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Developing a Common Platform for the Digital Payment System in the SAARC Region

Md. Akhtaruzzaman, Sayera Younus*, Sirajul Islam, Md. Abdul Karim[1]

*Bangladesh Bank, Dhaka
Email: *sayera.younus@bb.org.bd*

Abstract

Digital payments play a critical role in developing an efficient financial system by lowering the cost of payments and increasing privacy, security, and transparency of payments. Given the benefits of digital payments, the Bangladesh Bank has substantially upgraded and digitized its payment and settlement system over the past few years. Despite these developments, most transactions in Bangladesh are still in cash; consequently, there is a significant potential for further digitization of payments in the country. This paper discusses how to develop a common platform, which will strengthen the digital payment system across the South Asian Association for Regional Cooperation (SAARC) region, especially in Bangladesh. The domestic payment infrastructure in most SAARC countries is not standard or interoperable today. There is a lack of uniformity in rules and regulations across the member countries. This paper recommends developing a common platform for cross-border payments. Uniformity of regulations, standardization of payment methods, organizational readiness, selection of common currency, liquidity management, settlement policy, dispute resolution mechanism, and a common Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT) standard among member countries, are the primary requirements for developing an efficient, cross-border digital payment system in the region.

1 Introduction

Payment systems play a critical role in developing a market economy and implementing monetary policy. The healthy growth of financial markets is achieved through an efficient payment system. By delivering financial services in the rural areas, a good payment system helps financial inclusion that leads to a strong economic momentum and development. According to the Section 7A (e) of the Bangladesh Bank Order, 1972, included among the main functions of the Bangladesh Bank (BB) is "to promote, regulate, and ensure a secure and efficient payment system." In fulfilling this mandate, the BB has developed an efficient payment system for the stability of the overall financial markets and the efficiency of the monetary policy. The Central Bank has substantially upgraded and digitized its payment and settlement system over the past few years. The successful adoption of modern technologies for retail and large payments has revolutionized the overall payment system. Ordinary citizens are enjoying greater freedom of choice in their financial transactions. Further, the new payment channels have reduced the cost of doing business in the country.

Despite these positive developments, the overwhelming numbers of transactions in Bangladesh are still made in cash. A 2016 report by *Better than Cash Alliance,* showed that government entities, businesses, and individuals conduct only 12 percent of the payments in value terms, roughly $44 billion of $367 billion annually, electronically.

In terms of volume, only 6 percent or roughly 260 million of 4.4 billion payments are electronic. The report concludes that 31 percent of government payments, 97 percent of business payments and 97.5 percent of individual payments are in cash. Therefore, there exists a significant potential for further digitization of payments in Bangladesh.

Besides developing domestic payment system over the past few years, there has been increasing efforts to establish a common regional platform to facilitate cross-border transactions. These platforms are undertaken with the broad objective of fostering economic growth and

[1] Authors are Executive Director, General Manager, and Deputy General Managers of Bangladesh Bank, respectively. The views expressed in the paper are of the authors, and do not necessarily reflect those of the Bangladesh Bank. Any comment/suggestion/input is welcome at sayera.younus@bb.org.bd.

financial inclusion by enhancing access to markets. This paper discusses developing a common platform for strengthening the digital payment system within the SAARC region, particularly in Bangladesh. The research on this issue is somewhat lacking, a void this study attempts to fill.

This paper is organized as follows: Section 2 discusses the purpose and methodology of the study. Section 3 provides a brief literature review. Section 4 highlights the major benefits of a digital payment system. Section 5 describes the state of the existing payment system in Bangladesh, identifies the challenges, and specifically recommends furthering the digitizing of the payment system in Bangladesh. Section 6 presents a review of the payment systems in other SAARC Countries. Section 7 discusses developing a common platform for strengthening the digital payment systems across the SAARC region. Section 8 presents concluding remarks.

2 Purpose and Methodology of the Study

The overall objectives of this study are:

- To understand the state of the existing payment system in Bangladesh;
- To identify major challenges and recommend policies for improvements in the payment infrastructure in Bangladesh;
- To understand the existing payment landscape in other SAARC Countries; and
- To appraise the feasibility of developing a common regional platform across the SAARC region.

Unlike the standard academic research paper, which applies analytical/statistical (regression analysis) tools to verify hypotheses or an economic model, this study builds on various reports from the Government of Bangladesh, the international organizations and donor agencies, working papers, seminar papers, conference proceedings, publications, journal articles, websites of the central banks of the SAARC countries, etc. The data are collected from many secondary sources and processed manually. Tables and graphs are added where necessary.

3 Literature Review

The literature on the digital payment systems is somewhat limited. This is a relatively new concept across the world. Cross-border digital payment systems are also a relatively new phenomenon, and have not been adequately researched. Many parts of the world are interested in creating close economic partnerships, given the strong economic links among neighbouring economies. This opens opportunities for innovation and growth within the region. For example, the SADC Payments Project is a collective initiative of 15 member countries in South African region. SEPA is an initiative to achieve greater economic and political alliance in the EU. The GCC-Net is a single ATM network linking all the GCC national switches. Heinrich and Dubón (2011) examined the goals and practical functioning of cross-border payment systems in Central America and the Dominican Republic. They identified various steps (processing, settlement, messages, governance, risk mitigation, operating hours, cost, legal basis, etc.) leading to its implementation in regional integration.

Uddin and Akhi (2014) analyzed the electronic wallet, or "e-wallet" system in Bangladesh. They argue that traditional business models are increasingly limited, whereas e-wallet is a convenient, easy-to-use and secure payment system. They identified Authentication (digital signature, fingerprints, two-step verification, password or smartcards, etc.) as an important challenge for attaining the goal, which is to establish an efficient electronic payment system in Bangladesh.

Goyal (2015) examined the role of payment systems in fostering integration in South Asian economies. According to the author, as payment systems become more sophisticated, their converge expands so they can actively facilitate trade in the region. The paper suggested that the existing Asian Clearing Union could be revitalized, given new developments in the payment systems. Changes include faster settlement using real time flow, reduction in transaction costs, and expansion of facilities. *Better than Cash Alliances*, a global partnership committed to moving from cash to digital payments, in their *Country Diagnostic Report for Bangladesh* (2016) mentions that although Bangladesh is making significant strides toward a digital economy, the majority of payments in Bangladesh are still made in cash. The report identifies barriers towards a more integrated digital payment system in Bangladesh, and recommends the completion of Bangladesh National ID system and to improve regulations of digital payments.

The World Bank (2014b) in a report (*Guidelines for the Successful Regional Integration of Financial Infrastructures*) discusses key elements for a successful regional integration, including driving factors, potential benefits, and risks and challenges of regional financial integration. The report also provides specific experiences of regional and cross-regional financial integration, and identifies different models of regional and cross-regional financial integration.

4 Benefits of Digital Payment

Digital payments have many benefits. It makes the payments process more efficient by lowering the cost of payment, benefiting both the senders and the receivers. It increases the capacity for individual risk management. The major benefits of a digital payment system are:

- Digital payment is more transparent than cash payment. Cash payment is subject to leakage. It may not reach the targeted recipients. In contrast, every digital payment can be tracked and properly identified.

- Digital payments can be processed quickly, lowering overall cost. Recipients of cash payments often must travel to a bank or government office, which results in significant travel time and waste of resources. A study conducted by a2i Program in the Prime Minister's Office found that the digitization of G2P payments of six social safety net programs would save an estimated US$146 million annually (44 percent of the operating cost, or 3 percent of the total budget of these six safety net programs).

- Digital payment allows remitters more control over money. It embeds poor people in a system of automatic deposits and scheduled text reminders that help people in overcoming psychological barriers to save.

- Digital network *increases risk management capacity of individuals.* It helps people to tackle shocks by collecting money from well-wishers, friends, and relatives. It allows government and NGOs to reach the affected people rapidly.

- In contrast to a cash payment, digital payment is virtually instantaneous. Speedy and timely delivery is crucial, particularly in emergency situations.

- Digital payment can be held more securely than cash payment. Recipients can store their money in e-wallet and cash it out at their convenience.

- Digital payment is an important tool for financial inclusion. Financial institutions may find that their products are not suitable for unbanked people who live in remote areas due to higher service cost. Digital payment is well-suited to reach these unbanked people at a lower service cost. Digital payments are often the first entry point to the financial system for the unbanked individuals.

5 State of the Existing Payment System of Bangladesh, Challenges and Policy Options

5.1 Current Payment Infrastructure in Bangladesh

Since 2006, the BB has undertaken various steps to develop the country's payment system BACPS, operated in 2010. Later, BEFTN, NPSB, RTGS, MFS, e-commerce and m-commerce joined the BACPS (Bangladesh Bank Annual Report, 2018).

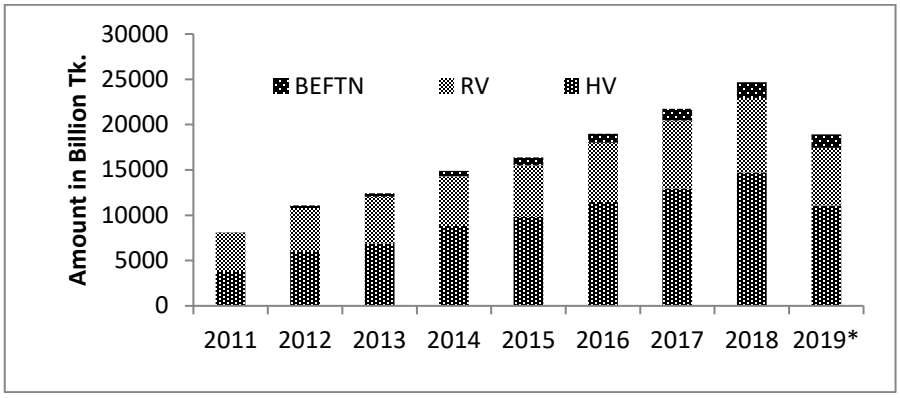
5.1.1 Bangladesh Automated Clearing House (BACH)

BACH has two components: the BACPS and the BEFTN. Transaction instruments or instructions received from the banks are processed at a pre-fixed time and settled through a single multilateral netting figure on each individual bank's respective book maintained with the BB. BACPS uses CIT technology, one used for clearing the paper-based instruments, i.e., check, pay order, dividend, refund warrants, electronically, etc. There are two clearing sessions available under BACPS, check valued Tk. 500,000 (five lakh) or above are cleared in HV, while smaller checks may be cleared at a RV clearing session. The clearing cycle has been brought down to t+1 for regular value checks and t+0 for high value checks throughout the country.

BEFTN facilitates interbank payment, clearing and settlement of electronic credits and debits. BEFTN started its live operation with credit transactions in 2011, to encourage paperless electronic transactions. In EFT credits, the originator instructs his/her bank to debit his/her account and transfer the funds to a receiver's account. Payroll, dividends, refund payments, business to business payments, and government benefit payments are some examples of EFT Credit transactions. The network started its operations with debit transactions on September 15, 2011. In EFT debits, the originator instructs his/her bank to collect payment from a receiver, often on a recurring basis. Utility bills, loan installments, and insurance premiums are examples of EFT debit transactions.

The transaction profile through BACH shows steady growth over the years. In 2018, 48.07 million items amounting to Tk. 24,670 billion were transacted under BACH, of which 20.85 million regular checks, 2.41 million high value checks and 24.80 million EFT checks were processed valued at Tk. 8,214 billion, Tk. 14,733 billion and Tk. 1,723 billion respectively (Figure: 1 and Annexure: Table-1).

Figure 1: BACH Transactions Trends



Source: Bangladesh Bank. * Up to September 2019.
Notes: HV=High Value, RV=Regular Value, BEFTN=Bangladesh Electronic Funds Transfer Network, BACH=Bangladesh Automated Clearing House=HV+RV+BEFTN.

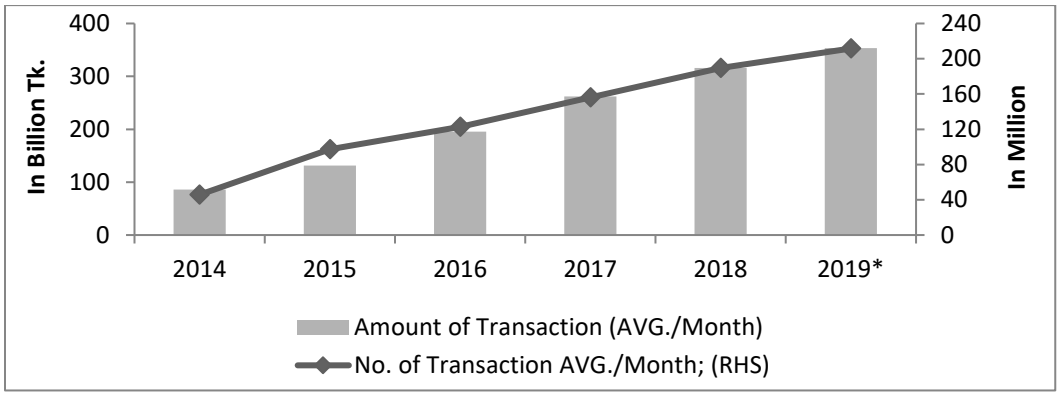
5.1.2 Mobile Financial Services (MFS)

With the ability to deposit/withdraw and send/receive funds to a mobile account, the MFS system has become an important part of the financial system in Bangladesh. Banking services in Bangladesh are traditionally concentrated in urban areas. Online banking is not available in every branch of commercial banks. Customers must travel to a branch, given the limited number of online and alternative delivery channels in traditional banking services. Moreover, customers living in remote areas are beyond the coverage of banking services. However, rapid countrywide expansion of mobile phone networks and modernization of the IT infrastructure have opened up opportunities for mobile financial services to the unbanked distant population. It is estimated that there are roughly 100 million bank accounts in the country (as of June 2019), whereas the number of mobile users is 164.17 million (as of October 2019). Since mobile users have a broader geographical distribution, MFS has become a key driver for financial inclusion, especially in transferring money from urban to rural areas.

The approved MFS categories are: disbursement of foreign remittances, cash-in and cash-out payments, P2B payments (utility bill payments, merchant payments, etc.), B2P payments (salary, dividend and refund warrant, vendor payments, etc.), G2P payments (elderly allowances, subsidies, etc.), P2G payments (tax, levy payments, etc.), and P2P payments and other payments (microfinance, overdrawn facility, insurance premium, etc.).

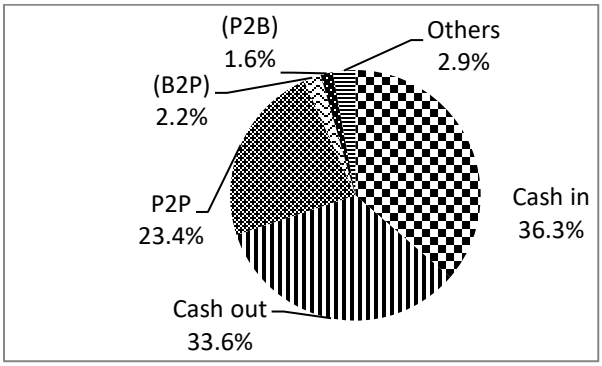
Transactions through MFS have grown exponentially over the years. At present, 28 banks and one bank subsidiary have been awarded MFS licenses, although only 16 banks (and one subsidiary) are offering MFS. As of September 2019, the number of registered MFS customers stood at 75.98 million, who were served by 951,777 agents countrywide. In 2014, the monthly average transaction of MFS was Tk. 86 billion, which increased to Tk. 316 billion in 2018. At the same time, the number of transactions via MFS was 212.37 million, and the average size of each transaction was Tk. 354.33 (Figure 2 and Annexure Table 2). The market share of different transactions through MFS shows that the highest transactions in value terms were cash-in (36.3 percent) followed by cash-out (33.6 percent), P2P (23.4 percent), B2P (2 percent), and P2B transactions (1.6 percent) (see Figure 3).

Figure 2: MFS Transactions Trends



Source: Bangladesh Bank. * Up to September 2019.

Figure 3: Market Shares of Different Services of MFS in September 2019

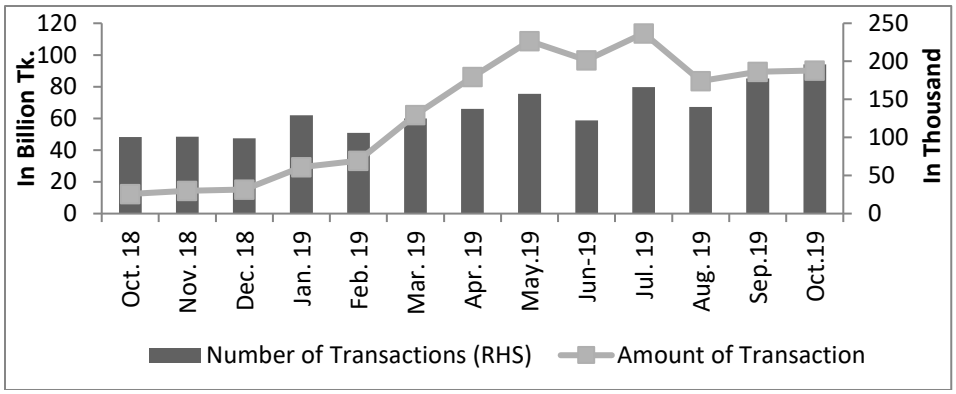


Source: Bangladesh Bank. Note: P2P =Person to person payments, B2P= Business to person payments and P2B=Person to business payments.

5.1.3 Bangladesh Real Time Gross Settlement (BD-RTGS) System

BD-RTGS is an electronic inter-bank payment (settlement) system where the transfer of funds takes place from one bank to another on "real time" and "gross" basis. Settlement in real time means the transactions are instant. Gross settlement means the transaction is recorded in the Central Bank's ledger on a one-to-one basis, without netting with another transaction. Among 11,000 bank branches of 57 banks, roughly 7,000 branches of 55 scheduled banks participate in this system. The system handles only high-value (at least Tk. 1 lakh) transactions in local currency; foreign currency transactions are expected to be added to this system soon. The transactions with RTGS show rapid growth in recent years. The transactions grew from Tk. 1,387 billion in 2015 to Tk. 6,675 billion in 2018, a five-fold increase. (Figure: 4 and Annexure: Table 3).

Figure 4: RTGS Transactions Trends

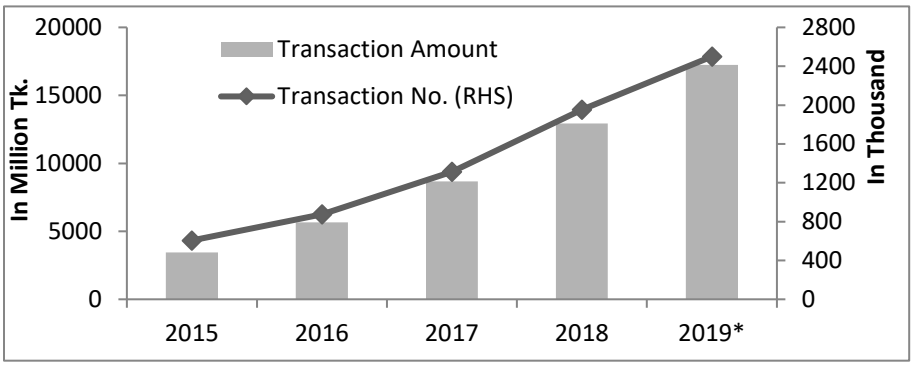


Source: Bangladesh Bank

5.1.4 National Payment Switch of Bangladesh (NPSB)

In order to facilitate interbank electronic payments originating from different channels like ATM, POS, Internet, etc., BB introduced NPSB in 2012. The main objective of NPSB is to act as a mother switch and to connect all child switches (owned and operated either by bank or a non-bank entity) ultimately to create a common platform for the switches which settle the electronic payment in Bangladesh. At present, 53 banks are operating a card-based electronic payment process in Bangladesh. Among those, interbank ATM transactions of 51 banks, POS transactions of 50 banks and IBFT transaction of 18 banks are being routed through NPSB. Other banks are likely to join NPSB soon. Various card-based payments are rapidly gaining popularity (Annexure, Table 4). In 2018, NPSB processed 23,442 thousand transactions amounting to Tk. 155,174 million (Figure 5 and Annexure: Table 5).

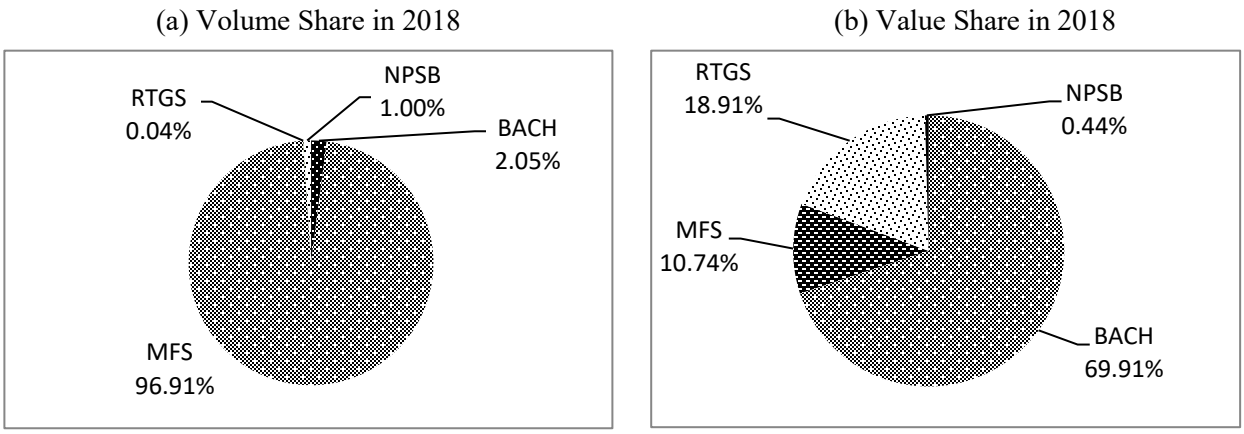
Figure 5: NPSB Transactions Trends



Source: Bangladesh Bank. * Up to August 2019

A comparison of the shares of different transaction platforms in Bangladesh in 2018 shows that MFS contributed the highest (97 percent) and BACH constituted only 2 percent of transactions in volume. In values terms, BACH held the highest (70 percent), followed by RTGS (19 percent), and MFS contributed roughly 11 percent (Figure 6 and Annexure, Table 6).

Figure 6: Comparison of Share of Transaction by Platforms in Bangladesh



Source: Bangladesh Bank

5.1.5 PSO, OPGSPs, E-commerce and M-commerce Facilitation

As an expanding economy, both e-commerce and m-commerce are spreading in Bangladesh. Responding to market demand, the BB has approved five organizations to work as PSP and PSO to facilitate the online payment. Banks now also may receive remittances against small value service exports in non-physical form such as data entry/data process, offshore IT service, business process outsourcing etc. The exporters of these services can receive their international payments through the OPGSPs such as PayPal, Money Bookers, Best Payment Gateway and Virtual Pay online platforms. BB has permitted the transfer of funds up to Tk. 500,000 from a client's account to that of another client in the same bank using Internet/online facilities. Mobile network operators can sell railway and sports events tickets, using mobile technology.

5.1.6 Legal & Regulatory Frameworks of the Payment System of Bangladesh

Proper legal and regulatory frameworks are important to ensure the smooth functioning of the payment and settlement system. The legal basis for the BB to promote a safe secure payment system lies in the Bangladesh Bank Order, 1972. From time to time, the BB issues regulations, systems rules, and circulars, circulate letters, among others, defining the roles and operational procedures of specific payment systems. The major legal and regulatory documents published by the BB to support payment systems are: Bangladesh Automated Check Processing Systems Operating Rules and Procedures; Guidelines on Mobile Financial Services for the Banks; Guidelines on Agent Banking for the Banks; Bangladesh Payment and Settlement Systems Regulations; Bangladesh Electronic Funds Transfer Network Operating Rules; and Bangladesh Mobile Financial Services Regulations. The BB has finalized the draft Payment and Settlement Systems Act, 2018. Steps have been taken to amend the *Negotiable Instruments Act, 1881.*

5.2 The Challenges of Domestic Payment System in Bangladesh

Despite many positive developments over the last couple of years in the national payment system of Bangladesh, there remain deficiencies and challenges, which must be resolved to further develop the domestic payment. The major challenges are:

***Interoperability of financial service providers*:** Lack of interoperability among MFS, banks, and other platforms is a significant barrier for the domestic payment system. It may be mentioned that there are only 47,663 card-based acceptance points (9,586 ATMs and 38,077 POS) across the country, whereas mobile banking has more than 811,073 acceptance points. Therefore, a convergence of MFS and the card system can complement each other. Moreover, bKash (a subsidiary of BRAC Bank for MFS) and Rocket (a subsidiary of Dutch Bangla Bank Limited for MFS) capture more than 90 percent of MFS market share. Because of this monopoly, the service charge of MFS is relatively high (at a flat rate of about 2% for cash-out).

***Physical infrastructure*:** Providing access to financial services, cash-in and cash-out points and ensuring

sufficient liquidity remain the core challenges for digital payments. The lack of electricity, mobile towers, mobile networks, ATMs and POS terminals, and poor transport networks are some of the bottlenecks in digital payment services in Bangladesh, particularly in rural areas.

Customer education: Educating customers about the digital payments is a challenge. Many recipients do not understand cash-out process or how to use an ATM. These clients are not comfortable using a digital payment system. They must remember their PINs, understand how much money they receive, protect their PIN, and be prepared for problems.

***Money laundering and financing of terrorism issue*:** Preventing criminal transactions, money laundering, and terrorist financing which use digital channels is a challenge. OTC transaction remains a dominant part of MFS in Bangladesh. As OTC customers do not have KYC information, they may facilitate untraceable transfer of black money. Preventing the use of MFS channels to settle *Hundi/Hawala* transaction is also a challenge.

Safety and reliability: Maintaining confidence and reliability is important for digital payments. Digital payments could have adverse effects if it does not work properly. Payment delays or agents' liquidity problem can undermine customers' confidence and they may lose trust in the digital system. Digital payment systems must prevent security breaches, provide a proper dispute-resolution mechanism, and maintain fraud management policies.

Probable cyber-crime: Cyber security has remained a matter of concern. Some banks lag behind in using two-factor authentication to protect consumer accounts. Use of biometric security technology is still limited in Bangladesh. Lack of qualified IT labor and lack of knowledge on cyber-crime by customers pose risks to the digital payment system.

6 Payment Landscapes of Other SAARC Countries[2]

6.1 Payment Systems in India

The Board for Regulation and Supervision of Payment and Settlement Systems, a sub-committee of the Central Board of the RBI is the highest policy making body of payment systems in the country. The RBI has introduced many initiatives towards Electronic Payments:

- ECS Credit handles bulk and repetitive payment requirements.
- NECS facilitates multiple credits to beneficiary accounts against a single debit of the account of the sponsor bank.
- ECS Debit provides a faster method of periodic and repetitive collections of utility companies.
- NEFT system enables an account holder to electronically transfer funds to another account holder with any other participating bank.
- *RTGS* system settles all inter-bank payments and customer transactions above 2 lakhs.
- *CCIL* settles trades in money market, government securities and foreign exchange markets.
- NPCI acts as an umbrella organization for operating various retail payment systems.
- Other Payment Systems in India include pre-paid payment, mobile banking system, ATMs, POS terminals and online transactions.

6.2 Payment Systems in Pakistan

The SBP has played a key role as a regulator, operator, and facilitator of national payment systems. The large value payment system in Pakistan facilitates clearing and settlement of interbank payments, government, and corporate securities and other critical financial transactions. On the other hand, the retail payment system has become crucial for the provision of digital financial services to the general public. The major institutions and systems that play a key role in the country's payment and settlement systems are PRISM, NIFT (Pvt.) Ltd. (Check Clearing Entity), 1LINK (provides ATM, IBFT and utility bill payment switches), and NCCPL (provides clearing and settlement of capital markets).

6.3 Payment Systems in Bhutan

The RMAB implemented Check Truncation System in 2007 and EFTCS in 2010. EFTCS consists of three

[2] Based on country papers presented in the SAARC FINANCE Governors Symposium held in Nepal, 2018.

electronic payment systems, i.e. NECS Credit, NECS Debit and NEFT. NECS enables interbank single debit, multiple credit/debit and single credit transfers, and NEFT facilities one-to-one interbank funds transfer among its member banks. Bhutan implemented BFS in 2011 to enable interoperability of ATMs and POS. BIPS was launched in 2017, which has now captured major shares of retail payments. The process for inter-connection between BFS and NFS of India enables cross-border interoperability of Repay Cards issued by commercial banks in the ATM and POS terminals in India and Bhutan.

6.4 Payment Systems in Sri Lanka

The payment systems in Sri Lanka fall into two categories: LVPS and RPSI. The RTGS is a category of LVPS. The RPSI can be classified as paper-based systems and electronic fund transfer systems. Checks are the most widely used retail payment instrument among the general populace. However, debit and credit cards are gaining ground as a faster way of making retail payments. SLIPS is an online interbank electronic fund transfer system for smaller payments (up to Rs. 5 million). Mobile banking and Internet banking are relatively recent phenomena. The CCAPS, which consists of five sub-switches was established in 2003 under the brand name "Lanka Pay" for creating a single platform for electronic retail payments in Sri Lanka.

6.5 Payment Systems in Nepal

The existing retail payment systems in Nepal are NCHL, SCT, NEPS and IPS. NCHL is an electronic check clearing system. SCT and NEPS are shared ATM Networks which facilitate the processing of card transactions. IPS is operated by NCHL, which facilitates interbank payments, direct debit, and credit cards. The high-value payments are still processed manually through checks. The threshold for payments for check clearing currently stands at Rs. 100 million. While NCHL clears checks between Rs. 100-300 million through Electronic Check Clearing (ECC) system, NRB manually clears checks larger than Rs. 300 million. NRB is also in the process to establish RTGS for critical and large payments to enhance the effectiveness in payment systems.

6.6 Payment Systems in Afghanistan

Afghan payment system covers the following:

- Mobile banking and payment, such as bill payment, salary payments, P2P fund transfer, e-Top up, etc.
- Retail payments, which include checks, credit cards, debit cards, and prepaid cards.
- Card payments, which serve merchants throughout the country.

6.7 Payment Systems in Maldives

All inter-bank transactions in Maldives are executed via the MRTGS system and the ACH system, both operated by the MMA. The MRTGS system settles urgent, high value inter-bank transactions. Meanwhile, the ACH system is a session-based clearing system for low-value transactions consisting of direct credits, direct debits and check imaging and truncation. Payments through card and mobile banking are the dominant electronic means of payment in the Maldives.

7 Developing a Common Platform for Cross-Border Payments in the SAARC Region

Payments sent by an individual, business or government agency from one country to another are called "cross-border payments." The existing system of cross-border payments through correspondent banking is slower, costlier and less transparent than domestic payments. Cross-border payments involve more risks, complexities, and additional rules than domestic payments. The complexity is rising with technological advancement and innovations in the financial payment market.

Over the past decade, the benefits of integration of regional payments received greater attention. A regional platform for cross-border payments has numerous benefits, including:

(i) Sharing the development and operational costs among member countries

(ii) Economies of scale from high volume of transactions and reductions in the end-to-end transaction costs

(iii) Enhances risk management through harmonized regulatory and institutional framework

(iv) Improves the market infrastructure through transfer of knowledge, expertise and technology

(v) Facilitates growth and innovation through enhanced trade and financial integration

(vi) Strengthens the relationship between countries, and

(vii) Is less dependent on banking relationships outside the region. Therefore, a common platform for strengthening digital payment systems in the SAARC region would be a good step in order to reap the benefits from each member nation's innovations, regulatory reforms, and user experiences.

However, implementing a common platform in the SAARC region would face some challenges. An important challenge is the difference in the level of sophistication and compatibilities in the domestic payment systems. This includes market organization, technical standards and regulatory framework. Countries like India, Sri Lanka, Pakistan, and Bangladesh have relatively modern domestic payment infrastructures while other countries like Afghanistan and Nepal lag behind in their payment infrastructures. Some barriers that arise from legal and regulatory framework include access of foreign financial institutions to domestic markets, netting arrangements, irrevocability of final settlement, and applicability of bankruptcy and wind-up procedures (World Bank, 2014 and BIS. 2005).

Similarly, arriving at a consensus on a common currency platform is a key challenge. As SAARC countries do not share a common currency, the dominant currency (for example, Indian Rupee) could serve as the settlement currency. However, this may add to potential problems which may arise from India's political stance. Alternatively, a widely available third currency such as US$ or Euro can be considered as the ideal option for settlement. In this case, an exchange rate policy should be in place.

Another important challenge is ensuring the involvement and commitment from the stakeholders. The success of such a platform depends on a strong business case that outlines the net gains for the stakeholders. The commitment of the stakeholders also depends on the availability of sufficient information on the common platform. Thus, it is important to provide the stakeholders with relevant information and the real value to the system in terms of efficiency and costs.

Establishing a common platform also exposes the participants to different types of risks. For example, legal and regulatory risks may arise from inconsistencies in the regulatory framework among countries. Similarly, variations in the domestic risk management framework across the region significantly intensify the credit risk for the participants.

To participate in any cross-border payment platform, it is essential for Bangladesh to modernize the existing domestic payment infrastructure of the country. At present, the three broad payment infrastructures of Bangladesh (BACH, NPSB and RTGS) are not interoperable among themselves. These systems are running on a different set of standards for IT software, operational procedure, and guidelines. Moreover, existing PSPs such as banks, non-bank MTOs, post offices, and MFS are not interoperable and working on different set of structures. Connecting this PSPs domestically and later in cross-border platform is the prerequisite for establishing a common regional payment platform.

To set up an efficient cross-border payment mechanism, correspondent banking, interlinking payment infrastructure under central banks, and interlinking payment infrastructure under private efforts, there are three possible solutions. Correspondent banking is a longtime practice for the cross-border payments among countries. Fine-tuning regulations and further innovating in technology must be achieved in correspondent banking. However, cross-border interoperability among countries of a certain economic zone is an idea which is yet to be implemented successfully except in the Euro zone. The forms of integration at the regional or cross-regional level can range from, (i) relatively simple agreements among payment infrastructures to facilitate direct or indirect cross-participation among the participants; (ii) interoperability arrangements involving technical interfaces between the separate operating platforms; and (iii) full harmonization of the operating schemes and integration of the technical platforms into a common unified system for dealing with cross-border payment transactions (World Bank, 2014). So, in the case of SAARC region, later implementation may be considered.

A report by BIS and the World Bank (2007) on the general principles for international remittance services sets out principles in five key areas: (1) transparency and consumer protection; (2) payment system infrastructure; (3) legal and regulatory environment; (4) market structure and competition; and (5) governance and risk management for efficient remittance services.

Based on the discussion above, the paper recommends addressing the following issues to set up a common platform for cross-border transaction in the SAARC region:

- Regulatory issues: Different countries have different set of rules for domestic and cross-border payments. To set up a common platform, uniformity of rules is a primary requirement;

- Modernizing domestic infrastructures: Domestic payment infrastructures of the member countries must first modernize and become interoperable;

- Payment methods and payment processing: Standardization of payment methods, instruments, identification of banks and PSPs, software payment infrastructure for all member countries must be first implemented;

- Organizational readiness: Central banks, participants of the system must complete their preparation as specified in the guidelines for hardware and software;

- Cross-currency arrangement: A settlement currency must be determined as means of payment among the member countries. In the absence of a single common currency among the SAARC countries, a global reserve currency like the US$ or the Euro can be chosen as the currency for final settlement. A mechanism to determine the exchange rate must be in place;

- Liquidity management: A clear policy of liquidity support for member countries should be in place;

- Settlement: For executing payment via a common digital platform, a decision regarding settlement policy, settlement organization, and settlement method needs to be first taken. There must be a contract between settlement organizations, where each member country should have pre-defined roles and responsibilities;

- Dispute resolution mechanism: A clear policy of dispute resolution should be devised;

- Common AML/CFT and KYC standard must be there; and

- If the decision is made for establishing a common digital payment platform, implementation of such platform in the host and member countries will require careful nurturing and efficient management.

8 Conclusions

Transparency, speed, and costs are the primary motivation for end-users of a payment system. These goals are not easy to achieve in cross-border payment mechanisms. For improvements, the best experience of each member country should be harmonized to develop a payment platform that offers high quality payment services across the borders. However, working with a diversified group requires a careful balance between innovation, new technology, and expectations of the end-users.

Establishing a common electronic payment platform in the SAARC region would promote fast, safe, and efficient means of cross-border payments in the region. A common digital platform would enhance the efficiency of cross-border payments by increasing the speed and reducing the cost of transactions. However, before Bangladesh joins such a platform, it is essential to further modernize the domestic payment infrastructures and interoperability. Similarly, the potential challenges of a common platform should be addressed by harmonizing the rules and regulations, and standardizing technical processes across the SAARC nations.

References

Bangladesh Bank. (1972). *Bangladesh Bank Order, 1972*. Dhaka.

Bangladesh Bank. (2018*). Annual Report 2017–2018.* Dhaka.

Bank for International Settlements. (2005). *General Guidance for Payment System Development.* Consultative Report, Committee on Payment and Settlement Systems.

Bank for International Settlements and World Bank. (2007). *General Principles for International Remittance Services.* Committee on Payment and Settlement Systems.

Better than Cash Alliance. (2016). *Building Digital Bangladesh: The Way Forward for Digitizing Payments, Country Diagnostic.* Retrieved from http://www.pistrategy.org/wp-content/uploads/2016/12/Bangladesh-Diagnostic-ExecutiveSummary.pdf

Country Papers of SAARC Countries. (June 2018). *Developing a Common Platform for Strengthening Digital Payment System in the SAARC Region.* Papers presented at SAARC FINANCE Governors Symposium, Kathmandu, Nepal.

Goyal, A. (2015). *Payment systems to facilitate South Asian integration.* Indira Gandhi Institute of Development Research, Mumbai. http://www.igidr.ac.in/pdf/publication/WP-2015-021.pdf

Heinrich, G., and Dubon, E. G. (2011). *The development of a regional payment system in Central America: A step towards further integration and economic development.* MPRA Paper No. 47398.

Uddin, M. S., and Akhi A. Y. (2014). E-wallet system for Bangladesh - an electronic payment system. *International Journal of Modelling and Optimization*, 4(3), 216-219.

World Bank. (2014a). *The opportunities of digitizing payments.* World Bank Development Research Group, Better Than Cash Alliance, and Bill & Melinda Gates Foundation. http://documents.worldbank.org/curated/en/188451468336589650/pdf.

World Bank. (2014b). *Guidelines for the successful regional integration of financial infrastructures.* Financial Infrastructure Series.

Appendix

Table 1: Transactions through BACH in Bangladesh

1. (a) Items Processed in BACH (No. in Million)

Year	BACPS		BEFTN	BACH (HV+RV+BEFTN)	Avg./Month
	HV	RV			
2011	0.68	15.30	0.82	16.79	1.40
2012	1.26	18.82	5.07	25.16	2.10
2013	1.37	20.69	7.59	29.65	2.47
2014	1.61	23.50	10.21	35.33	2.94
2015	1.81	21.02	13.76	36.59	3.05
2016	1.99	20.22	15.09	37.29	3.11
2017	2.22	20.95	18.64	41.81	3.48
2018	2.41	20.85	24.80	48.07	4.01
2019*	1.82	15.36	25.81	42.99	4.78

1. (b) Amount of Transactions in BACH (in Billion Tk.)

Year	BACPS		BEFTN	BACH (HV+RV+BEFTN)	Avg./Month
	HV	RV			
2011	3,732	4,335	54	8,121	677
2012	5,977	4,827	285	11,090	924
2013	6,877	5,165	396	12,439	1,037
2014	8,812	5,497	598	14,908	1,242
2015	9,795	5,707	874	16,376	1,365
2016	11,479	6,518	994	18,992	1,583
2017	12,969	7,462	1,334	21,765	1,814
2018	14,733	8,214	1,723	24,670	2,056
2019*	11,081	6,341	1,504	18,927	2,103

Source: Bangladesh Bank. ** Up to September 2019.* Notes: HV=High Value, RV=Regular Value, BEFTN=Bangladesh Electronic Funds Transfer Network, BACH=Bangladesh Automated Clearing House.

Table 2: Present Scenario of MFS in Bangladesh

2 (a) Number of Agents, Customers and Accounts			
YEAR	No. of Agents	No. of Registered Customers (in Millions)	No. of Active Accounts (in Millions)
2014	540,984	25.19	12.15
2015	561,189	31.85	13.22
2016	710,026	41.08	15.87
2017	786,460	58.79	21.00
2018	886,473	67.52	37.30
2019*	951,777	75.98	34.39

2 (b) MFS Transactions				
Year	No. of Transactions	No. of Transactions (AVG./Month)	Amount of Transactions	Amount of Transactions (AVG./Month)
	in Million	in Million	in Billion Tk.	in Billion Tk.
2014	549.48	45.79	1,031.55	85.96
2015	1166.05	97.17	1,577.73	131.48
2016	1473.24	122.77	2,346.92	195.58
2017	1875.63	156.30	3,146.62	262.22
2018	2272.75	189.40	3,788.86	315.74
2019*	1904.71	211.63	3,181.61	353.51
September 19	212.37	212.37	354.33	354.33

*Source: Bangladesh Bank. *Up to September 2019.*

Table 3: Transactions through RTGS in Bangladesh

Year	No. of Transactions (In thousands)	Amount of Transactions (In Billion Tk.)
2015	8.83	1,387.1
2016	225.82	11,378.28
2017	785.29	20,063.90
2018	863.35	6,674.75
2019*	1,456.82	11,012.84

*Source: Bangladesh Bank. *Up to October 2019.*

Table 4: Total Number of Cards, ATMs and POS in Bangladesh

Terminal	June 2017	June 2018	June 2019	Growth (June 2019 over June 2018)
No. of Debit Cards	10,802,217	12,575,605	15,758,977	25.31
No. of Credit Cards	936,148	1,000,474	1,203,427	20.29
No. of Prepaid Cards	205,285	158,526	277,498	75.05
Total Cards	11,943,650	13,734,605	17,239,902	25.52
ATM Booths	9,246	9,747	10,722	10.00
POS	36,288	41,130	52,846	28.49

Source: Bangladesh Bank.

Table 5: Transactions through NPSB in Bangladesh

Year	ATM		POS		IBFT		NPSB (ATM+POS+IBFT)	
	No. (000)	Amount (Million Tk.)	No. (000)	Amount (Million Tk.)	No. (000)	Amount (Million Tk.)	No. (000)	Amount (Million Tk.)
2015	7,197	41,162	77	263	-	-	7,274	41,425
2016	9,740	65,418	742	2,567	-	-	10,482	67,985
2017	13,443	95,335	2,315	8,622	3	42	15,760	103,999
2018	19,261	137,650	4,077	15,572	104	1,953	23,442	155,174
2019*	16,122	117,416	3,536	12,995	344	7,422	20,002	137,833

*Source: Bangladesh Bank. * Up to August.*

Table 6: Share of Transaction of Payment Platforms in Bangladesh (2018)

Market share in terms of number of transactions			Market share in terms of transaction amount		
Platforms	No. of Transactions	Share in Volume	Platforms	Transaction Amount (in Million Tk.)	Share in Value
BACH	48,067,630	2.05	BACH	24,669,819	69.91
MFS	2,272,746,487	96.91	MFS	3,788,860	10.74
RTGS	863,352	0.04	RTGS	6,674,750	18.91
NPSB	23,441,756	1.00	NPSB	155,174	0.44

Source: Bangladesh Bank.

Acronyms

ACH	Automated Clearing House
a2i	Access to Information
AML	Anti-Money Laundering
ATM	Automated Teller Machine
BB	Bangladesh Bank
BACPS	Bangladesh Automated Cheque Processing System
BEFTN	Bangladesh Electronic Funds Transfer Network
BFS	Bhutan Financial Switch
BIPS	Bhutan Immediate Payment Service
B2P	Business to Person
BRAC	Bangladesh Rural Advancement Committee
CCAPS	Common Card and Payment Switch
CCIL	Clearing Corporation of India Limited
CFT	Combating the Financing of Terrorism
CIT	Cheque Imaging and Truncation
ECS	Electronic Clearing Service
EFTCS	Electronic Funds Transfer and Clearing System
EU	European Union
GCC	Gulf Cooperation Council
G2P	Government to Person
HV	High Value
IBFT	Internet Banking Fund Transfer
ID	Identification
IPS	Interbank Payment System
KYC	Know Your Customer
LVPS	Large Value Payment Systems
MFS	Mobile Financial Services
MMA	Maldives Monetary Authority
MRTGS	Maldives Real Time Gross Settlement
MTOs	Money Transfer Operators
NCCPL	National Clearing Company of Pakistan
NCHL	Nepal Clearing House Ltd.
NECS	National Electronic Clearing System
NEFT	National Electronic Funds Transfer
NEPS	Nepal Electronic Payment System
NFS	National Financial Switch
NGO	Non-Governmental Organization
NIFT	National Institutional Facilitation Technologies
NPCI	National Payments Corporation of India
NPSB	National Payment Switch Bangladesh
OPGSPs	Online Payment Gateway Service Providers
OTC	Over-the-Counter
P2B	Person to Business
P2G	Person to Government
P2P	Person to Person
POS	Point of Sale
PRISM	Pakistan Real-time Interbank Settlement Mechanism
PSO	Payment Systems Operator
PSPs	Payment Service Providers
RBI	Reserve Bank of India
RMAB	Royal Monetary Authority of Bhutan
RPSI	Retail Payment Systems and Instruments
RTGS	Real Time Gross Settlement
RV	Regular Value
SAARC	South Asian Association for Regional Cooperation
SADC	South African Development Community
SBP	State Bank of Pakistan
SCT	Smart Choice Technologies
SEPA	Single Euro Payments Area
SLIPS	Sri Lanka Inter-bank Payment System
Tk.	Taka