Electronic Banking: an Object of Fallacy or System of Functionality

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Abstract — Corporate managers in the banking industry have employed series of strategies to lure many customers to patronage their categories they offer for sale. One of such is E-banking. These technological services are introduced by banks with the objective of providing customers with rapid services, with cost efficient. The situation tends to be different in this part of the world. Most of these services partially exist and if it fully does, it comes with unprecedented system failures. Based upon this premises this study is conducted exploratory to find out what really constitutes electronic banking from the Ghanaian perspective and also to ascertain their linkage with customer satisfaction. A total number of 200 questionnaires were administered. Cross-sectional survey was employed using questionnaire as the principal tool for the data collection. A 5-point Likert- scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to measure the constructs. With the aid of SPSS version 23 the data was analyzed to establish the empirical linkage of the underlying constructs. The study among other things brought to the fore three (3) determinants (Automated Teller Machine, Mobile Phone Banking, Internet or Online banking) that define e-banking from the Ghanaian perspective proving that it is a system of functionality that is established for specific strategic purpose better still because of inefficient execution it was also proven to be an object of fallacy in the sense that having it does not necessary leads to customer satisfaction. The data analysis also shows that statistically between automated teller machine and customer satisfaction there is positively very weak relationship ($R^2 = .181$, $p < 0.126$). Meaning holding all other variables constant, automated teller machine will cause 18.1% change in customer satisfaction. It is proven by the results that, automated teller machine not only weak in explaining the relationship but the impact is also not significant as the significant level is 0.126 which is above the standard significant value of 0.05. Meaning the automated teller machine if it is not administered efficiently and effectively will have the tendency to impact on customer's satisfaction insignificantly. This presupposes that the automated teller machines in question were not administered efficiently and effectively. Thus this study has proven empirically that it is not a forgone conclusion that having an ATM services will automatically leads to customer satisfaction making the assertion a fallacy in Ghana thus disproving the study by Sultan and Komal (2009) claiming that having an automated teller machine services will automatically lead to customer satisfaction. The study revealed that relationship between mobile banking services and customer satisfaction is positively very weak ($R^2 = .170$, $p < 0.171$). This simply means that mobile services rendered by banks to their customers were seriously criticized as woefully inadequate. Thus, holding all other variables constant, mobile banking services causes 17.0 % change in customer satisfaction. This result proves that a unit change in mobile banking service will induce 17.0% change in the rate of customer satisfaction. In other words when the level of mobile banking services is improved by 1% it will lead to 17.0% increase in customer satisfaction which is quite

negligible. The significance level of this outcome in reference to the study results was 0.171 which is greater than the standard value of 0.05 indicating that the variance between mobile banking services and customer satisfaction was not significant. Internet banking services were quite effective and efficient thus having positive significant impact on customer satisfaction ($R^2 = .211$, $p < 0.003$). But the relationship is equally weak explaining only 21.1% of customer satisfaction within the Ghanaian banking industry. The statistical understanding is that unilaterally internet banking service has the empirical tendencies to increase customer satisfaction by 21.1% if these services are improved just a percentage change. The practical connotation is that managers need to make automated teller machine more secured and very convenient spreading it across the length and breadth of the country. It should be in good function (twenty-four hours a day), accessible at all times (weekdays and weekends) and user-friendly as well. Again, managers should be proactive in sending message to customers whenever their system is malfunctioning in order to win customer trust. They should be ready to accept their mistakes and improve on customer complaint. They should avoid the rationalization of system failure which tend to put customers off serving as a catalyst for customer drifting. Again, internet connectivity should be reliable to boost mobile banking services. The banks should create more mobile apps for the various product categories. To sum up more resources should be allocated to online products since it is proven to be the only determinant significant in explaining customer satisfaction.

Index Terms — Electronic-banking, Customer satisfaction, Ghana, banking industry.

I. INTRODUCTION

In reality electronic- banking is a system designed efficaciously to render services such as mobile phone banking, internet or online banking, debit and credit cards transactions, electronic funds transfer, electronic clearing service etc. The notion that electronic banking system was to create customer satisfaction can empirical be a fallacy. Banking transactions have taken a new trend from the queuing system to a more flexible system where customers are served with ease with the help of information technology. Location is not important at all what matters is your connectivity. Real-time banking services are the order of the day if one wants to remain very competitive. Technology has forever transformed the world business tremendously. Especially in the banking industry it has become very imperative tool for survival. Over the past years, the banking industry has undergone tremendous changes. Services offered by banks were primarily; taking deposits, facilitating withdrawals, and granting loans. Service delivery was made

through the branches with prominence on face to face contact with customers. The trend has changed now. Customers now expect swift transactions with less time spent and with less or no contact. This calls for the electronic operationalization of their services. The issue of electronic banking has also taken a centre stage in the Ghanaian banking sector. Comparatively, it is quite effective and efficient in the advanced world than in sub-Sahara Africa. The question then comes into mind whether electronic banking in Ghana is a real system or not. Thus, this research is to put the record straight by determining the various constituents of electronic banking in Ghana, testing its efficacy and establishing its linkage with customer satisfaction. Banks are doing everything possible to remain relevant in this competitive era. In doing so they have resort to the usage of ATMs, telephone, internet, mobile, credit and debit cards to deliver their services to respective customers. The absence of information technology to large extent compromises the efficacy of these services. Poor internet connectivity, coupled with power fluctuation has even worsened the case. It is certain empirically that electronic-banking has been widely utilized in developed countries and in developing economies; however, unfold of e-banking is way restricted. As posited by [10] developing countries in general have an advantage as they can learn from the experience of advanced economies. Today, most banks are adopting electronic banking as a way of enhancing their banking services quality forgetting that ineffective application of these can become a conduit for customer drift as a result of service failure. Research has proven that in some countries, electronic-banking merchandise and services aren't very popular because customers do not deem it imperative to ancient banking services [5]. Today's customers seek more than traditional banking and want useful, dependable and reliable technologies. Many banks have exponentially embraced the use of Information and Communication Technologies in their service provision to meet such needs of their customers. Huge amounts of money have been invested in implementing the self and virtual banking services with the objective of improving the quality of customer service. Unlike before when ledger-cards were used, today banking has been connected to computer networks, thereby facilitating the practices of inter-banks and inter-branches banking transactions. Little can be said about this assertion in the Ghana banking industry. Is against this premise that this research is conducted to determine the various constituents of electronic banking in Ghana, test its efficacy and finally establish its linkage with customer satisfaction.

A. Antecedence of Electronic Banking

Devlin explained that electronic banking comes in phases: ATM, mobile phone banking, internet banking or online banking, debit and credit cards, electronic funds transfer and electronic clearing service [16]. For the purpose of this research the first three will be reviewed.

B. The Automated Teller Machine (ATM)

Wang, Zhang, Sheu, Li, Guo [56] explained ATM as the real - time front terminal of automated teller services with the support of a central server and a centralized account database which provides money withdrawal and account balance management services. The banks offer their clients the

capacity to make deposits and withdraw funds by means of ATMs (Automated Teller Machines) or other remote conveyance channels claimed by different foundations, for which an administration expense is acquired. Adeniran and Junaidu [57] also opined that the essence of ATM to decongest the banking halls. Customers can consummate their banking transactions such as: cash withdrawal, cash deposit, bill payments, and transfer of fund between accounts without a direct contact banking staff. Sultan and Komal established that ATM services has the capacity to enhance operational performance thus leading to customer satisfaction in terms of convenience, speedy of delivery, and voluminous transactions which orthodox banking services were unable to handle expeditiously [5]. Muhammad took a different twist viewing it at an angle where customers can access services conveniently where official service hours are closed [38]. In the case of customer satisfaction Joseph and Stone [29] concluded that secure and convenient location, adequate number of ATM, user-friendly system and functionality of ATM play important role in attaining this height. Dilijonas, Kriksuiunien, Sakalauskas and Simutis on the other hand mention that adequate numbers of ATMs, convenient and secure location, and user-friendly system, speed, minimum errors, high uptime, cash backup, cost and service coverage are essential service quality aspects of ATM service [17]. In conclusion, ATM from the researcher point of view is an electronic computerized machine that permits banking transaction between a client and financial institution directly in the form of cash withdrawals, access to their bank accounts or cash advance with the help of a customized cards.

C. Mobile Phone Banking

Tiwari and Buse defined mobile banking as the service offered by the banks in providing and making available banking and other financial services to their customers through mobile phones and other similar devices [52]. Pousttchi and Schurig [45] also defined mobile banking as "That type of execution of financial services in the course of which – within an electronic procedure – the customer uses mobile communication techniques in conjunction with mobile devices." The mobile banking service provides yet another alternative to almost all the functions available on the Automated Teller Machines with convenience well highlighted. Amin, Hamid, Tanakinjal and Lada [4] called mobile banking as 'pocket banking' for the users. To guarantee security, the customer must first authenticate through a numeric or verbal password or through security questions asked by a live representative. The various definitions show that Mobile phone banking is another form of e-banking which allows customers to perform financial services via telecommunication devices where the bank customers can perform retail banking transactions by sending or receiving a text message (SMS), which is connected to an automated system of the bank. The researcher also defines mobile banking as the institutionalization of mobile services with the strategic intent of rendering banking services to a specific target market.

D. Internet Banking or Online bankings

Gkoutzinis [24] defined online banking as the provision of electronic banking services via the internet, commonly

through a personal computer or other access devices with internet connectivity. Daniel [12] defines e-banking as the delivery of Banks' information and services by banks to customers via different delivery platforms that can be used with different terminal devices such as a personal computer and a mobile phone with browser or desktop software, telephone or digital television. Sathye [46] also explained it as the delivery of banking services through the open-access electronic network (the Internet) directly on to customers' home or personal address and services. The use of the Online Banking as a new alternative channel for the distribution of banking services has become a competitive tool for attaining competitive advantage. Finally the researcher also defines internet banking as the application of internet services for prompt response to the customer banking needs through an effective and efficient computer system.

II. METHODOLOGY

This research is to put the record straight by determining the various constituents of electronic banking in Ghana, testing its efficacy and establishing its linkage with customer satisfaction.

The self-administered research questionnaire was the primary instrument used for data collection in this study. This tool was used because, the researchers anticipated that the customers patronizing electronic banking are literate and can therefore read, comprehend and write to answer the questions. Total respondents of 200 were used for the study. Five-point Likert- scale ranging from 5 (strongly agree) to 1 (strongly disagree), was used as the measuring tool. Hierarchical regression analysis was employed in a bid to examine the hypotheses. The items used were proven be valid and reliable during the in reliability and validity test. Correlation analysis was also conducted to check relation among the three constructs. There were positive significant relationships among them.

III. RESULTS AND DISCUSSION

A. Summary Description of Demographic

Table.1 shows that out of the total respondents of 200 which was used for the analysis of the study, the average age of customer is between the ranges of 21-25 years old (i.e. 2.12). The study shows again that, on the mean mark for gender was 1.50 which suggests that more male customers were involved in the study. The mean mark of 4.65 for automated teller machine depicts that the customers agreed to the fact that the bank is providing them ATM Services. Similarly, the mean mark of 4.27 for mobile banking shows that the customers agreed that the banks render some mobile banking services. Again, the mean mark of 4.53 for internet banking shows that on average a respondent within the study population agreed that the bank is operating internet banking services. Finally, the mean mark of 4.87 for customer satisfaction shows that the customers strongly agreed that satisfaction can be attained when these services are properly rendered to them.

TABLE1 SUMMARY DESCRIPTION OF DEMOGRAPHICS

	Mean	Std. Deviation	Skewness	Kurtosis
Gender	1.50	.374	-.462	-1.573
Age	2.12	.548	.673	2.554
Automated Teller Machine	4.65	.467	-.554	-.354
Mobile Banking	4.27	.413	-.125	-.254
Internet Banking	4.53	.277	.246	-.179
Customer Satisfaction	4.87	.212	-.680	-.976

B. Reliability

The Cronbach's alpha coefficient results, as presented in Table.2 shows that all the items for measuring the underlying constructs in the study exceeded 0.7. Automated teller machine recorded a Cronbach's Alpha of 0.756 which demonstrates that, the items used in measuring the variable in question were reliable. Likewise, the Cronbach's Alpha result for measuring the mobile banking variables were 0.751 which depicts that the objects used in measuring the variable was highly reliable in terms of analysis making. Similarly, the Cronbach's Alpha coefficient for internet banking, .752 which in essence stipulates that the items and scale in measuring the variable was highly accurate and reliable. Again, the Cronbach's Alpha coefficient customer satisfaction was .783 which in turn asserts that the items and scale in measuring customer satisfaction was highly accurate and reliable.

TABLE.2 RELIABILITY STATISTICS

Variables	Cronbach's Alpha	Number of items
Automated Teller Machine	.756	3
Mobile Banking	.751	3
Internet Banking	.752	3
Customer Satisfaction	.783	4

C. Correlational Analysis among Study Variables

In bid to find out the relationships among the variables understudy, the Pearson's product moment correlation analysis was used. Positive relationships were showcased among the variables as exhibited in Table 3.

TABLE .3 CORRELATION

	1	2	3
Automated Teller Machine	-		
Mobile banking	.458**	-	
Internet banking	.358**	.473**	-
Customer satisfaction	.354**	.446**	.534**

Table.3 highlights the positive relationship between automated teller machine and customer satisfaction ($r = .354$, $p < 0.01$). Mobile banking also has a positive relationship with customer satisfaction ($r = .446$, $p < 0.01$). Thus, as mobile banking services improves, customer satisfaction increases as well. Similarly, the results of the study poses a positive propensity between internet banking and customer satisfaction; thus ($r = .534$, $p < 0.01$). This means that as internet banking increases, the rate of customer satisfaction increases in effect.

D. Hierarchical Regression Analysis

Hierarchical regression analysis assesses the impact of (automated teller machine, mobile banking and internet banking) on customer satisfaction. The study used coefficient of determination to evaluate the model fit. The model summary is presented in Table 4.

TABLE 4 HIERARCHICAL REGRESSION ANALYSIS OF VARIABLES ON CUSTOMER SATISFACTION

	Standardized Coefficients		Co linearity Statistics		
	B (R^2)	T	P	Tolerance	VIF
(Constant)	.229	2.220	.030		
Automated Teller Machine	.181	1.552	.126	.901	1.110
Mobile banking	.170	1.386	.171	.845	1.184
Internet banking	.211	3.506	.003	.771	1.297

Dependent variable: Customer satisfaction.

E. Testing Hypothesis

1. Impact of automated teller machine on customer satisfaction

Hypothesis 1 - The banks inability to administer an efficient and effective automated teller machine will not have the tendency to impact on customer's satisfaction significantly.

There is a clear indication from table 4 that statistically between automated teller machine and customer satisfaction there is positively very weak relationship ($R^2 = .181$, $p < 0.126$). Meaning holding all other variables constant, automated teller machine will cause 18.1% change in customer satisfaction. It is proven by the results that, automated teller machine not only weak in explaining the relationship but the impact is also not significant as the significant level is 0.126 which is way above the standard significant value of 0.05. Hence hypothesis one of the study is proven to be true. Meaning the automated teller machine if it is not administered efficiently and effectively will have the tendency to impact on customer's satisfaction insignificantly. This presupposes that the automated teller machines in question were not administered efficiently and effectively. Thus this study has proven empirically that it is not a forgone conclusion that having an ATM services will automatically leads to customer satisfaction making the assertion a fallacy in Ghana thus disproving the study by [5] claiming that having an automated teller machine services will automatically lead to customer satisfaction in terms of convenience, speedy of delivery, and voluminous

transactions which orthodox banking services were unable to handle expeditiously. It is only possible if it is administered efficiently and effectively within a confined of a well secured and convenient location, well spread across the length and breadth of the country, it is functional twenty-four hours a day, accessible at all times (weekdays and weekends) and user-friendly system.

2. Impact of mobile banking on customer satisfaction

Hypothesis 2 - The banks inability to execute mobile banking services professionally means the negative propensity to impact on customer satisfaction.

The assertion that mobile banking services if is not executed professionally will have the negative propensity to impact on customer satisfaction is scholarly true as displayed in the results in table 4. The relationship between mobile banking services and customer satisfaction is positively very weak ($R^2 = .170$, $p < 0.171$). This simply means that mobile services rendered by banks to their customers were seriously criticized as woefully inadequate. Hence hypothesis two of the study was accepted. Thus, holding all other variables constant, mobile banking services causes 17.0 % change in customer satisfaction. This result proves that a unit change in mobile banking service will induce 17.0% change in the rate of customer satisfaction. In other words when the level of mobile banking services is improved by 1% it will lead to 17.0% increase in customer satisfaction which is quite negligible. The significance level of this outcome in reference to the study results was 0.171 which is greater than the standard value of 0.05 indicating that the variance between mobile banking services and customer satisfaction was not significant.

3. Impact of internet banking on customer satisfaction

Hypothesis 3 - Inefficient institutionalization of internet banking services will have a negative propensity on customer satisfaction.

Hypothesis three was also proven to be true because in the study internet banking services were quite effective and efficient thus having positive significant impact on customer satisfaction ($R^2 = .211$, $p < 0.003$). But the relationship is equally weak explaining only 21.1% of customer satisfaction within the Ghanaian banking industry. The statistical understanding is that unilaterally internet banking service has the empirical tendencies to increase customer satisfaction by 21.1% if these services are improved just a percentage change. This determinant happened to be the highest in explaining customer satisfaction. In all the three underlying construct constituting electronic banking in Ghana jointly is able to explain only 6.7% of customer satisfaction. The reason being that managers of these banks are quite impervious about the customer; most often than not the system tend not to function on weekends and no reason will be assigned, poor internet connectivity making it difficult to transact online, placing restrictions on the amount of money one can withdraw with the ATM which tend to be very meager, poor internal security mechanisms making customers feel insecure, high degree of cybercrime, treacherous staffs who are able to ascertain customers PIN codes for an unsanctioned transaction etc. Addressing these issues zealously can go along to improve customer

satisfaction. Nevertheless, findings is congruent with study conducted by [28], they concluded that internet banking among the various determinants of electronic banking has a major significant role in achieving customers' satisfaction. Moody [37] also observed that internet banking is the fastest growing services that banks can offer in order to achieve and retain a sizeable market share.

IV. IMPLICATION

This study has proven that in deed within the context of the Ghanaian banking industry electronic banking is a system created with a specific strategic intent or function of improving customer satisfaction but if it's not implemented effectively can become an object of fallacy as showcased by this research. The first major finding of the study was the identification of the various determinants that constitute electronic banking within the Ghanaian banking industry. Among the lot stated by [16] which include internet banking, Electronic transfer fund (ETF), Electronic clearing services (ECS), telebanking, automated teller machine (ATM), mobile banking, online banking, electronic data interchange (EDI) etc., automated teller machine (ATM), mobile banking, online banking, were proven to be constituent of electronic banking in Ghana. Meaning banks wishing to 'electronise' their banking service should focus their effort on these three key variables. Interestingly automated teller machine (ATM) and mobile banking were proven to be not significant in explaining customer satisfaction with the underlying reason being that the services were not reliable at all. Thus, establishing a very weak relationship with customer satisfaction. The practical connotation is that managers need to make automated teller machine more secured and very convenient spreading it across the length and breadth of the country. It should be in good function (twenty-four hours a day), accessible at all times (weekdays and weekends) and user-friendly as well. Again managers should be proactive in sending message to customers whenever ever their system is malfunctioning in order to win customer trust. They should be ready to accept their mistakes and improve on customer complaint. They should avoid the rationalization of system failure which tend to put customers off serving as a catalyst for customer drifting. Again internet connectivity should be reliable to boost mobile banking services. The banks should create more mobile apps for the various product categories. Internet banking was the only determinant proven be significant in explaining customer satisfaction but with a positively weak relationship. The implication is that more resources should be devoted in creating online products and it should be user friendly.

V. FUTURE RESEARCH DIRECTIVES

In future research, the study of e-banking could be expanded to include all the regions of Ghana, which would provide a more homogeneous sample. A larger sample size covering a wider geographical area will provide more reliable and accurate results. Indeed, such research might be undertaken in other countries as well. Other service quality factors which affect customer satisfaction can also be added

for further research.

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