | 9,473.46 | 10,005.58 | 10,826.48 |
| 1.3 Interbank Clearing | 0.018 | 0.002 | 0.002 | 0.002 | 271,748.31 | 25,412.84 | 24,664.19 | 25,582.57 |
| 2 OCH/Operated Systems | 3.65 | 0.30 | 0.27 | 0.30 | 1,056,173.36 | 86,663.63 | 87,499.01 | 92,763.82 |
| 2.1 CBLO | 0.22 | 0.02 | 0.02 | 0.02 | 229,528.33 | 21,736.46 | 22,784.18 | 23,778.02 |
| 2.2 Govt. Securities Clearing | 1.51 | 0.11 | 0.08 | 0.10 | 404,389.08 | 34,047.29 | 31,959.78 | 34,013.49 |
| 2.2.1 Outright | 1.34 | 0.10 | 0.07 | 0.08 | 168,741.46 | 13,400.47 | 9,795.75 | 11,098.06 |
| 2.2.2 Repo | 0.168 | 0.016 | 0.017 | 0.018 | 235,647.62 | 20,646.82 | 22,164.03 | 22,915.42 |
| 2.3 Forex Clearing | 1.93 | 0.17 | 0.17 | 0.19 | 422,255.95 | 30,879.88 | 32,755.05 | 34,972.31 |
| 3 Paper Clearing | 1,206.69 | 95.35 | 94.81 | 94.37 | 80,958.15 | 6,372.52 | 6,403.59 | 6,429.99 |
| 3.1 Cheque Truncation System (CTS) | 1,111.86 | 92.20 | 92.05 | 92.16 | 74,035.22 | 6,342.50 | 6,224.54 | 6,271.53 |
| 3.3 Non-MICR Clearing | 94.83 | 3.15 | 2.76 | 2.22 | 6,922.93 | 230.02 | 179.25 | 158.47 |
| 4 Retail Electronic Clearing | 4,204.96 | 432.20 | 442.79 | 427.72 | 132,250.12 | 13,471.67 | 13,988.09 | 15,624.23 |
| 4.1 ECS DR | 8.76 | 0.14 | 0.12 | 0.14 | 39.14 | 0.93 | 0.83 | 0.84 |
| 4.2 ECS CR (includes NECS) | 10.10 | 0.43 | 0.63 | 0.48 | 144.08 | 10.90 | 10.96 | 9.60 |
| 4.3 EFT/NEFT | 1,622.10 | 148.14 | 151.61 | 157.67 | 120,039.68 | 12,011.60 | 12,500.38 | 14,182.14 |
| 4.4 Immediate Payment System (IMPS) | 506.73 | 69.07 | 75.66 | 82.85 | 4,111.06 | 604.76 | 651.49 | 717.60 |
| 4.5 National Automated Clearing House (NACH) | 2,057.27 | 214.42 | 214.77 | 186.58 | 7,916.17 | 843.47 | 824.43 | 714.06 |
| 5 Cards | 12,055.87 | 1,070.91 | 1,099.84 | 1,096.45 | 30,214.00 | 2,958.59 | 3,073.12 | 3,163.59 |
| 5.1 Credit Cards | 1,093.51 | 111.38 | 115.99 | 113.29 | 3,312.21 | 342.15 | 366.03 | 377.76 |
| 5.1.1 Usage at ATMs | 6.37 | 0.61 | 0.66 | 0.65 | 28.39 | 2.85 | 3.05 | 3.11 |
| 5.1.2 Usage at POS | 1,087.13 | 110.76 | 115.33 | 112.63 | 3,283.82 | 339.30 | 362.99 | 374.65 |
| 5.2 Debit Cards | 10,962.36 | 959.54 | 983.86 | 983.16 | 26,901.79 | 2,616.45 | 2,707.08 | 2,785.83 |
| 5.2.1 Usage at ATMs | 8,563.06 | 703.91 | 718.41 | 717.86 | 23,602.73 | 2,270.76 | 2,352.96 | 2,419.54 |
| 5.2.2 Usage at POS | 2,399.30 | 255.62 | 265.45 | 265.30 | 3,299.07 | 345.68 | 354.13 | 366.29 |
| 6 Prepaid Payment Instruments (PPIs) | 1,963.66 | 270.24 | 261.14 | 240.29 | 838.01 | 98.56 | 102.88 | 109.77 |
| 6.1 m-Wallet | 1,629.98 | 235.46 | 225.43 | 199.48 | 532.42 | 69.34 | 72.62 | 81.54 |
| 6.2 PPI Cards | 333.11 | 34.74 | 35.67 | 40.76 | 277.52 | 27.07 | 28.53 | 26.19 |
| 6.3 Paper Vouchers | 0.51 | 0.04 | 0.03 | 0.04 | 25.36 | 2.15 | 1.72 | 2.05 |
| 7 Mobile Banking | 976.85 | 102.40 | 99.64 | 113.69 | 13,104.76 | 801.36 | 799.13 | 847.82 |
| 8 Cards Outstanding | 884.72 | 836.11 | 843.51 | 853.11 | - | - | - | - |
| 8.1 Credit Card | 29.84 | 32.06 | 32.65 | 33.34 | - | - | - | - |
| 8.2 Debit Card | 854.87 | 804.05 | 810.87 | 819.76 | - | - | - | - |
| 9 Number of ATMs (in actuals) | 22,247.5 | 22,265.3 | 22,256.8 | 22,172.2 | - | - | - | - |
| 10 Number of POS (in actuals) | 25,291.41 | 28,401.13 | 28,824.22 | 29,000.38 | - | - | - | - |
| 11 Grand Total (1-11+2+3+4+5+6) | 19,542.66 | 1,878.38 | 1,908.30 | 1,868.74 | 2,282,337.40 | 196,914.23 | 200,230.07 | 220,439.54 |

Note: Data for latest 12 month period is provisional.
 1.3: Pertain to multilateral net settlement batches.
 3.1: Pertain to three centres - Mumbai, New Delhi and Chennai.
 3.3: Pertain to clearing houses managed by 21 banks.
 6: Available from December 2010.
 7: Include IMPS transactions.
 9: Includes ATMs deployed by Scheduled Commercial banks and White Label ATMs (WLA). WLA are included from April 2014 onwards.
 Mobile Banking - The data from July 2017 includes only individual payments and excludes corporate payments which was being included earlier.

Acknowledgements

The author would like to thank Dr. Sudeep S, IT Consultant and former Professor at MES-AIMAT, Marampally, Kochi - 683 107 for providing secondary information on CTS.

Notes:

- 01 Check: The term 'check' is the American term for the term cheque as we use in India. In this article the term cheque is used throughout; except while referring to some US Acts (like, Check 21 Act) or publications. See items 4, 5 and 6 under References.
- 02 Regarding the statement "This is a legal copy of your cheque. You can use it the same way you would use the original cheque" on the front side of the substitute cheque, it may be noted that the same is applicable only in USA (as per the directives issued by the Federal Reserve Board, USA). This is not stipulated by the RBI in India.

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