



## The impact of internet banking on bank performance: Evidence from Ghana

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### Abstract

Banks in Republic of Ghana in recent time are beginning to realize the importance of internet banking and its relevance to the banking sector. Many works have linked internet banking and bank performance. The main aim of this paper is to find the impact of internet banking on bank performance in some bank in Ghana. 350 sample size was selected and data analysis was done using partial least square and structural equation model. The outcome of the study shows that there is a positive relationship between internet banking and bank performance. The study also shows that there is a significant positive relationship between customer satisfaction and bank performance. This work contributes to literature on internet banking and bank performance especially in the context of Africa to be precise in Ghana. The paper also gave recommendation and suggested experimental research should be conducted in the future.

**Keywords:** internet banking, bank performance, customer satisfaction, Ghana

### 1. Introduction

Internet Banking according to Suriya, Mahalakshmi and Karthik (2012) <sup>[39]</sup> can be describe as platform that create environment for getting and carrying out information, banking transaction among other through the use of devices such as mobile phones, tablet, computers etc. in the works of Chang and Hamid (2010) <sup>[6]</sup> they looked at internet banking as system where customers sit at the comfort of their home to initiate bank transactions without going to the banking hall. They explained that this transaction is done electronically without going to the mortar and brick bank. Alsajja and Dennis (2010) <sup>[4]</sup> also confirmed that internet banking is all about providing banking services through technological means without the use of the physical bank and the engagement of employees.

Gerrard and Cunningham (2003) <sup>[16]</sup> explained that internet banking is the use of Telecommunication networks to carry out banking services to customers Whiles Yoon and Steege, (2013) <sup>[42]</sup> test to the fact that internet banking allow customers to have access to their bank account and control it at any time they want. Salehi and Alipour (2010) <sup>[37]</sup> explain that the rate at which digital and technological life style is being accepted in this 21<sup>st</sup> century has brought a significant transformation in our banking sector.

In the work of Ngango, Mbabazize and Shukla (2015) <sup>[30]</sup> they are of the view that internet banking has improved payment system, increase profitability and has improve the management system of the bank. They explain again that internet banking has help expand the asset base and has increase the growth rate of most of the bank across the world.

Bank performance can be defined as ways by which banks resources are utilized in a form which enables us to achieve our organizational objective. Farlex (2012) <sup>[11]</sup> explains in his work that Bank performance is matching the banks

actual outcome with the banks stated goals or objectives. Richard *et al.* (2009) <sup>[34]</sup> in his study looked at bank performance in three folds, thus they measure it using financial performance, thus the profit of the bank, the return on Asset and the Return on investment. They secondly looked at the product or services of the bank thus considering this variables (Sales, market share and shareholders return).

Internet banking has seen a lot of work in the context of Europe but limited in the contest of Africa with mix results. It appears that no study has been conducted in the context of Ghana. This study seeks to address that gap by examining the impact of internet banking on bank performance in Ghana.

### 2. Materials and Methods

#### 2.1. Relationship between internet banking and bank performance

In the last decade, the introduction of internet banking as a medium of exchange of information, platform for transaction among others has grown our financial sector. Internet banking as an innovative tool has reduce a lot of cost and it has enhanced profit in the banking sector. It has also again creates a convenient platform for customers to be able to facilitate their transaction without challenges.

According to Onay and Ozsoz (2013) <sup>[31]</sup> Internet banking as compared to brick and mortar banking create the enabling environment to a customer to be able to conveniently open accounts for himself, deposit fund, transfer fund, make online payment at any time and at a lower cost. The explained that this alone leads to bank efficiency and that will lead to bank performance among other. Furthermore, in the works of Ciciretti *et al.* (2008) <sup>[7]</sup>, they conducted a survey on some Italian banks. They found out that the introduction of internet banking services into those banks

has influenced the performance of the banks, their return on average assets (ROAA) and return on average equity (ROAE) has improved tremendously. Similar studies conducted by Hernando and Nieto (2007) [22] on the impact of internet banking and bank performance on some Spanish banks. In that study, they found out that internet banking as an innovative alternative for distribution channel has reduced the banks overhead expenses and has improved return on average assets (ROAA) and return on average equity (ROAE). The likes of Onay and Ozsoz (2013) [31] further confirmed that the introduction of internet banking services has improved the overall profitability of some banks in Turkey and it has reduced the level of competitiveness amongst some banks in Turkey.

Giordani and Floros (2013) [17] in their work employed econometrics model to test the level of significant between internet banking and bank performance on some Greek banks. The outcome of the study shows that internet banking has significant positive impact on bank performance. They also found out that internet banking diminishes the overall operating expenses of those banks.

DeYoung *et al.* (2006) [10] conducted survey on some banks in the United States of America and suggested that internet banking has positive significant impact on bank performance. Hasan *et al.* (2002) [21] confirmed that by conducting another survey on some Italian banks and he also suggested that internet banking has positive significant impact on bank performance. Based on the above assertions we propose the following hypothesis.

H1: There is a positive relation between Internet Banking and Bank performance

## 2.2. Internet banking and its relationship with customer satisfaction

Customer satisfaction can be defined as measure by which institution meet customers expectation. According to Farris, Bendle, Pfeifer and Reibstein (2010) [12], they explain customer satisfaction as the total number of customer who express their experience with a firm about a product or a service that has exceeded their specific satisfaction goal. Further works by Westbrook, (1980) [40] suggested that customer satisfaction looks at the customer's perception of a company's products and/or services. According to him customer satisfaction varies from one person to another depending on the variable. Most scholars normally use a survey to measure customer satisfaction by employing the Likert scale technique. According to the study conducted by Kumbhar, (2011) [26] on customer Satisfaction towards E-banking services of ICICI bank in Chennai, India which considered factors affecting customers' satisfaction. They considered cost effectiveness, service quality as factors that influences performance. The study revealed that internet banking has positive relationship on customer satisfaction. Grönroos (1998) [18] in his study suggested that internet banking services has positive relationship with customer satisfaction., Parasuraman, Zeithaml, and Berry (1988) [33] also concluded on similar results of Grönroos (1998) [18]. Jain and Gupta (2004) [24] explains that to achieve a great customer satisfaction in the banking sector, all depends on receiving a better and higher quality internet banking services. A number of studies has pointed out that internet Banking has significant positive impact on customer

satisfaction. For instance, in the work of Asiyanbi and Ishola (2018) [3], they explained that internet banking services today has made life very easy for a lot of Nigerians and as a result the customer base of customer of banks that use a lot of internet banking services are increasing. Ranaweera and Neely (2003) [35] also confirmed that by explaining that quality of internet banking and E-service are the first step of customer satisfaction. Zhou (2004) [43] explains that Electronic Banking service relates to reliability and has a significant effect on the degree of customer satisfaction.

According to Ahmad and Al-Zu'bi (2011) [1] they explained that electronic banking and customer satisfaction and loyalty has significant positive relationship. They conducted a survey on 179 customers from 24 commercial banks and finally came to that conclusion. Mobarek (2007) [28] also conducted a survey on 100 customers from some commercial banks in Botswana. He found out that there is a positive significant relationship between electronic banking and customer satisfaction. Based on the above empirical evidence, we propose the following hypothesis;

H2: Internet banking has a positive impact on Customer satisfaction.

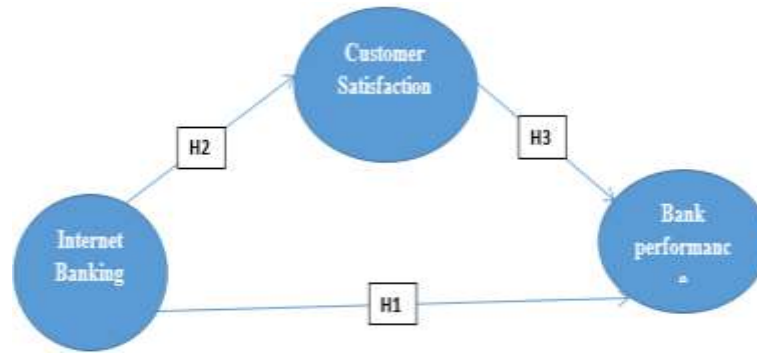
## 2.3. Customer Satisfaction and its relationship with Bank Performance

Many institution across the world today are using customer satisfaction as a main tool to pave their way out in the world of competitiveness and the banking sector is no different. According to Hoq and Amin, (2010) [23] the main driver of many banks today is their customer base. They went on further to explain that customer satisfaction is one of the instrumental strategic tool for making profit. Munari *et al.* (2013) [29] confirmed the fact that customer satisfaction is a strategic tool that give banks competitive advantage over banks in the banking sector.

Another study by Guo, Kumar and Jiraporn (2004) [19] suggested that most bank that adopted internet banking services do make their customers happy and satisfied because of the vast categories of the internet banking services those banks offer to their customers. Their work further explained that customer satisfaction has a positive and greater influence on the performance of firm's finances. Other studies conducted by Kanning and Bergmann (2009) [25] suggested that there is a positive relationship between customer satisfaction and bank performance. The likes of Yeung and Ennew (2000) [41] confirmed that there exist a positive relationship between customer satisfaction and bank performance.

Previous research has shown that there is a positive relationship between customer satisfaction and financial performance of a firm. Anderson, Fornell and some of his colleagues came out with an index for measuring customer satisfaction and performance. Institutions and scholars like the (American Customer Satisfaction Index, 2001; Fornell, 1992; Fornell, Johnson, Anderson, Cha, and Everitt Bryant, 1996) [2, 13, 14] have all suggested that there is a positive relationship between customer satisfaction and financial performance. Based on the above empirical evidence, we propose the following hypothesis.

H3: customer satisfaction has positive impact bank performance.



**Fig 1:** Conceptual model

**2.4. Methodology**

This study adopted the survey methodology with questionnaire as the main data collection tool. The population of study included all banks in Ghana. A convenient sample size of 500 respondents was chosen for the study. Out of the 500 questionnaire administered, a 350 usable questionnaire were obtained, after data cleaning. The researchers used informed consent form to seek permission from the respondents and assured the respondents of anonymity and confidentiality of their responses.

A five point Likert scale was used to measure variables for the research constructs as recommended in previous work (Danaher and Haddrell, 1996; Delvin, Dong and Brown, 1993) [8, 9]. The Likert scale ranged from strongly disagree to strongly agree, coded 1 to 5 respectively. The study also adopted a Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree and as well considered relevant questions from other researchers who used similar studies. The questionnaire was in three (3) different fold. The first fold contains questions on demographics, the second considered the measurement of construct whiles the third fold sought for the dependent variables.

**3. Results of the study**

**Demographic characteristics of respondents**

Some demographic variables were collected in this study: gender, age, level of education and Types of Banks. Out of the total of 350 respondents, 247 were males representing 70.6% and 103 were females representing 29.4%. This means that there were more male respondents than females. Also, with regards to the age category of respondents, 17.1% of the respondents were between 18 and 25 years; 67.1% were between 26 to 33 years; 14.0% were between the ages of 34 to 41 years; and 1.7% were above 42 years. This means that majority of the respondents were in the age group 26-33 years. On the issue of types of banks they work, 42.9% are workers of private banks whiles 57.1% are workers of public banks. With regards to the level of education, 0.9% had Basic level education qualifications; 0.9% High School qualification; 4.0% Diploma

qualification; 15.7% Undergraduate education; and 73.7% had graduate qualification; 4.9 % had other qualifications. Majority of the respondents thus had graduate qualification education.

**3.1. Exploratory factor analysis**

Applying SPSS, the exploratory factor analysis (EFA) was conducted to measure the underlying dimension associated with the 13 items. The initial items entered were 24 items. However, 11 items were later removed as they had factor loading less than 0.6 leaving 13 items.

The validity of the constructs was measured using Bartlett’s test of Sphericity and Kaiser–Mayer–Olkin (KMO) measure of the sampling adequacy of individual variables (Hair *et al.* 2011) [20]. In order to perform factor analysis, it is required that the KMO should have a score of 0.6 or more. The results of Bartlett’s test of Sphericity and KMO in this study showed the suitability of factor analysis (see Table 1). Also, the acceptable limit for cumulative variance of 60% was achieved in this study. There was also sufficient correlation between this study’s variables 6612.938 and significance level ( $p > 0.000$ ).

**Table 1:** KMO and Bartlett’s Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.893
Bartlett's Test of Sphericity	Approx. Chi-Square	6612.938
	Df	946
	Sig.	.000

**3.2. Measurement model reliability and validity**

The construct reliability measures the extent of internal consistency of measures used. This is measured through the item factor loadings which should not be less than 0.70. It is also assessed through the Cronbach’s alpha at an acceptable level of 0.7 (Hair, J., C.M. Ringle, and M. Sarstedt, 2011; Ringle and Becker, 2015)[20][36] From Table 2, all of the constructs have item loadings higher than the recommended 0.70.

**Table 2:** Item loading and construct reliability

ITEMS	FL	CA	rho_A	CR	AVE
IB1	0.866	0.929	0.956	0.940	0.724
IB2	0.871				
IB3	0.805				
IB4	0.803				
IB5	0.879				
IB6	0.879				
C S1	0.740	0.906	0.994	0.928	0.766

C S2	0.937				
C S3	0.881				
C S4	0.929				
B Per1	0.861	0.895	0.903	0.831	0.711
BPer2	0.826				
BPer3	0.881				

**Notes:** IB- Internet Banking, CS- Customer Satisfaction, BPerf- Bank Performance, FL -Item Loadings, CA – Cronbach’s Alpha, CR- Composite Reliability, AVE –Average Variance Extracted.

Table 2 shows the item loading and reliability of the variables used in this study. All the variables returned Cronbach alphas above 0.70, which shows the reliability for the measurement of each construct. The validity of the constructs was also ensured through construct validity and convergent validity. Convergent validity assesses the degree to which a measurement represents and logically connects the observed phenomenon to the construct through the fundamental theory (Fornell and Larcker, 1981) [15]. It is assessed through convergent validity and discriminant validity (see table 3) (Ringle and Becker, 2015) [36]. Convergent validity was considered adequate since the average variance extracted (AVEs) and composite reliability (CR) satisfied the minimum of 0.50 and 0.70 respectively (Ringle and Becker, 2015; Fornell and Larcker, 1981) [36, 15].

**4. Discriminant validity**

**Table 3:** Discriminant Validity

	<b>IB</b>	<b>CS</b>	<b>BP</b>
<b>IB</b>	0.851		
<b>CS</b>	0.107	0.875	
<b>BP</b>	0.084	0.057	0.847

**Table 4:** Results of Hypotheses Test

Hmeothesis	Beta	T-value	P-value	Action
H1 IB -0BPerf	0.790 23.00	88%,	***	Accepted
H2 IB -0 CS	0.622	14.69	***	Accepted
H3 CS -0BPerf	0.540 16.94	sss	***	Accepted

**Note:** IB -Internet Banking, CS- Customer Satisfaction, BPerf – Bank performance

The results in Table 4 shows that all the hypotheses tested were supported. First of all, the direct effect of the internet banking on bank performance was supported. Internet banking had a direct positive effect on bank performance ( $\beta = 0.790$ ;  $t = 23.00$ ,  $p < 0.000$ ) this led to the acceptance of first hypothesis thus (H1). The Beta score means that, when internet banking increase by 1%, bank performance increases by 79%. This means that the more the banks in Ghana introduce internet banking service, the more the bank will make a lot of profit, which will enhance the performance of the bank.

Followed by effect of internet banking on customer satisfaction, internet banking also shows a positive and significant relationship with customer satisfaction ( $\beta = 0.622$ ;  $t = 14.69$ ,  $p < 0.000$ ); this led to the acceptance of second hypothesis (H2). The Beta score means that, when internet banking increase by 1%, customer satisfaction increases by 62.2%. This means that the more banks in Ghana utilizes internet banking services, the more the customers will be happy with the banks because they see the banking at their door steps and this would enhanced those customers loyalty to the banks.

Finally, the effect of customer satisfaction on bank

performance, customer satisfaction also shows direct positive effect on bank performance ( $\beta = 0.540$ ;  $t = 16.94$ ,  $p < 0.000$ ); this led to the acceptance of second hypothesis (H3). The Beta score means that, when internet banking increase by 1%, customer satisfaction increases by 54%. This means that the more customers are happy with the services of the bank the more they will be loyal to the bank, their loyalty means staying with the bank without switching. This means that the customer is willing to spend more on the bank which can lead to bank profitability and subsequently performance of the bank.

**5. Discussion**

First, the above study seeks to find out the impact of internet banking on bank performance in Ghana. Results from the above study shows that internet banking contribute to bank performance. The results clearly indicates that internet banking has positive significant impact on bank performance. What this means is that Board of director of banking institutions must begin to invest heavily into internet banking since it is one of the current drivers of profitability in this 21<sup>st</sup> century technological world. Customers of banks become more loyal to the banks when they find banking to be so easy for them. Introduction of technology alone can generate more sales for the bank. This is similar to the study of Shamsuddoha and Alamgir (2010) [38].

First and foremost, the results of hypothesis one (H1) shows that there is a significant positive relationship between internet banking and bank performance. This means that successful implement of a robust internet banking system in Ghana will yield a volume of sales to the banks. This volume of sales will translate into profit which will lead to the performance of the bank. This finding support earlier findings of (Ongare 2013; Deyoung, Lang and Nolle 2006) [32, 10].

Furthermore, with respect to the second hypothesis (H2), it shows that there is a significant positive relationship between internet banking and customer satisfaction. This means that Ghanaian banks customers will be very satisfied if the banks introduce to them internet banking services that will make their lives very easy for them, and they will be happy to use those services. Customers are happy and very satisfied when they find easy way of handling their transactions without joining long queue at the banks. This finding support earlier findings of (Yeung and Ennew 2000; Mittal and Frennea 2010) [27, 41].

Finally, hypothesis three (H3) of the study revealed that there is positive relationship between Customer satisfaction and bank performance. This means that customer satisfaction is a main driver to bank performance. When customers of banks are happy with the services of the bank, they will patronize more services and even go to the extent of becoming apostles of the bank by calling people to join in the marketing of the bank and patronizing the services as

well. The more the bank increases its customer base the more they will make a lot of profit. This profit will lead to the performance of the bank. This finding support earlier findings of (Ongare 2013; Deyoung, Lang and Nolle 2006)<sup>[32, 10]</sup>.

## 6. Contribution

This paper contributes to literature in the area of internet banking and Bank performance. The study shows that taking customer satisfaction serious leads to bank performance. This means that the bank should put out all measure that will make the customers of the bank satisfied and happy. The study also shows that the introduction of internet banking will motivate more customers to be part of the bank because of the ease of use of the technology.

## 7. Conclusion

The above study looked at the impact of internet banking on bank performance in Ghana. The results from the study support many previous studies conducted from different jurisdictions. From the study we found out that introduction of innovative system like the internet banking do make the life of customer very easy, transfer of money from one customers to another without going to the banking hall, and you do have access to the service 24 hour within the 7 days of the week. Secondly, the introduction of internet banking services will lead to the success of many bank because it will yield profit for those banks who implement it. Finally, management of the bank should take into consideration the stakeholder (customers and employees) of the bank in the implementation of the internet banking services. This is because when these stakeholders are happy, they will make the bank perform better and the will sell the bank to the general public.

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