



## **Effect of electronic banking on bank performance: Evidence from Djibouti**

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### **Abstract**

The concept of electronic banking today has given birth to a number of modern technology in the banking industry, many banks across the world in recent time have improve their service delivery especially with the new technology. This is contributing significantly to the performance of the banks. This study examines the effect of electronic banking on bank performance in Djibouti. A structured Likert scale was used for the data collection. 250 respondent were selected on convenient basis from different banks in Djibouti. Structure Equation Model (SEM) and partial least square were used for the Analysis. The results revealed that there is a significant positive relationship between electronic banking on bank performance. This study contributes theoretically to the electronic banking literature especially in the context of Africa. Contributions and recommendations has been suggested with regards to future research works in this field.

**Keywords:** electronic banking, bank performance, customer satisfaction, djibouti

### **1. Introduction**

During the last decade, the introduction of electronic banking was a challenge to the people of Djibouti and its neighbouring countries. According to Polatoglu and Ekin (2001) <sup>[45]</sup> they explained that majority of the banks at the time rejected electronic banking when it was introduced because they didn't see any benefit of using it. They further explained that, internet banking comes with huge cost which they think could be used to pay many tellers in the industry. In recent years, technology has find its way into the banking industry of Djibouti and it is making significant changes in that sector. Most of the traditional banks sought to serve their customers in a traditional way but they pay attention to cost, which they consider as a main element in the banking sector. Singh and Malhotra (2007) <sup>[35]</sup> defined Electronic banking as delivering banking services and product to customers over the electronic and communication network. Introduction of electronic banking services into the banking industry of Djibouti has rapidly improves way of businesses. Furthermore, customer satisfaction level has improved after the introduction of the services.

Daniel (1999) <sup>[13]</sup> in his works explained that electronic banking is the delivery of services to customers by banks via different kind of terminals or medium such as the mobile phones, personal computer digital television and telephones. Abid and Noreen (2006) <sup>[1]</sup> further explained that electronic banking is the use of ICT and Electronic platforms to transact or interact with the stakeholders of the banks. Wallis (1997) <sup>[54]</sup> explained that electronic banking creates a platform for transaction electronically without the use of physical cash.

Customer satisfaction according to Hansemark and

Albinsson (2004) <sup>[25]</sup> is the difference of what customers anticipate and what they have received from the service provider. Oliver (1997) <sup>[42]</sup> further explained that customer satisfaction is about the consumer's judgement of a product or a service whether the product or the services has fulfill the need, goal or desire of the customer or not. Kotler (2000) <sup>[32]</sup> again pointed out that satisfaction is about customer's anticipation or disappointment from services or product in relation to the customer's expectations. Long term relationship and maintenance of customers is based on their level of satisfaction, which is paramount to most institutions Sweeney and Swait, (2008) <sup>[51]</sup>. Customer's satisfaction with a company can lead to company performance.

Previous literature has proven that customer satisfaction affect customer loyalty and customer loyalty affect the financial performance of the company Hallowell, (1996) <sup>[23]</sup>. Chi and Gürsoy (2009) <sup>[10]</sup> also explained that satisfied customers are the ones who turn into loyal customers and they will gradually buy more from the company which will eventually lead to high sales for the company and subsequently lead to high returns. These theories are being supported fully by many scholars like (Anderson and Fornell, 1994; Schneider and Bowen 1995; Heskett *et al.* 1994; Rust *et al.* 1995) <sup>[6, 48, 28, 47]</sup>.

Even though many research works has been done around the area of electronic banking and bank performance, most of them concentrated on the context of developed countries neglecting the developing countries. This study seeks to address that gap by examining the effect of electronic banking on bank performance in the context of developing countries using Djibouti as a case study.

## 2. Materials and Methods

### Electronic Banking and its relationship with Customer Satisfaction.

The introduction of electronic banking today has made the financial sector a competitive one and a profit-making venture. This has wet the appetite of investors to invest more into the banking industry. The introduction of technological concept, policies, techniques etc. to the banking industry has become a topic of importance and serious concern to all banks and its stakeholders. As a results, financial sector today has seen a rapid change by serving customers electronically.

According to Mishra and Kiranamai (2009)<sup>[38]</sup> the world of E-banking started with the use ATM and it was piloted by Finland. Most E-banking services were commonly used in the developed countries. Claessens, Glaessner and Klingebiel (2000)<sup>[12]</sup> explained that the developing countries especially those from Africa can tap into the experience of the developed countries for the implementation of the technology. Most banks in Djibouti today are implementing E-banking as a means of enhancing service quality in that sector. The introduction of E-banking services has increase the level of customer satisfaction in some banks in Djibouti.

A research work conducted by Kumbhar (2011)<sup>[33]</sup> on customer satisfaction towards E-banking services in ICICI bank in India. Their empirical finding suggested that there is a significant positive relationship between electronic banking and customer satisfaction. Another works by Woldie, Hinson, Iddrisu and Boateng (2008)<sup>[53]</sup> in their study on how internet banking can improve the relationship between customers (client) and banks in Ghana. The outcome of the study among others shows that there is a positive relationship between internet banking and customer satisfaction.

Furthermore, the works of Ahmad and Al-Zu'bi (2011)<sup>[3]</sup> suggested that electronic banking and customer satisfaction and loyalty has significant positive relationship. They have sampled 179 customers from 24 commercial banks. Mobarek (2007)<sup>[40]</sup> further looked at 100 customers from the four (4) main commercial banks in Botswana. The study's outcome revealed that there is a positive significant relationship between electronic banking and customer satisfaction.

Lastly, the works of Aghaei, Biglar, Jamshidian and Asadollah (2013)<sup>[2]</sup> on 384 customers from the main commercial banks in Iran, They investigated the effect of electronic banking on customer satisfaction and found out that there is a positive relationship between the two variables. Based on the above empirical evidence, the following hypothesis is proposed;

**H1:** Electronic banking has a positive impact on Customer satisfaction.

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

A lot of banks are now using customer satisfaction as a strategic tool to gain competitive advantage over other banks in the banking industry. According to Munari *et al.* (2013)<sup>[41]</sup> customer satisfaction is one of the criterion used to assess the relationship between the bank and its customer base. The higher the customer base the higher the profit and the lower the intention of the customer to switch to another bank. Customer satisfaction is an important driver when it

comes to the success of a bank (Hoq and Amin, 2010)<sup>[29]</sup>.

Terpstra *et al.* (2014)<sup>[52]</sup> explains customer satisfaction as satisfaction that a customer may derive from a product or a service. He further explained that customer satisfaction of a bank customer refers to the states of mind of a customer concerning the bank, his positive experience with the bank over a period of time. The traditional strategic marketing concept revealed that customer satisfaction technically influences financial performance of firms. The main ideology behind it is that the more the customer becomes satisfied the more they will demonstrate loyalty which subsequently leads to an increase in financial outcome of the company. Most banks consider customers as their assets and their satisfaction is primary goal of the bank Dossi and Patelli, (2010)<sup>[15]</sup>.

Previous empirical studies has proven that, there is a positive association between customers and financial outcomes. The likes of Anderson, Fornell and their colleagues who developed an index for measuring customer satisfaction and performance (American Customer Satisfaction Index, 2001; Fornell, 1992; Fornell, Johnson, Anderson, Cha, and Everitt Bryant, 1996)<sup>[5, 16, 17]</sup> have all attest to the fact that there is a positive relationship between customer satisfaction and performance. Yeung and Ennew (2000)<sup>[55]</sup> in their studies which they focused on customer satisfaction and bank performance suggested that there is a positive relationship between the two variables. They only problem is that they use a cross-section data which has a problem of endogeneity. Mittal and Frennea (2010)<sup>[39]</sup> had similar results when they link the effect of customer satisfaction on Bank performance.

Guo, Kumar and Jiraporn (2004)<sup>[20]</sup> their research works revealed that customer satisfaction has a greater influence on financial performance of a firm. The works of Kanning and Bergmann (2009)<sup>[31]</sup> proves that there exist a positive relationship between customer satisfaction and bank performance. Based on the above empirical assertion, we propose the hypothesis below;

**H2:** customer satisfaction has direct positive relation with bank performance.

### Relationship between Electronic Banking and Bank Performance.

The advent of technology has changed almost all aspect of our lives. Among them is the introduction of electronic banking in the banking sector. This has led to a total redefinition of the way the banks operates Sumra, Manzoor, Sumra and Abass, (2011)<sup>[50]</sup>. Today in the banking world, electronic banking is seen as a main driver to the success of a bank Sumra *et al.* (2011)<sup>[50]</sup>. This has pushed the investors of the banks to invest more in information technology to enhance banking processes. The availability of electronic banking system alone is expected to affect the bank's financial performance positively.

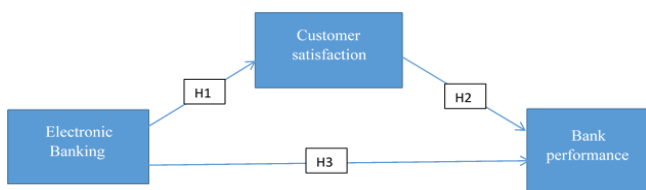
Based on industry analysis, the impact of electronic banking on banking industries has generated a notable interest on revenue generation and growth of banks Berger, (2003)<sup>[9]</sup>. He explained that electronic banking eliminates all physical boundaries and all geographical issues of banking services. This alone increase customer base of banks which leads to higher sales and subsequently make higher profit. Previous scholars have done a lot of works around electronic banking and bank performance and they have confirmed the assertion that electronic banking influences bank

performance positively. For instance, the works of Hasan, Maccario and Zazzara, (2002) [26] on the topic “Do Internet Activities Add Value? The Italian Bank experience” They draw some samples from Italian banks to check whether internet banking contributes to the performance of the bank. The results revealed that internet banking institutions were performing better and significantly than the non-internet banking group.

Hernando and Nieto (2005) [27] also carried out similar study on some banks in Spain, they found out that banks that adopt electronic banking channels performs better in terms of profitability than those who do not. Another investigation by Bello and Dogarawa (2005) [8] on Nigerian banks. They were examining the impact of electronic banking on customer satisfaction that can lead to bank performance. They found out that a lot of Nigerian are aware of electronic banking and they are satisfied with the service. They study further revealed that satisfied customers are willing to pay more for the electronic banking services, and this can lead to the bank to make a lot of profit.

In the works of Deyoung, Lang and Nolle (2006) [14] they conducted a comparative analysis to look at the impact of internet banking on financial performance of the banks in their communities in the United States from the period of 1999 – 2001. The results of the study show that Adoption of internet banking has improved the community banks profitability especially on their revenue from deposit services charge. They study finally revealed that internet adoption do contribute significantly to bank profitability. Another study by Oginni, Mohammed, El-Maude and Abam (2013) [44] on the effect of electronic banking on bank performance from Nigerian perspective. Their study found out that there is a positive significant relationship between electronic banking and bank performance. Similar to the works of Ongare (2013) [43], he found out that there exist a positive relationship between electronic banking and bank performance. Based on the above discussions, we propose the following hypothesis:

**H3:** There is a positive relation between Electronic Banking and Bank performance



**Fig 1:** Conceptual model and hypotheses of the study

**Methodology**

This paper employed the survey methodology which considered the use of quantitative techniques for collection and analyzing of data. Structured questionnaire was adopted to measure the quantitative variables. The objective of this study is to investigate the effect of Electronic Banking on Bank Performance with a mediating role of customer satisfaction. Random sampling technique was employed to select the respondent from some selected banks in Djibouti. Four hundred (400) respondent were selected; but only two hundred and fifty (250) responses were received and considered after initial data cleaning. 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.

Measurement of electronic banking was adopted from Han and Baek, (2004) [24], Chiou and Droge (2006) [11] was adopted for customer satisfaction while Hair Jr, Hult, Ringle, and Sarstedt (2016) [21] for organizational performance measurement.

Data collected from respondent were analyzed through the help of SmartPLS3 and SPSS version 22. SPSS was considered for demographic Analysis while testing of hypothesis was done using Stata and SmartPLS3 for structural equation model. Confirmatory and Exploratory factor analysis were adopted for the assessing and purifying the unidimensionality items on the scale. And again assess discriminant validity among the constructs.

**3. Results**

The following demographics were extracted from the questionnaire; Age, Gender, Level of education and Types of banks.

**Table 1:** Gender of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	174	69.6	69.6	69.6
	Female	76	30.4	30.4	100.0
	Total	250	100.0	100.0	

Results from the above table-1 depict that 174 respondents were males representing 69.6%, and 76 respondent representing 30.4% are females. This means that majority of the respondents are males.

**Table 2:** Age of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-125 years	38	15.2	15.2	15.2
	26-33 years	171	68.4	68.4	83.6
	34-41 years	37	14.8	14.8	98.4
	42years and above	4	1.6	1.6	100.0
	Total	250	100.0	100.0	

The response from table -2 above shows that 38 of the respondents representing 15.2% were between the ages of 18-25 years; 171 respondents representing 68.4% were between the ages of 26-33years; 37 respondents representing 14.8% were between the ages of 34-41 years; 4 respondents representing 1.6% were above the age of 42 years. This means that majority of the respondents are between the ages of 26-33years.

**Table 3:** Educational level of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basic level	3	1.2	1.2	1.2
	High School	1	.4	.4	1.6
	Diploma	7	2.8	2.8	4.4
	Undergraduate	39	15.6	15.6	20.0
	Graduate	188	75.2	75.2	95.2
	Others	12	4.8	4.8	100.0
	Total	250	100.0	100.0	

The results in table -3 above shows that 3 of the respondent representing 1.2% are from the Basic level; 1 respondent representing 0.4 is from the High school whiles 7 respondent representing 2.8% are from diploma level; 39 of the respondent representing 15.6% are from the undergraduate level whiles 188 of the respondent representing 75.2% are from the graduate level; 12 of the respondent representing 4.8% are from other levels of education. This means that majority of the respondents are graduates.

**Table 4:** Type of bank respondents operate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public	146	58.4	58.4	58.4
	Private	104	41.6	41.6	100.0
	Total	250	100.0	100.0	

The results in table-4 above shows that 146 of the respondents representing 58.4% are from the public bank whiles 104 of the respondents representing 41.6% are from the private bank. This means that majority of the respondent comes from the public bank.

**Measurement model reliability and validity**

Construct reliability checks the consistency of internal variables and does evaluation of item loadings with an acceptable region of 0.70 and considered the Cronbach’s alpha of 0.70 (J. Hair, Ringle, and Sarstedt, 2011; Ringle, Wende, and Becker, 2015) [22, 17]. Furthermore, the variables in Table-5 below shows that their Cronbach’s alpha is above the acceptable region of the 0.70. This can be easily explained that the variables are highly reliable. Construct validity assesses the level to which a measures symbolise and are associated with observed eventualities of the construct through the principal theory (Fornell and Larcker, 1981a; Fornell and Larcker, 1981b) [18, 19]. The evaluation were done through convergent and discriminant validity (Ringle *et al.*, 2015) [46]. Composite reliability (CR) and average variance extracted (AVEs) have satisfied the minimum of 0.70 and 0.50 respectively (Fornell & Larcker, 1981b; Ringle *et al.*, 2015) [19, 46].

The variables in Table-5 shows that their Cronbach’s alpha is above the acceptable region of the 0.70. This can be easily

explained that the variables are highly reliable.

**Table 5:** Item Loadings & Construct Reliability

Items	FL	CA	Rho A	CR	AVE
CSAT1	0.816	0.936	0.937	0.950	0.759
CSAT2	0.847				
CSAT3	0.922				
CSAT4	0.861				
CSAT5	0.895				
CSAT6	0.883				
EB1	0.834	0.922	0.924	0.942	0.763
EB2	0.854				
EB3	0.921				
EB4	0.861				
EB5	0.896				
BP1	0.772	0.829	1.053	0.893	0.736
BP2	0.946				
BP3	0.847				

**Notes:** CSAT- Customer Satisfaction, EB – Electronic Banking, BP – Bank Performance, FL –Item Loadings, CA – Cronbach’s Alpha, CR- Composite Reliability, AVE –Average Variance Extracted.

Discriminant Analysis is a statistical tool that correlate constructs that are higher than any other construct on its scale (Messick, 1988) [36].

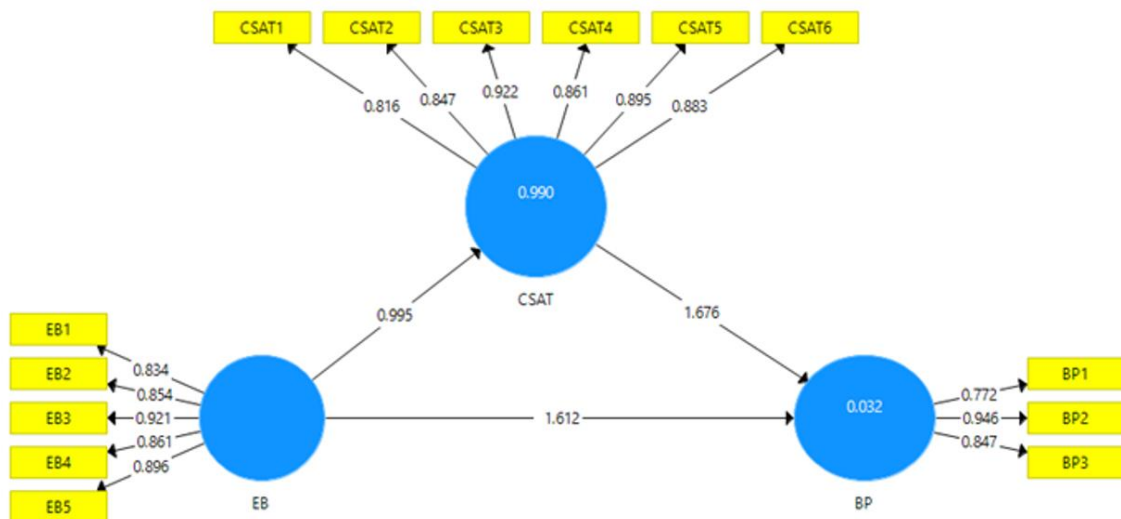
**Table 6:** Discriminant Validity

	BP	CSAT	EB
BP	0.858		
CSAT	0.072	0.871	
EB	0.055	0.795	0.874

The Table-6 above clearly shows factors loaded are higher than any other factor on the scales. Bank performance (BP) on it scale recorded a value of 0.8, customer satisfaction (CSAT) and electronic banking (EB) recorded a value of 0.8 which appears to be higher than the rest on the scale.

**Empirical Findings**

According to Ringle *et al.* (2015) [46] the determination of the significance of t-value, p-value, t-statistics and regression weights are done so as to simulate the model. The outcome of the model tested is presented in table-5 above.



**Fig 2**

**4. Hypothesis Analysis**

Test of hypothesis was carried out on the effect of E-banking on bank performance using the statistical tool SmartPLS V.3 software. The results of the tested variables showed a significant and positive relationship with the predictor variables. Taking the first model, a test was carried out on the effect of E-banking on customer satisfaction. EB ( $\beta = 0.300$ ;  $t = 13.76$ ,  $p < 0.000$ ) and this led to the acceptance of hypothesis (H1). This suggests that E-banking has significant great effect on customer satisfaction. Furthermore, the beta in the results shows that when E-banking increases by 1% customer satisfaction increases by 30%. Thus the more the bank introduces better E-banking services the more the customers will patronize the services of the bank. This findings supports the earlier findings of Aladawani (2001)<sup>[4]</sup>.

**Table 6:** Hypothesis Test

Hypothesis		Beta	T-value	P-value	Action
H1	EB → CSAT	0.300	13.76	***	Accepted
H2	CSAT → BP	0.755	5.48	***	Accepted
H3	EB → BP	0.884	3.89	***	Accepted

Note: EB-Electronic Banking, CSAT- customer satisfaction, BP – Bank performance

We again tested the effect of customer satisfaction on bank performance. CSAT ( $\beta = 0.755$ ;  $t = 5.48$ ,  $p < 0.000$ ) and this led to the acceptance of hypothesis (H2). This suggested that customer satisfaction has greater effect on bank performance. The beta in the results shows that when customer satisfaction increases by 1% bank performance will increase by 75.50%. Thus the more the customers of the bank are satisfied, the more they will patronize the services of the bank which will result to higher sales and subsequently profit for the bank. This is in line with the earlier findings of Bello and Dogarawa (2005)<sup>[8]</sup>.

Lastly, the effect of E-banking on Bank performance was tested. BP ( $\beta = 0.884$ ;  $t = 3.89$ ,  $p < 0.000$ ) and this led to the acceptance of hypothesis (H3). This suggested that the effect of E-banking has significant impact on Bank performance. Furthermore an increase in E-banking by 1% will lead to an increase of Bank performance by 88.40%. Thus the more the banks introduces more innovative E-banking products and services, the more the bank will make a lot of profit. Thus the more the bank will introduce convenient, fast and easy going electronic banking services, the more the people will be happy and would want to pay more for the service. This is in line with the earlier studies of Migdadi (2013)<sup>[37]</sup>.

**5. Discussion**

This research has looked at a number of theoretical implications due to inadequate research works on E-banking in Djibouti. The purpose of this study is to investigate the outcome of E-banking on Bank performance. The outcome has proven a positive relationship between the two variables. The outcomes of the study revealed that when a bank invest more into electronic banking, customers of such banks becomes more satisfied, for that matter becomes more loyal to the bank. Customers becoming more loyal to the bank means they will patronize services of that bank only. This means there will be more sales for the bank which will finally result to profit making. This is in line with the study of Shamsuddoha and Alamgir (2010)<sup>[49]</sup> on E-banking. The

gap for this particular study is the fact that, most works that has been done focused on how employees and customers can improve bank performance in Djibouti neglecting the Electronic banking services.

Furthermore, the outcome of hypothesis (H1) revealed that there is a positive relationship between E-banking and customer satisfaction. The findings shows that the more the bank introduce more of electronic banking services the more the customers will be satisfied. And they will be motivated to be loyal to the company. This is also supported by the works of (Ishengoma 2011; Ankit 2011)<sup>[20, 7]</sup>

Secondly, hypothesis (H2) showed a positive relationship between customer satisfaction and bank performance. The findings depict that the more the customers are happy the more they will patronize the services of the bank. This is in line with the works of (Yeung and Ennew 2000; Mittal and Frennea 2010)<sup>[55, 39]</sup>.

Lastly, hypothesis (H3), showed a positive relationship between E-banking and Bank performance. The findings depict that the more the bank introduces the E-banking services the more the company will make a lot of profit. This is in line with the works of (Ongare 2013; Deyoung, Lang and Nolle 2006)<sup>[43, 14]</sup>.

**6. Contributions**

This study contributes to literature and at the industry level in the area of E-banking and Bank performance. With regards to the industry level, the results of the study will help companies to invest more into Electronic banking so as to achieve the organizational objective, thus profit. The research also revealed that satisfying the customer leads the customer to be loyal to the bank. Which means they will spend more when given the opportunity on that bank. The study also revealed that the introduction of E-banking will motivate more customers to join the company because of the ease of use of the technology. Professional’s, practitioners and other stakeholders must pay attention especially the researchers to E-banking from the developing country perspective.

**7. Conclusion**

This research work focused on E-banking and bank performance. The findings with regards to the E-banking and bank performance shows that when board of directors, management of banks takes into consideration the happiness of their stakeholders like the customers, employees etc. by making the service of the bank very easy for them to access through the E-banking, they will begin to patronize more of the bank services and even goes to the extent of recommending the banks to other customers. They will serve as an apostle of the bank preaching the good services of that bank.

Finally, the banks should find a way of making the electronic services easy to be use, easy to access and faster compared to the conventional system. This alone will yield positive performance in all aspect of the banking services.

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