

A Study On Payment and Settlement Systems for Card, ATMs and POS in Banks of Bangladesh

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ABSTRACT

In the current era, the banking system is affecting digital intelligence because banks of Bangladesh have adopted and established bankers and customers in Bangladesh. Payment and Settlement Systems is an organization. That influences several bank accounts and payments into one e-device. In such despair, payment and settlement systems, mainly the digital payment stages, played a significant function to remain the economy lively and enable the financial system to stay elastic. Certainly, a well-functioning and organized payment system is very important for an economy. The objectives of the study and evaluate Payment and Settlement Systems in the Bank of Bangladesh. And analyze the Card, ATMs and POS for five years (2016 to 2020) and predict forecasting analysis after five years to Payment and Settlement Systems in Bank of Bangladesh. The Descriptive Statistics is excellent growth. Analysis results forecasting analysis in are Card, ATMs and POS all are highly results for positive growth. Correlation Coefficient for Payment and Settlement Systems Card, ATMs and POS in Bank of Bangladesh is very highly positive relationship Hypothesis is framed and tested with regression analysis for Payment and Settlement Systems Card & ATMs, Card & POS and ATMs & POS in Bank of Bangladesh results for the all are null hypothesis rejected.

Keywords: Payment Systems Department, Card, Automated Teller Machine (ATM) and Point of Sale (POS) and Digital Transactions.

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INTRODUCTION

In the modern era, the banking system was moving on digital wise because banks of Bangladesh adopted and accepted bankers and customers in Bangladesh. Payment and Settlement Systems is a system that influences multiple bank accounts and payments into one e-device. In such a depression, payment and settlement systems, particularly the digital payment stages, played an important role to remain the economy active and enable the financial system to stay elastic. Indeed, a well-functioning and well-organized payment system is vital for an economy. It supports the monetary activities of individuals and corporatism, and thereby supports economic intermediation through facilitating the payment and settlement of transactions among participants at a reasonably priced price. Any breakdown or disruption in the payment system might undermine financial markets and reason extensive economic

disturbance. Therefore, as a controller of the financial system, Bangladesh Bank (BB) is attentive for the uneven functioning of the payment ecosystem of the country through formulates effectual regulations and ensures an affable impression for all worried stakeholders, even among the period.

In the Payment Systems omission policy structure, Bangladesh Bank observes payment systems and contributors by the accumulating model based off-site in order on a usual base. It also takes into account the findings of further departments concerning payment systems difficulties, issues and the information in concert during market skill. Here equivalent Bangladesh Bank does onsite check for validation of collected in order as-well-as. To fulfill the still rising urge for earlier and well-organized payment methods, the Payment Systems Department (PSD) has been operational intimately within the global associations to expand safe, protected and competent national payment communications compliant to worldwide greatest practices. Bangladesh Bank has confirmed the draft 'National Payment and Settlement Systems Act' which is currently beneath ultimate appraisal allowing for commentary of dissimilar concern in something. During the PSD is operational intimately with the rule for automating a variety of a class of payments and proceeds counting payroll, collective protection net payments and receiving of VAT, Tax, Customs duty, etc.

PSD of Bangladesh Bank is operational intimately with all banks and is concerned in something to enlarge the current payments ecosystem in the nation. In the NPSB is responsible for popularizing card supported electronic payment systems in Bangladesh. Therefore, the digit of cards and several card based payment incurables are raising very high growth. To determine the Payment and Settlement Systems growth for Card, Automated Teller Machine (ATM) and Point of Sale (POS) in Banks of Bangladesh.

OBJECTIVES OF THE PAPER

1. To study on Payment and Settlement Systems in the Bank of Bangladesh.
2. To evaluate the Payment and Settlement Systems (Card, ATMs and POS)
3. To analyze the Card, ATMs and POS for five years (2016 to 2020) and predict forecasting analysis after five years.

HYPOTHESIS

The following hypothesis is framed and tested with regression analysis for Payment and Settlement Systems in the Bank of Bangladesh.

H₀₁: There is no significant relationship between Card & ATMs.

H₀₂: There is no significant relationship between Card & POS.

H₀₃: There is no significant relationship between POS & ATMs.

LITERATURE REVIEW

Nizam AM (2022) with the quick propagation of mobile use of telephones and the organization of an information skill enabled payment and settlement system Bangladesh these days is practicing an extraordinary enlargement in the usage of Mobile Financial Services (MFS). Since a lot of public are opting to utilize these services, an enormous number of the mobile accounts are opening 24/7 and a considerable deposit to the amount, reserved and relocated often during the mobile network systems. This increasing growth of the amount in mobile

currency graceful through the network systems may contain a large crash on the general money supply of the nation. To be specified for the crash of mobile money on the conservative money provider of Bangladesh. Effort to count the payment of mobile currency on the money provided which a significant amount base is supposed to fasten financial policy in Bangladesh. Separately from derive arithmetical relations amid money provide and e-money; they have based on exposed that throughout the 3 years duration of 2018-2021, MFS connections financial credit for almost (10.88% and 11.29%) of whole slight and large money provider of Bangladesh as on January, 2021.

Alam, Md. J., Jesmin, J., Faruk, M., Nur-Al-Ahad, Md. (2021). said E-Banking is an organism grown quickly in Bangladesh. The current outstanding progression in information skill and smart phones' expediency has brought imperative change in banking services in Bangladesh. Particularly, banking systems are currently entrant to provide entire banking services using smart phones or online platforms. Such digital banking services engrave reverse extended queues inside the banks opposed to extracting cash to deposit to their accounts. A lot of appreciably, E-banking's present position, possible potential opportunity and challenges especially in Bangladesh. In the direction of providing our role, they have a leaning to interview one hundred fifty individuals directly associated with such digital banking services, as-well-as bankers, users and choice public. They find several barriers in E-banking service channels, utilizing technical go down, infrastructural limits, time to deal problems and lawful risks etc. That customer is not regularly satisfied with digital services, and that they demand to reduce the degree of indecision connected to digital banking services.

Md. Kamal Uddin, Shelina Nasrin, Md. Nazmul Huda. (2021). Concluded that well growth of the financial market necessitates fast and protected transfer of money and monetary instruments by using current technologies. Delivering the financial services in the rural and remote areas helps the economic addition and increase up the financial drive and improvement thereby. The investigation into relative benefits between Electronic Fund Transfer and automatic Cheque Processing systems under Bangladesh automated Clearing House in banking perspectives. Current past five years consolidated data of clearing communication settled through BACH are measured here. Finally, concludes that payment and settlement in the Electronic Fund Transfer system is extra useful to the bankers as evaluate to Cheque Processing Systems.

METHODOLOGY

The present paper is descriptive in nature and is based on Payment and Settlement Systems in Bank of Bangladesh secondary data only. The data were collected from Bank of Bangladesh annual reports last 5 years (2016 to 2020) and other related publications. The literature was collected from authorized national and international published journals and related websites. The secondary data was qualitatively analyzed and accessible in tables and charts using Microsoft Excel and SPSS software. The analysis was based on analysis descriptive statistics, forecasting analysis, correlation and hypothesis frame based on regression has been used to analyze for the data.

DATA ANALYSIS AND RESULTS

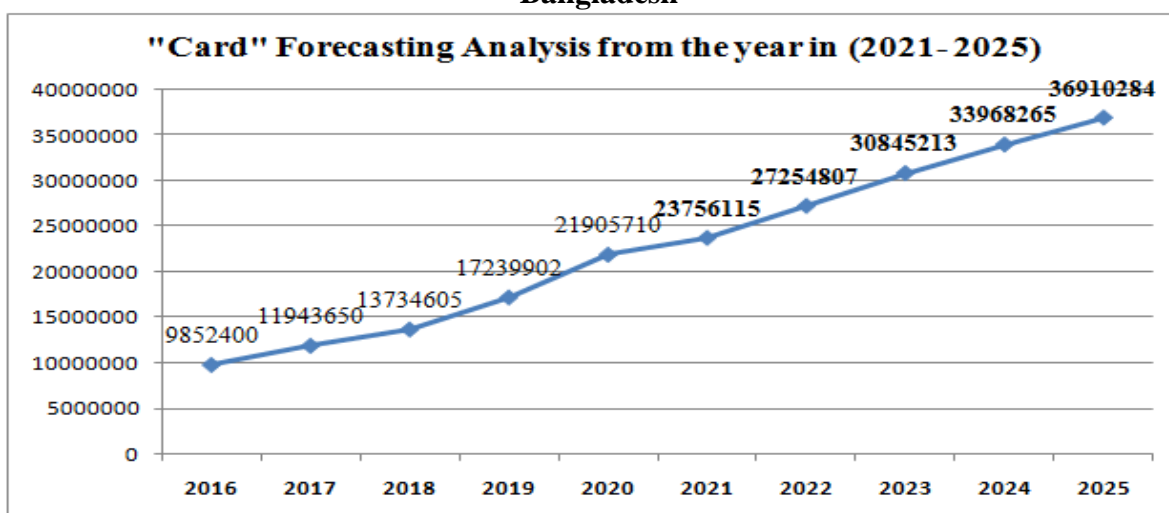
Table 1: Descriptive Statistics for Payment and Settlement Systems Card, ATMs and POS in Bank of Bangladesh

Year	Card	ATMs	POS
2016	9852400	8300	30400
2017	11943650	9246	36288
2018	13734605	9747	41130
2019	17239902	10722	52846
2020	21905710	11047	65946
Mean	14935253	9812	45322
SD	4746718	1114	14176
CV	31.782	11.353	31.278
Skewness	0.744	-0.303	0.741
Kurtosis	-0.272	-1.229	-0.550
Growth	9692411	8452	29691
CAGR	0.221	0.074	0.214
Trendline R ² Value	0.959	0.978	0.955

Source: Bank of Bangladesh Annual Report 2016 to 2020

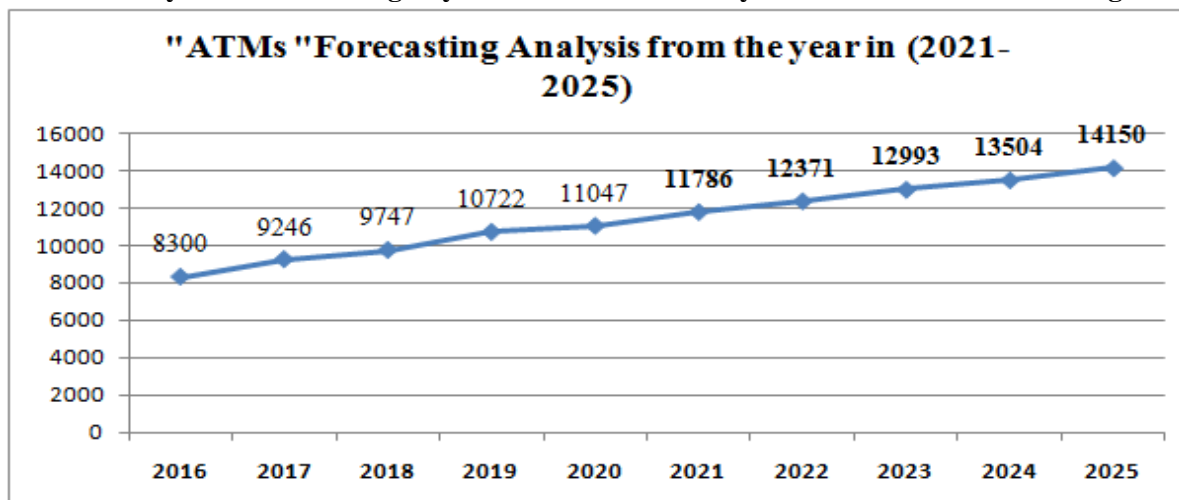
It is evaluated from table 1 that the Bank of Bangladesh Payment and Settlement Systems Card (14935253), ATMs (9812) and POS (45322) for mean value range. It is a good measure of central value because the Std. Deviation (SD) value ranges a good process. Covariance (CV) is a better result for regularly. As the Skewness value is good. Which is between -1 or greater than 1, the distribution is highly skewed. If the kurtosis ranges from 0 to 3, there is normal distribution. But the calculated kurtosis result was a non normal distribution because they are all Negative values. It is classified as Compound Average Growth Rate (CAGR) normally. Finally, Trendline R² values higher than total for all nearest 100%.

Chart 1 Analysis for forecasting Payment and Settlement Systems Card in Bank of Bangladesh



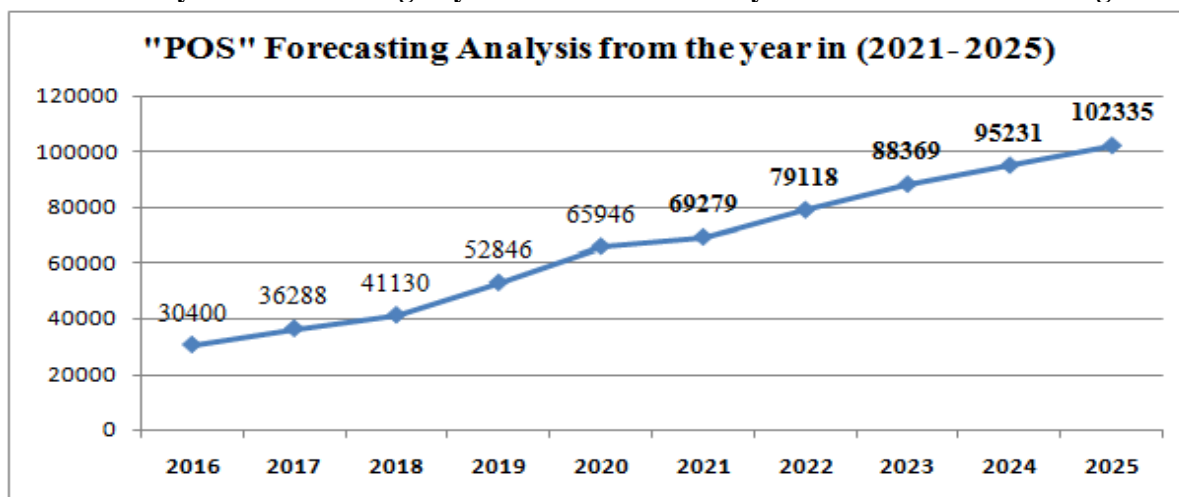
In this chart 1 measure Progress of Bank of Bangladesh Forecasting Analysis Payment and Settlement Systems in Card forecasting value range is (23756115 to 36910284). Hence, they are all highly results for positive growth.

Chart 2 Analysis for forecasting Payment and Settlement Systems ATMs in Bank of Bangladesh



In this chart 2 measures Progress of Bank of Bangladesh Forecasting Analysis Payment and Settlement Systems in ATMs forecasting value range is (11786 to 14150). Hence, they are all highly results for positive growth.

Chart 3 Analysis for forecasting Payment and Settlement Systems POS in Bank of Bangladesh



In this chart 3 measures Progress of Bank of Bangladesh Forecasting Analysis Payment and Settlement Systems in POS forecasting value range is (69279 to 102335). Hence, they are all highly results for positive growth.

Table 2 Correlation Coefficient for Payment and Settlement Systems Card, ATMs and POS in Bank of Bangladesh

Items	Card	ATMs	POS
Card	1.000	-	-
ATMs	0.953	1.000	-
POS	0.999	0.954	1.000

It is correlated from the table 2 analysis of the Correlation Coefficient Analysis of Card, ATMs and POS for Payment and Settlement Systems in Bank of Bangladesh. ATMs to correlation relationship between Card is 95% that is a very highly positive relationship. POS to correlation between Card is 99%. That is a very highly positive relationship. POS to correlation between ATMs is 95%, which is a very highly positive relationship. For the correlation results are highly positive.

Table 3 Regression Statistics for Card and ATMs to Payment and Settlement Systems in Bank of Bangladesh

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.953 ^a	0.91	0.88	388.78

a. Predictors: (Constant), Card

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4510593.53	1.00	4510593.53		
Residual	453455.67	3.00	151151.89	29.84	0.012 ^b
Total	4964049.20	4.00			

a. Dependent Variable: ATMs

b. Predictors: (Constant), Card

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6471.17	635.87		10.18	0.00
Card	0.00	0.00	0.95	5.46	0.01

a. Dependent Variable: ATMs

It is clear from table 3 that the difference between for Payment and Settlement Systems in Bank of Bangladesh under Card and ATMs for regression analysis based on F-value is 29.84, R square value is 95% and P-value is (0.012) that is highly significant. That is a 1% level significant. So, the null hypothesis is rejected.

Table 4 Regression Statistics for Card and POS to Payment and Settlement Systems in Bank of Bangladesh

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.999 ^a	1.00	1.00	545.34

a. Predictors: (Constant), Card

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	802919869.12	1.00	802919869.12		
Residual	892186.88	3.00	297395.63	2699.84	0.000 ^b
Total	803812056.00	4.00			

a. Dependent Variable: POS

b. Predictors: (Constant), Card

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	743.52	891.93	-	0.83	0.47
Card	0.00	0.00	1.00	51.96	0.00

It is clear from table 4 that the difference between for Payment and Settlement Systems in Bank of Bangladesh under Card and POS for regression analysis based on F-value is 2699.84, R square value is 99% and P-value is (0.000) that is highly significant. That is a 1% level significant. So, the null hypothesis is rejected.

Table 5 Regression Statistics for POS and ATMs to Payment and Settlement Systems in Bank of Bangladesh

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.954 ^a	0.91	0.88	385.44

a. Predictors: (Constant), POS

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	4518347.91	1.00	4518347.91		
Residual	445701.29	3.00	148567.10	30.41	0.012 ^b
Total	4964049.20	4.00			

- a. Dependent Variable: ATMs
- b. Predictors: (Constant), POS

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6414.41	639.82	-	10.03	0.00
POS	0.07	0.01	0.95	5.51	0.01

It is clear from table 5 that the difference between for Payment and Settlement Systems in Bank of Bangladesh under ATMs and POS for regression analysis based on F-value is 30.41, R square value is 91% and P-value is (0.012) that is highly significant. That is a 1% level significant. So, the null hypothesis is rejected.

CONCLUSION

The result was concluded by Payment and Settlement Systems in Bank of Bangladesh of Card, ATMs and POS analysis of the Descriptive Statistics is excellent growth. Analysis results forecasting analysis in are Card, ATMs and POS all are highly results for positive growth. Correlation Coefficient for Payment and Settlement Systems Card, ATMs and POS in Bank of Bangladesh is a very highly positive relationship for above 90%. In the Regression Analysis for Card and ATMs for the bases on F-value is a (29.84), R square value is 95% and p-value is 0.012 that is highly significant. Card and POS for regression analysis based on F-value is 2699.84, R square value is 99% and P-value is (0.000) that is highly significant. ATMs and POS for regression analysis based on F-value is 30.41, R square value is 91% and P-value is (0.012) that is highly significant. They are all results for 1% level significant. So, the null hypothesis is rejected. Bank of Bangladesh has launched various new schemes for the growth and development of the new technology to public's are Payment and Settlement Systems well adopted COVID-19 pandemic period and recent times. After analyzing secondary data, the revise exposed that bank officials are regarded that Payment and Settlement Systems is more beneficial than Card, ATM and POS in Banks of Bangladesh in high opinion of efficient and current technique, minimization of illegal payment among business, low cost effective, time save, safe and secured, easy accessible for transaction, and customer adopting etc.

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APPENDICES

Put additional information here that was gathered during your research but that you will not include in your paper. e. Sample calculations, Research instruments, questionnaire or surveys sample, approval letter for data collection etc. Appendices may be in the form of figures, tables, maps, charts, photographs or drawing. The heading should be "Appendix" followed by a letter or number (e.g. "Appendix A" or "Appendix 1), centered and written in bold type.

AUTHOR PROFILE

Dr. M. Dineshkumar has completed the Undergraduate (B.Com. Commerce) from the SVN College/ Madurai Kamaraj University, Madurai and Postgraduate degrees from The Madura College/ Madurai Kamaraj University, Madurai. He finished his M.Phil from M.S.S.Wakf Board College /Madurai Kamaraj University in 2015. He completed his Ph.D., Degree during the period 2016-2020 from Vivekananda College/Madurai Kamaraj University, Madurai 2021, Thesis Title is "Green Banking in India - An Empirical Study with Special Reference to Commercial Banks in Madurai District". He did his MBA in Alagappa University, Karaikudi. His area of interest was Research & Data Analysis, Accounting and Banking.



He was working in two years experience as Audit Assistant and three years experience as Branch Manager and Gold Appraiser in leading private concerns of Madurai. He has three years experience as good research working and data analysis for Ph.D., degree during the period in Vivekananda College, Tiruvedakam West, Madurai. He has two years four months experience as for Assistant Professor of Commerce & Commerce (CA) in K.L.N. Arts & Sciences College & Mannar Thirumalai Naicker College in Madurai.

He has technical skills on Good knowledge of MS Office (MS Excel), access IBM SPSS & AMOS, STATA and LISREL Software using data analytics. He has Advisor to Research Project, writing articles and dissertation. He has presented eighteen papers in the National & International Conference and Seminars. He has published twenty two papers in the National & International Edited Book and Journals. He has attended twelve Workshops in Hands on Training, attended one Research Colloquium and attended five Seminars, he completed Research Methodology Course Work One Month Programme, he got five SWAYAM Online Course Certifications (Action Research in Educational Technology, Research Methodology, Data Analysis For Social Science Teachers, Business Statistics & Research Ethics and Plagiarism), then he was attended two hundred eighteen Webinars, attended one hundred sixty five Online Quiz and attended fourteen COVID-19 Awareness Program Online Quiz etc.