

PAYMENT AND SETTLEMENT THROUGH BANGLADESH AUTOMATED CLEARING HOUSE: A COMPARATIVE STUDY ON ELECTRONIC FUND TRANSFER AND AUTOMATED CHEQUE PROCESSING SYSTEM

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[ABSTRACT: The healthy growth of the financial market requires fast and secured transfer of money and financial instruments by using modern technologies. Delivering the financial services in the rural and remote areas helps the financial inclusions and boosts up the economic momentum and development thereby. The aim of this study is to investigate the comparative benefits between Electronic Fund Transfer and Automated Cheque Processing systems under Bangladesh Automated Clearing House in banking perspectives. The study is based on both primary and secondary data. Primary data collected from bank's officials through well designed questionnaire and secondary data collected from Annual Reports published by Bangladesh Bank. Recent past five years consolidated data of clearing transactions settled through BACH are considered here. Descriptive statistics, Chi-square Test & Z Test applied to analyze data. The paper concludes that payment and settlement in Electronic Fund Transfer system is more beneficial to the bankers as compare to Cheque Processing Systems.]

Keywords

Bangladesh Automated Clearing House (BACH), Automated Cheque Processing Systems (ACPS), Electronic Fund Transfer (EFT).

1. INTRODUCTION

In a modern economy, the payment and settlement system is the key component of a country's infrastructure system. Payments systems play a fundamental role in an economy by providing the mechanisms with which payments arising from transactions can be settled. Inter-bank payment and settlement process are done through some systematic procedures with the involvement of Bangladesh Bank which acts as a clearing house. To make the process more efficient and prompt as well as to modernize country's Payment and Settlement System, Bangladesh Bank established the Bangladesh Automated Clearing House (BACH) in 2009 under the supervision of Payment System Division (PSS Regulation 2009, BB). The main objective of BACH is to maximize the speed of inter-bank payments without movement of the physical instruments.

A payment system is a way of transferring interbank funds comprising of a set of instruments or instructions that ensure the circulation of money to the economy. Banks generally accept, collect, and process a variety of payment instruments or instruction, and participate in payment and settlement processes. Payment systems are one of the primary elements of a country's financial systems that play a vital role in fast, efficient, and secure transfer of funds between markets and different parties of financial systems (Fatehi. S. et.al, 2013).

From last few decades, payment systems have remarkably changed as mode of payment have evolved from precious metals to currency and instruments (like cheques, PO, DD) and, recently, to electronic payments. These changes are being occurred for the urgency of settlement of the huge transactions happening in rapidly growing and increasingly more sophisticated economies. Almost 95 percent of all the clearing instruments are now being cleared through BACPS (Payment System Development Report, 2017).

2. BACKGROUND OF THE STUDY

Before the initiation of Bangladesh Automated Clearing House (BACH), payment and settlement of clearing instruments (Cheque, Pay Order, Demand Draft, and Dividend/Refund Warrants) were executed among the banks through manual clearing house in Bangladesh Bank, where all participating banks attended physically with their instruments. During that period banks used NIKASH software for clearing transactions. In manual clearing system, transactions were settled on the following working day after receiving instruments from customers, consequently customers suffered in business maintaining daily operation and fund management. To overcome time constraints, as well as ensuring secured and smooth payment systems, Bangladesh Bank established Automated Clearing House and started the operation of Bangladesh Automated Cheque Processing Systems (BACPS) in 2010 (BACPS Rules & Procedure, 2010, BB). Banks can easily settle clearing transactions with regular value and high value on the same day. Under the BACH II program, commercial banks are now settling five foreign currency drafts (USD, EURO, GBP, JPY, and CAD). However, in BACPS, still banks have to deal with physical instruments, it's checking & verification, scanning, input instrument's information to Bank's software (CPM- Cheque Processing Module) and transmit to Bangladesh Bank's Software (PBM- Participatory Bank Module) for final settlement which is time consuming and lengthy process. To overcome these constraints, to make payment and settlement systems more smooth, effective and efficient with modern technique, Bangladesh Bank further introduced Bangladesh Electronic Fund Transfer Network (BEFTN) under BACH and started its operation in 2011 (BEFTN Operating Rules 2014). BEFTN system facilitates clearing transaction without the involvement of physical instrument between banks i.e., transmission of instruction only either debit or credit from one bank to another bank in Bangladesh and settle the transactions accordingly. Subsequently Bangladesh Bank has also introduced new approaches of fund transfer systems using modern technology like, National Payment Switch Bangladesh (NPSB), Real Time Gross Settlement System (RTGS), and Mobile Financial Services (MFS). What are the comparative benefits among the approaches under BACH in banking perspective? The study attempted to investigate the comparative benefits between Electronic Fund Transfer and Cheque Processing system under BACH in banking perspective. The indicators of measuring competitive benefits between the two approaches are the efficient and modern technique, minimization of illegal payment, cost effective, time savings, safe & secured transaction, easy mode of transaction, volume of transaction, green banking, flowing of funds, and customers likings.

3. OBJECTIVES OF THE STUDY

The main objective of this study is to investigate the comparative benefits between Electronic Fund Transfer and Cheque Processing System under Bangladesh Automated Clearing House (BACH) in banking perspective.

To achieve the prime objective, the following specific objectives are considered for the study:

- i. To identify the factors affecting on comparative benefits between EFT and CPS.
- ii. To analyze the impact of such factors on the comparative benefit of EFT over CPS.
- iii. To analyze the trends of the settlement of clearing transactions in EFT and CPS.
- iv. To provide some recommendations based on findings of the study.

4. HYPOTHESIS OF THE STUDY

The following hypotheses are formulated in the light of the objectives of the study:

H₀₁: There is no impact of modern technique on comparative benefit of EFT over CPS.

H₀₂: Minimization of illegal transaction has no impact on comparative benefits of EFT over CPS.

H₀₃: There is no impact of cost saving facility on comparative benefit of EFT over CPS.

H₀₄: There is no impact of time saving facility on comparative benefit of EFT over CPS.

H₀₅: There is no impact of safe and secured transaction on comparative benefit of EFT over CPS.

H₀₆: Easiest and smooth way of transaction has no impact on comparative benefit of EFT over CPS.

H₀₇: Volume of transaction does not effect on comparative benefit of EFT over CPS.

H₀₈: There is no impact of Green Banking on comparative benefit of EFT over CPS.

H₀₉: There is no impact of flowing of funds to business/economy on benefit of EFT over CPS.

H₀₁₀: Customers liking does not effect on comparative benefit between EFT and CPS.

H₀₁₁: There is no significant difference in number of transaction processed between EFT and CPS during last five years.

H₀₁₂: There is no significant difference in amount of transaction settled between EFT and CPS during last five years.

5. SIGNIFICANCE OF THE STUDY

Commercial banks are daily settling huge number of clearing transactions simultaneously either by EFT or CPS through BACH. Customers are getting same day clearing settlement & fund transfer facilities from these approaches. There may be some pros and cons of the two approaches in payment and settlement of clearing transactions. This is to be analyzed that the comparative benefits i.e., the pros and cons of both EFT and CPS with the help of primary and secondary data and extract that which one helps to compete the present demand under the constraints of time, cost and risk coverage. Reviewed literature reveals that no empirical research has yet been done exactly on the same topic. This research gap justified the author to undertake the present study. It is presumed that the findings of the study will be worthwhile for the bankers.

6. REVIEW OF RELATED LITERATURE

The study or research works have been done on the payment and settlement systems of banks under the clearing house in abroad. It is pertinent to be mentioned here that a few works have been performed in the field of the payment and settlement systems in Bangladesh. Review of some literature relating to the topic as follows:

Lamberte M. B. (2005) in his research paper stated the problem that with the advancement of technologies, the payment systems have been changed. In this regard, the paper focused on key operational concepts contained in a payment system and explained the emerging payment systems in industrialized countries. The study concluded that the financial institutions should take advantage of new techniques, technologies and globally used best practices in the clearing and settlement of large-value transfers.

Onuorah, A. C. (2009) in his paper argued that there was a positive impact of automated clearing system on the banking systems in Nigeria. The paper concluded that the post NACS (Nigeria Automated Clearing Systems) era was more efficient and recommend the application of the automated clearing system that may further reduce the delivery settlement period from current T3 to T0 (that means Tenor 3 days to 0 days).

Gupta, J. (2012) focused on the impact of increasing usages of Electronic Fund Transfer (EFT) on other payment systems of bank in India. Payment systems had become the most essential part of the economic system of a country. The payment systems of the country should safe, efficient, interoperable, authorized, accessible, inclusive and compliant with international standards as it involves various risks like settlement risk, systematic risk, operational risk and legal risk. The study concluded that Electronic modes of payments have the benefits of low cost, quicker reach; better audit trails, and brings in efficiency to the entire gamut of payment systems.

Holthausen, C. & Monnet, C. (2003) stated the problem on competition in the supply of money, competition between issuers of money, and in large value payments systems. The paper concluded that competition can be guaranteed if the financial market is contestable through the participation of banking industry and supplying a means of payment under the supervision of central bank.

Chiu, J. & Lai, A. (2007) mentioned that payment instruments and institutions arise in the presence of vital informational and enforcement frictions. So, the analysis of payments system policy should consider these frictions into account with a view to make vigorous and dependable predictions.

Norman B. et al. (2011) focused on the role of central bank to the clearing and settlement procedures and arrangements among the participating banks. The study concluded that the central bank's involvement in payment systems was consolidated at the heart of clearing and settlement arrangements.

Sreedevi (2013) argued that automated clearing systems promptly transmitting funds to the economy through using an online image based cheque clearing system where cheque images and Magnetic Ink Recognition (MICR) data are captured at the collecting bank branch and transmitted electronically to the payee bank without the actual cheque movement of physical cheques for settlement through the central bank.

7. METHODOLOGY OF THE STUDY

7.1 Sampling Design and Sample Size

The current study is conducted on Bangladesh Automated Clearing House, a mode of payment and settlement systems of commercial banks in Bangladesh. Only the two approaches i.e., Electronic Fund Transfer System and Automated Cheque Processing System under BACH are considered for the study. Twelve (12) distinct branches from Eight (08) commercial banks (Comprising of Four Private and Four Public Banks) in Kushtia District have been selected on the basis of purposive sampling. The name of the banks viz., Dutch-Bangla Bank Ltd., National Bank Ltd., Pubali Bank Ltd., Islami Bank Bangladesh Ltd., Sonali Bank Ltd., Janata Bank Ltd., Agrani Bank Ltd., and Rupali Bank Ltd. Fifty (50) respondents (Bank Officers) who are working in clearing desk, have been selected on the basis of random sampling basis.

7.2 Source and Method of Data Collection

The current study is depended on both primary and secondary data. The primary data have been collected through personal interview of bank officials in Kushtia District by use of interview schedule. The interview schedule was prepared on the basis of selected variables for measuring competitive benefits of the two approaches of BACH. A well designed questionnaire (Appendix-A) was developed giving two options 'Yes' or 'No' to the respondents for comparing the benefits of the two approaches. The secondary data was collected from Annual Financial Stability Report, Annual Publications, of Bangladesh Bank (BB website), whereas latest 05 (Five) years consolidated data from the year 2014 to 2018 have been considered. Observation method also applied where the researcher recorded relevant data as soon as those come into notice at the time of visiting with respondents and following the dealings of clearing activities of them.

7.3 Mode of Data Analysis

Data processing implies editing, coding, classification and tabulation of collected data so that researchers can easily analyze the data. All data are processed through computer using Statistical Package for Social Science (SPSS 22). Before feeding the data into software, all data are converted into numerical codes. Descriptive statistics, chi-square test and z-test applied to analyze the data.

8. ANALYSIS AND INTERPRETATION OF THE STUDY

This section is devoted to identify the approach more beneficial to one over another in payment and settlement through BACH in banking perspective. Here is also analyzed the trend and growth of transactions processed both in EFT and CPS during the last five years. This analysis is made with the primary data and secondary data for the study purpose. These are shown below:

8.1 Determinants of Comparison between EFT and CPS

There are different types of determinants identified by the researchers to investigate the comparative benefits between Electronic Fund Transfer and Cheque Processing System.

In this study researchers have been used the following determinants shown in Table-1 that are relevant to the comparing of the two approaches:

Table 1: Determinants of Comparison between EFT and CPS

Determinants	Respondents of EFT		Respondents of CPS		Total Respondent
	Yes	No	Yes	No	
Efficient and Modern Technique	18	07	05	20	50
Minimization of Illegal Payment among Business	16	09	07	18	50
Cost Effectiveness	22	03	02	23	50
Time Saving	23	02	01	24	50
Safe and Secured	20	05	01	24	50
Easy Mode of Transaction	19	06	08	17	50
Handling of High Volume of Transaction	16	09	14	11	50
Flowing of Fund	10	15	13	12	50
Green Banking	24	01	02	23	50
Customer Liking	19	06	09	16	50

Source: Field Survey

Table-1 depicts the respondents' response to the option of choosing clearing & settlement systems in BACH. Between the two approaches in payment and settlement system of commercial banks in Bangladesh, respondents have given preference to the EFT as compare to CPS with the determinants of Efficient and Modern Technique, Minimization of Illegal Payment among Business, Cost Effective, Time Saving, Safe & Secured, Easy Mode of Transaction, Green Banking and Customer likings. On the other hand they have given preference to the use of CPS as compare to EFT with the variables of Handling of High Volume of Transaction and Flowing of Funds.

8.2 Chi-square Test

Chi-square test is one of the simples and widely used test in statistics. The researchers applied Chi-square to test of hypothesis for analyzing the impact of variables on comparative benefit of EFT over CPS. These are as follows:

8.2.1 Efficient and Modern Technique

The Table-2 shows the observed frequencies along with expected frequencies and work out the value of chi-square testing the results of the null hypothesis:

Table-2: Chi-square Test Statistics of Efficient and Modern Technique

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	18	7	13.61	1	0.000
		Expected Respondents	11.5	13.5			
		Residual	6.5	-6.5			
	CPS	Observed Respondents	5	20			
		Expected Respondents	11.5	13.5			
		Residual	-6.5	6.5			

Source: Field survey ((Primary data analyzed using SPSS)

Table-2 indicates that calculated value of chi-square 13.61 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). The study rejects the null hypothesis. Therefore, it is found that efficient and modern technique has the impact on comparative benefit of EFT over CPS. That is EFT is more beneficiary than CPS in terms of efficient and modern technology.

8.2.2 Minimization of Illegal Payment among Business

Chi-square statistics of Minimization of Illegal Payment among business is shown in Table-3:

Table 3: Chi-square Test Statistics of Minimization of Illegal Payment

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	16	9	6.52	1	0.011
		Expected Respondents	11.5	13.5			
		Residual	4.5	-4.5			
	CPS	Observed Respondents	7	18			
		Expected Respondents	11.5	13.5			
		Residual	-4.5	4.5			

Source: Field survey ((Primary data analyzed using SPSS)

Table no. 3 illustrates that calculated value of chi-square 6.52 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). The study rejects the null hypothesis. Therefore, it is found that there is relationship of minimization of illegal payment among business on the comparative benefit of EFT over CPS.

8.2.3 Cost Effectiveness

Chi-square statistics of Cost Effectiveness is shown in Table 4:

Table 4: Chi-square statistics of Cost Effectiveness

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	22	3	32.05	1	0.000
		Expected Respondents	12	13			
		Residual	10	-10			
	CPS	Observed Respondents	2	23			
		Expected Respondents	12	13			
		Residual	-10	10			

Source: Field survey ((Primary data compiled using SPSS)

Table no. 4 shows that calculated value of chi-square 32.05 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). The study rejects the null hypothesis. Therefore, the result states that there is strong relationship of cost effectiveness on the comparative benefit of EFT over CPS.

8.2.4 Time Saving

Chi-square statistics of Time Saving is shown in Table 5:

Table 5: Chi-square statistics of Time Saving

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	23	2	38.78	1	0.000
		Expected Respondents	12	13			
		Residual	11	-11			
	CPS	Observed Respondents	1	24			
		Expected Respondents	12	13			
		Residual	-11	11			

Source: Field survey ((Primary data analyzed using SPSS)

Table no. 5 shows that calculated value of chi-square 38.78 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). The study rejects the null hypothesis. Therefore, the result states that time saving strongly impact on the comparative benefit of EFT over CPS.

8.2.5 Safe and Secured

Chi-square statistics of Safe and Secured is shown in Table 6:

Table 6: Chi-square statistics of Safe and Secured

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	20	5	29.64	1	0.000
		Expected Respondents	10.5	14.5			
		Residual	9.5	-9.5			
	CPS	Observed Respondents	1	24			
		Expected Respondents	10.5	14.5			
		Residual	-9.5	9.5			

Source: Field survey ((Primary data analyzed using SPSS))

Table no.6 shows that calculated value of chi-square 29.64 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). So the null hypothesis is rejected. Therefore, the result states that safe and security is strongly related with the comparative benefit of EFT over CPS.

8.2.6 Easy Mode of Transaction

Chi-square statistics of Easy Mode of Transaction is shown in Table 7:

Table 7: Chi-square statistics of Easy Mode of Transaction

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	19	6	9.74	1	0.002
		Expected Respondents	13.5	11.5			
		Residual	5.5	-5.5			
	CPS	Observed Respondents	8	17			
		Expected Respondents	13.5	11.5			
		Residual	-5.5	5.5			

Source: Field survey ((Primary data analyzed using SPSS))

In the above table no.7, it is found that calculated value of chi-square 9.74 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05) which means hypothesis is rejected. On the basis of the result states that easy mode of transaction has an impact on the comparative benefit of EFT over CPS.

8.2.7 Handling of High Volume of Transaction

Chi-square statistics of Handling of High Volume of Transaction is shown in Table 8:

Table 8: Chi-square statistics of Handling of High Volume of Transaction

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	16	9	0.333	1	0.564
		Expected Respondents	15	10			
		Residual	1	-1			
	CPS	Observed Respondents	14	11			
		Expected Respondents	15	10			
		Residual	-1	1			

Source: Field survey ((Primary data analyzed using SPSS))

Table 8 elucidates that calculated value of chi-square 0.333 is lower than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≥ 0.05). The study accepts the null hypothesis. Therefore, the result states that handling of high volume of transaction has no impact on the comparative benefit of EFT over CPS.

8.2.8 Flowing of Fund

Chi-square statistics of Flowing of Fund is shown in Table 9:

Table 9: Chi-square statistics of Flowing of Fund

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	10	15	0.725	1	0.395
		Expected Respondents	11.5	13.5			
		Residual	-1.5	1.5			
	CPS	Observed Respondents	13	12			
		Expected Respondents	11.5	13.5			
		Residual	1.5	-1.5			

Source: Field survey ((Primary data analyzed using SPSS))

Table no.9 indicates that calculated value of chi-square 0.725 is lower than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≥ 0.05). The study accepts the null hypothesis. Therefore, the result states that flowing of fund has no impact on the comparative benefit of EFT over CPS.

8.2.9 Green Banking

Chi-square statistics of Green Banking is shown in Table 10:

Table 10: Chi-square statistics of Green Banking

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	24	1	38.78	1	0.000
		Expected Respondents	13	12			
		Residual	11	-11			
	CPS	Observed Respondents	2	23			
		Expected Respondents	13	12			
		Residual	-11	11			

Source: Field survey ((Primary data analyzed using SPSS))

Table no. 10 shows that calculated value of chi-square 38.78 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). The study rejects the null hypothesis. Therefore, the result states that practices of green banking have a strong impact on the comparative benefit of EFT over CPS.

8.2.10 Customer Liking

Chi-square statistics of Customer Liking is shown in Table 11:

Table 11: Chi-square statistics of Customer Liking

Total respondents (N) : 50			Category		Chi-square Value	df	Sig. (2-sided)
			YES	NO			
Bangladesh Automated Clearing House (BACH)	EFT	Observed Respondents	19	6	8.12	1	0.004
		Expected Respondents	14	11			
		Residual	5	-5			
	CPS	Observed Respondents	9	16			
		Expected Respondents	14	11			
		Residual	-5	5			

Source: Field survey ((Primary data analyzed using SPSS))

Table no. 11 shows that calculated value of chi-square 8.12 is greater than the table value of chi-square 3.84 at 5% level of significance (i.e., p value is ≤ 0.05). The study rejects the null hypothesis. Therefore, the result states that customer liking has an impact on the comparative benefit of EFT over CPS.

8.3 Trend Analysis of Settlement of Clearing Transaction in EFT and CPS under BACH

This section is devoted to analyze the trends of transaction processed from the year 2014 to 2018 in CPS and EFT by calculating growth rate in respect of number of transaction and value of transaction. These are as follows:

8.3.1 Volume and Amount of Transaction in CPS and EFT

Table 12 shows the comparative statement of clearing settlement position in respect of volume and amount of transaction in EFT and CPS under BACH during the period from year 2014 to 2018. These are as follows:

Table 12: Comparative Statement of Clearing Settlement in EFT and CPS

Year	Volume of Transaction Processed (In Million)		Amount of Transaction (Tk. in Billion)	
	CPS	EFT	CPS	EFT
2014	21.87	10.22	14,309.70	598.00
2015	22.83	13.76	15,501.80	873.86
2016	26.12	15.07	17,997.80	986.00
2017	29.88	18.64	20,431.60	1,333.60
2018	33.15	24.80	22,946.97	1,722.85
Total	133.85	82.49	91,187.87	5,514.31
Mean	26.77	16.50	18,237.57	1,102.86
S.D	4.75	5.54	3,534.20	435.49

Source: Annual Financial Stability Report, Annual Publication, Bangladesh Bank

Table no.12 shows that the volume of transaction and amount of transaction processed during last five years in CPS and EFT under BACH whereas it is found that average transaction processed 26.77 million in CPS and 16.50 million in EFT, and the average amount of transaction were Tk.18,237.57 billion and Tk.1,102.86 billion in CPS and EFT respectively during that period.

8.3.2 Growth Rate of Transaction Processed in CPS and EFT

Table 13 shows that the annual growth rate of number and value of transaction processed in Cheque Processing System and Electronic Fund Transfer System during the period year 2015 to 2018 calculated by assuming the year 2014 as the base year. These are as follows:

Table 13: Growth Rate of Transaction Processed in CPS and EFT

Year	Volume of Transaction		Amount of Transaction	
	CPS	EFT	CPS	EFT
2015	4.37%	34.71%	8.33%	46.13%
2016	14.44%	9.50%	16.10%	12.83%
2017	14.38%	23.68%	13.52%	35.25%
2018	10.93%	33.08%	12.31%	29.19%
Average	11.03%	25.24%	12.57%	30.85%
Maximum	14.44%	34.71%	16.10%	46.13%
Minimum	4.37%	9.50%	8.33%	12.83%
S.D.	4.73%	11.57%	3.24%	13.91%

Source: Calculated figure based on table- 12

From the above table no. 13 it is found that the average growth rate of transaction processing in CPS and EFT were 11.03% and 25.24% respectively, whereas in CPS, minimum and maximum growth rate was 4.37% in the year 2015 and 14.44% in the year 2016 respectively, and in EFT the minimum and maximum growth rate was 9.50% in the year 2016 and 34.71% in the year 2015 respectively. On the other hand the average growth rate of amount of transaction settlement in CPS and EFT were 12.57 % and 30.85% respectively, where as in CPS, minimum and maximum growth rate was 8.33% in the year 2015 and 16.10% in the year 2016 respectively, and in EFT the minimum and maximum growth rate was 12.83% in the year 2016 and 46.13% in the year 2015 respectively.

8.4 Z- Test

Z test is applied to find out the mean difference of CPS and EFT in terms of number of transaction processed and amount settled during the period 2014 to 2018.

8.4.1 Z -Test statistics of Number of Transaction Processed in CPS and EFT

Table 14: Z- test statistics of Number of Transaction Processed in CPS and EFT

	CPS	EFT
Mean (Transaction in Million)	26.77	16.50
Standard Deviation (Transaction in Million)	4.75	5.54
No. of Year	5	5
Z Value (@ 5% level of significance)	3.149	

Source: Calculated value based on Table 12 (z value calculated in excel data analysis)

Table no.14 shows that calculated value of z 3.149 is higher than critical value of z 1.96 at 5% level of significance so the study rejects the null hypothesis. Therefore, it is stated that the number of transaction processed is significantly differ between CPS and EFT.

8.4.2 Z-Test statistics of Amount of Transaction Settled in CPS and EFT

Table 15: Z- test statistics of Amount of Transaction Settled in CPS and EFT

	CPS	EFT
Mean (Amount in Billion)	18,237.57	1,102.86
Standard Deviation (Amount in Billion)	3,534.20	435.49
No. of Year	5	5
Z Value (@ 5% level of significance)	10.76	

Source: Calculated value based on table 12 (z value calculated in excel data analysis)

Table 15 shows that calculated value of z 10.76 is higher than critical value of z 1.96 at 5% level of significance so the study rejects the null hypothesis. Therefore, it might be stated that the amount of transaction settled in CPS and EFT significantly differ.

9. MAJOR FINDINGS OF THE STUDY

It is observed from the results of different analysis that most of the factors significantly impacted on the comparative benefits of Electronic Fund Transfer over Cheque Processing System. From the primary data analysis, it is observed that most of the respondents given more preference on EFT rather than CPS in clearing transaction's settlement under BACH. From the secondary data analysis it also found that the growth rate of EFT in terms of transaction processed and amount of transaction settled much higher than CPS. However, from the different analysis, the following findings may be furnished here:

- i. Efficient & modern technique is an important determinant of finding the comparatively benefit approach in BACH. It is found that between the two approaches EFT is more efficient and modern technique than CPS.
- ii. Most of the respondents thought that EFT enables to minimize illegal payment among business rather CPS. The result of the analysis shown that minimization of illegal payment related with the comparative benefit of EFT over CPS.
- iii. The statistical result revealed that cost effectiveness is strongly related with measuring the comparative benefit of EFT over CPS. The result shown that EFT is more cost effective than CPS.
- iv. Time is one of the important key factors regarding the measure of the comparative benefit between the approaches. From the analysis it is found that time saving facilities positively related with the benefit of EFT over CPS. EFT systems in BACH consume less time to the bankers to initiate transaction, as it is an instruction, comparing with CPS where they need to handle physical instrument.
- v. The most important issues concerned with banking activities are different types of risks involved therein. Banks prefer most secured and safe mode of transaction. Like that, safe and security are significantly impact on clearing transactions. The result in analysis found that safe and security strongly related with the comparative benefit of EFT over CPS. Respondents to their option expressed that the processing of clearing transaction in EFT is safer and secured than CPS.
- vi. Easy mode of transaction is related with choosing the comparative benefit of EFT over CPS. The analysis in above table support that EFT is easier mode of transaction than CPS.
- vii. The statistical analysis in above stated that handling of high volume of transaction has no impact on the comparative benefit of EFT over CPS. Rather it means that handling of high volume transaction is comparatively more beneficiary in CPS over EFT.
- viii. Flowing of fund is important determinant in finding the benefits between the two approaches. The result in analysis found that the flowing of fund has no impact on comparative benefit of EFT over CPS. It means that funds are flowing among business or in economy through Cheque processing system rather EFT under the automated clearing house. From the analysis of amount of transaction settled between the two approaches in BACH during the last five years, it is found that CPS is far ahead of EFT.
- ix. Green banking strongly influenced on the comparative benefit of EFT over CPS. The result stated that there is significant relationship of green banking to the measure of benefit between the two approaches in clearing transaction settlement. Green banking facilitates paperless banking which given preference to the respondents for choosing EFT over CPS.

- x. Customers always prefer simple, comfortable and suitable clearing transactions. From the analysis it is clear that customer liking greatly effect on comparative benefit of EFT over CPS. This mean that as per bankers view, customers accepted EFT as modern, efficient, cost effective and suitable approach in payment and settlement than CPS.

10. RECOMMENDATIONS

Considering overall analysis and major findings of the study the following recommendations are given below:

- ✓ Banks should focus on data storage, data archives for responding any query or compliance in future for the transactions of EFT with a view to feeling comfortable, safe & secured, time & cost effective, fastest transaction which deals with information only (instructions sending and receiving for clearing settlement among banks) not with instruments.
- ✓ Management should take necessary steps to mitigate the technological risks like hackings, cyber-crime etc.
- ✓ Customers should be motivated to encourage in using EFT as safe, secured, reliable, cost and time effective approach.
- ✓ Problems relating to EFT should be minimized and take corrective actions to increase Annual average growth rate of EFT in future.
- ✓ For implementing Green Banking policy, physical instruments dependency should be reduced by fully implementing EFT in every transfer.
- ✓ Bank officials should be careful before the initiation of debit or credit instruction in EFT by reducing illegal payment among business as compared to CPS.
- ✓ Banks should insist regarding comparative benefits between the two approaches in BACH and switching the customers to advantageous facilities.

11. CONCLUSION

Bangladesh Automated Clearing House (BACH) helps the fast transmission of funds to the economy. EFT and CPS are two approaches of settling clearing transactions in BACH by which commercial banks are providing clearing facilities to their customers at a time. To know the comparative benefits of EFT over CPS in banking perspective, various determinants are considered in the current study. The researchers designed a questionnaire for collecting primary information from the respondents and also used secondary data for the analysis. Different statistical tools and techniques like Descriptive Statistics, Chi-square test, z test were used to investigate and evaluate the comparative benefits of EFT over CPS. After analyzing primary and secondary data, the study revealed that bank officials are regarded that EFT is more beneficiary than CPS in respect of Efficient and Modern Technique, Minimization of Illegal Payment among Business, Cost Effective, Time Saving, Safe and Secured, Easy Mode of Transaction, Green Banking and Customer Likings. Conversely, bankers thought that CPS is beneficiary in high volume of transaction processed and flowing of funds among business as compare to EFT. The limitation of the study was that it conducted on of bankers point of view not on customer's point of view. So, there is a further scope of research to evaluate the comparative benefits between the two approaches in customer's perspective.

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