

The Impact of Banking Industry on Customers Perception of Privacy, Risk and Security on Internet Banking Usage

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Abstract

Despite being closely linked in practice, privacy, risk and security are perceived as separate issues by online users. Therefore, in this article the relationship between various privacy factors (factors that influence users' privacy concerns), risk and the perception of security protection during users' online activities are discussed. The role that perceived privacy, risk and perceived security have on the internet service users' evaluation of a service is investigated. The study population comprises of bank customers at various locations and branches in Ondo state, Ekiti state, Lagos state, Kwara state, Kaduna state and Abuja respectively. Random sampling technique was adopted in the study for a total sampling size of two hundred (200) bank customers through a well-structured questionnaires which were adopted and re-modified. Descriptive and inferential statistical tools were used for the analysis of the retrieved questionnaire such as frequency, percentage, correlation and regression analysis respectively. The correlation between variables indicated strong positive correlation between variables; the correlations are significant at .01 which are within acceptable confidence level. The model however, displayed a good fit and the null hypotheses were therefore, rejected and it was concluded that there is significant relationship between customers' perception of privacy, risk and security on internet banking.

Keywords: Banking Industry, Internet banking, Risk, Security, Privacy.

Introduction

Due to the rapid development of interconnected online information technology infrastructure, financial institutions around the world try to keep with this development as may be seen in the future of commerce and affairs done online (Elbek & Muhammad, 2015). People can do banking operations sitting at home, at work as this can be done through computers or mobile devices. Internet banking was defined as performing financial transaction through internet with the help of banks website (Shao, 2007). When the information technology began that is the development of information systems, the users believes it is difficult to deal with these systems and the prospect of facing a problem in the daily implementation of internet banking. So, we must take into account the fact that the failure to use information technology in the application of banking are often due to lack of users acceptance (Nabeel & Natheer,n2013) and the lack of knowledge in the use of banking applications using information technology, the lack of knowledge indicator leads to falling into some flaws. This flaws and gaps are recorded against the negative use and because it deals with

the systems that contains financial values, and this generates among customers who are not familiar with information technology, fears of using internet banking, and these fears point to the lack of confidence in the application. Since, banks provide internet based services they should have secure and reliable methods of authenticating their customers (Amtul, 2011).

The basic services of internet banking includes, (i) observing account balance (ii) Paying bills (iii) Transferring funds between accounts (iv) requesting credit cards, and (v) Reducing cheques e.t.c (Biswas, Taleb & Shinway, 2011). The internet banking has several benefits for example, financial benefits i.e. owner transaction handling fees and higher deposit rate and faster transaction speed. Moreover internet banking allows users to perform banking transaction anywhere in the world and enjoy 24hrs service, (Lee, 2009). The bank that run-up till date information technology and accounting system have more encouraging conditions in adopting internet banking service than the banks with old internal system (Jenkins, 2007).

Perception of the users on the all accounting practices followed by the banks sites should be designed to overcome personal financial problems of users and can communicate the trustworthiness of the sites effectively (Doherty et al., 2006). In the same vein Muziudzi, Mbizi and Mukwazh (2013) in their researches indicated that good perception about using the internet channel for financial services encourage using it for enhancing the transparency of the financial sector. Therefore, banks must understand their customers' current adoption of internet banking and respond quickly to market developments by identifying reasons that impact customer's perception of security, privacy and risk in internet banking (Yoon & Occena, 2014).

However, a significant body of research indicated that the success of technology is largely dependent on the individual acceptance of the new technology (Kumar, Sharma & Madhumoham, 2014) therefore, there is need to understand individuals belief about technology and how these belief may influence the design requirement of technology related service (Yousafzai & Yani-des-Soriano, 2012).

In addition there is some sort of agreement that the success is determined not only by bankers or government support but also by user's acceptance of it. The latter has a great influence on the adoption of internet banking, (Abusharab & Pearson, 2007; Jarvwahirathanakul & Fink, 2005; Maenpaa, 2006; Pikkarainen, Pikkraimem, Karjahoto & Pahonila, 2004; Yiu, Grant & Edgar, 2007; Yousafzai & Yani-de-Soriano, 2012).

The bank service plays an important role in encouraging customers to use the internet banking services. A lot of surveys showed that it is possible to reduce banking network cost in this way. Daniel (1999) is probably one of the first to show that banks can improve their efficiency through technology adoption and usage. The author showed corporate vision of the future in which the environment becomes more competitive can propel it to use internet banking service. This has made it clear to some researchers like Bauer and Hein (2006) and Lee (2009) that recognizing effect on adoption and usage of these I B services is really important.

By simple review of related literature, one can absorb that risk; security and privacy are important factors in internet banking succession. Since, it is obvious that not all the customers are willing to take these services at a time, the power of understanding the innovation adoption security, privacy and risk of using these services are some of the factors that can influence internet banking usage and adoption, so the main objective of this study is to investigate the impact of banking industry on consumer perception of privacy, risk and security on internet banking usage.

Much studies regarding this scenario has been conducted in developed countries with stable economy with considerably long history of technology adoption. Other studies were done in developing countries. There is therefore, urgent need to study IB usage and adoption in a developing country like Nigeria.

Literature Review

According to Fereshtch, Mahsa, Masoumch and Mohammad (2014), a bank is an institution for maintaining funds raising additional funds and granting credit to the people who need financial resources. A bank collects the funds not in use by their owners and most of them in various sectors or grant facility such as promoting environmental sustainability that is considered by the World Bank. The major activities of banks are considered to collect deposits and making decisions about how to use it. But other banking operations in particular, new functionalities such as online services must be considered. Banks and functions and the roles that they play according to the evolution of technology should be considered simultaneously (Haubrich & Santos, 2005).

In internet banking, information is available in digital formats, internet banking means banking operations through centralized computer systems and networks which are not limited in time and space. By internet banking it is possible to provide consumers with access to banking services, through the use of safe intermediate and without physical presence (Yousafzai, Pallister & Foxall, 2003).

Risk

Risk is a function of the magnitude or extent of goals that a person takes to reach and also the seriousness of the atonement that one must endure while not reaching them. Stone and Winter (1987) defined risk as an individual operation of potential losses. The higher probability of a loss, the more risk is received by the individual. Customers' acceptance is a key indicator of technology usage Sathye (1999) and barriers to internet banking adoption include consumers concern of media information on security breaches, the reliability of online transaction, the security of the internet banking and banks capability of protecting customers' accounts and normalcy, (Rotchanakitummuas & Speecey2003; Wang, Yu,Hsin Hui & Tzung, 2003). Customers therefore are more likely to use internet banking when they receive no risk to their bank accounts and other confidential information and are aware of security measures,(Sathye, 1999; Salisbrury, Pearson,Pearson & Miller, 2001; Cheng, Lam & Yeung, 2006).

Privacy

Privacy refers to the protection of data that are collected either without the knowledge of the user throughout their communication with the knowledge of the users throughout their communication with the internet banking system (Sumchau & Ngai, 2010). Harridge-March, Lifen, Zhao. Hanmer-Lloyds, Ward and Goode (2008) classified that privacy risk is the risk of losing personal controls. Users are concerned that their personal information may be manipulated or misused without their knowledge. Riffai, Grant and Edgar (2012) pointed out that if the banks users believe that the banks protect their personal information, detect fraud and transactions are secure; they are more likely to accept internet banking systems usage and adoption.

Security

Although service provider, financial institution, the media, security organizations, and security experts have continually provided technical information and verbal assurances in dealing with online security, experts have continually provided technical information and verbal assurances in dealing with online security threats. Consumers are fearful of the intruder getting hold of their accounts and other confidential information and hence security prey heavily on consumers' minds (White & Nteli, 2004). The pronouncement on internet banking security by high profile officials that internet banking is less safe than having a traditional account, Cecil, (2010), has heighten consumer concerns of internet banking security . Security refers to the reliability of internet banking and user belief that banking transaction can be done safe and sound. (Maenpao, Kale, Kuseela, & Mesiranta, 2008).

Nasri (2011) conducted a study in Tunisia using a sample of 253 respondent 95 where internet bank users' where 158 were internet non users. Factor analyses and regression technique were employed to study relationship. The model tested the demographic characteristics, prior internet knowledge, security reduced risk information on online banking. The result indicated that use of internet banking is influenced most strongly by security and prior knowledge.

Sohail and Shaik (2008) studied how to measure science quality of internet banking in Saudi Arabia, they developed a list comprising of variables that influence service quality perception. A focus group interview was then conducted. The three factorial groups were named in accordance with the appropriate criteria, "efficient and security" "fulfillment and security" is the most influencing factors in users evaluation of service quality, security which involves protecting users from risk of fraud and financial risk.

Elbek and Muhammed (2015) conducted a review on internet banking security and privacy issues in Oman. Technology Acceptance Model was used to identify whether insecurity in form of trust and risk influence the usage of internet banking. The regression and correlation analysis was used to check the model and relationship of variables. The results of the analysis showed that trust usefulness ease of use has various degrees of influence on customers to use internet banking, it was recommended that all bank should carry out independent audit of their information systems by network security analysis or hackers. The use of centralized repository of population of Oman in one place should be put in place with the help of e-pins for the reason of inter-institutions. Network are more protected and secured and it is either to protect one system effectively, than trying to secure many places at once.

Frimpong and Kwaku (2012) their study provided receptiveness of users on internet banking security with a view to understand trust and security factors in relation to adoption and continuous usage. The study was conducted among the student and staff of Universities in UK and simple random sampling was used to select a sample size of 300. The result revealed that perception of IB security influenced usage internet. Non users viewed internet banking to be insecure but users perceived it to be secured with reduced ease of use influencing continuous usage and adoption. Perception of internet banking security was positively influenced by trust in the internet banking system, trust of the providers, threat awareness, availability of information and education showed negative relationship with age. The study suggests that internet banking security strategy may consider the generation in adoption and should continuously secure customers trust of the products online brand security, including the provision of security, information and education.

Frereshich, Mahsa, Masoumah, and Mohammad (2014) in their study shed light on different aspects of consumer perceived risk and consumer willingness to embrace innovation in online banking service adoption in order to study the total perceived risk. A regression analysis was done by focusing on privacy risk, security risk, performance risk. The result of the study showed that consumer's total perceived risk and willingness to accept innovation both have direct effect on online banking services adoption, while willingness to adopt, innovation has no significant influence on the consumer's total perceived risk. Meanwhile, it seems that social risk cannot increase the consumer's total risk. Besides the consumer risk is forecasted by the execution of a neural network. This forecasting helps to understand whether other consumers that have same feelings as members of study society are willing to adopt online banking service or not.

Ahasanul, Arun, Sabbir and Abdur (2009) tried to find out the significant factors of consumer perception on e-banking transaction by Malaysian bank consumers. The study utilized a combination of theoretical framework and quantitative techniques to test the statistical relationship between consumers perception on e-banking transaction meanwhile factor analysis was performed to extract and make initial decision on the number of factors underlying assets of measured variables of interests. Thereafter, structural equation mode (SEM) was estimated to anticipate the effects of the explanatory variables significant impact on consumer perception about e-banking security followed by services quality and regulatory frame works issues.

Mehwish and Noor-Ul (2012) conducted a survey on the role of satisfaction, security and risk towards customer's turnover intention, questionnaire was used to collect a sample of two hundred and sixty questionnaires from traditional to internet banking with the aid of stratum random sampling technique. Correlating analysis was used to check the relationship of the variables. Regression analysis was used to test the association among the variables. The results of the survey showed that there was significant relationship between satisfaction, security, and risk and customer turnover intention from the traditional to the internet banking.

The Technology Acceptance Model (TAM)

The technology acceptance model (TAM), developed by Davis (1989), is one of the most widely used and influential models in the field of information systems, technology and services. It has been validated to be powerful as a framework to predict user acceptance of new technology. The goal of TAM is to predict information system acceptance and diagnose design problems before users have any noteworthy experience with the system. TAM measures the determinants of computer usage in terms of perceived usefulness and perceived ease of use. TAM has been effective in the modeling of acceptance of IT and has received extensive experimental support through the studies predicting the use of information systems. TAM has proven to be a theoretical model in helping to explain and predict user behavior of information technology. User acceptance remains an obstacle to the success of new information technologies (IT). In an attempt to explain this, Davis (1989) a thorough understanding of the TAM model helps to analyze the reasons for resistance toward the technology and would further enable user to take efficient measures to improve user Acceptance of the technology. TAM used in several IS studies and proved useful determining technology acceptance, especially to explain computer usage behavior. Technology Acceptance Model (TAM) has been widely used to predict user acceptance and use based on perceived usefulness and ease of use. On the basis of the above discussion the following hypotheses have been developed:

- Ho₁. There is no significant relationship between risk and internet banking usage.
- Ho₂. There is no significant relationship between privacy and internet banking usage.
- Ho₃. There is no significant relationship between security and internet banking usage.

Methodology

The study population comprises of bank customers at various locations and branches in Ondo state, Ekiti state, Lagos state, Kwara state, Kaduna state and Abuja respectively. Random sampling technique was adopted in the study for a total sampling size of two hundred (200) bank customers through a well-structured questionnaire which was adopted and re-modified from the work of Chan (2001). The questionnaire comprises of four parts, namely, demographic characteristics of bank customers (comprises of gender, age, education, marital status, profession and status of usage), privacy on internet banking, risk on internet banking and security on internet banking with five likert scale ranging from 1 for strongly disagree to 5 for strongly agree. The reliability analysis on the research variables displayed a high significant value of 0.856. Descriptive and inferential statistical tools were used for the analysis of the retrieved questionnaire such as frequency, percentage, correlation and regression analysis respectively.

Model Specification

The model specified in this study was a modification from the work of Waheed, Khan and Noor-UI-Ain (2013) and Manoranjan, Bhusan, Kanta, and Suryakanta (2012). Waheed *et al.*, (2013) used turnover of customer from traditional banking to the internet banking as dependent variable while satisfaction, security & privacy, and risk & fraudulent as independent variables. Also, Manoranjan *et al.*, (2012) used consumer attention about internet banking as dependent variable while financial risk, physical risk, time risk and functional risk as independent variables. This present study model used bank customers' proxy of gender as

dependent variable and, privacy, risk and security on internet banking as the independent variables as expressed as in equation (1):

$$\text{Customers}' = f(\text{privacy, risk, security}) \quad (1)$$

Equation (1) can explicitly be expressed as:

$$\text{Customers}' = \beta_0 + \beta_1\text{privacy} + \beta_2\text{risk} + \beta_3\text{security} + \varepsilon \quad (2)$$

where:

Bank customers' is proxy of gender (Male & Female);

Privacy on internet banking (comprises of: internet banking services keeps accurate records of my account transaction; internet banking solve problems that might arise; my bank provide knowledgeable staff to solve my internet banking problems; internet banking service adoption has no privacy; and there is privacy protection of the customer from my bank);

Risk on internet banking (comprises of: internet banking service is easy to use; internet banking service provide the language I understand; information contents and texts are easy to use and understand; the instructions in the internet banking service site are clear; internet banking customer service is truly 24 x 7; my overall satisfaction rating of internet banking of my bank is very high; internet banking service performs the services right; and internet banking service adoption is very risky); and Security on internet banking (comprises of: feel safe when using internet banking service site; confident of security of overall internet banking service systems; can log into my account anywhere and anytime; services that internet banking provide are better than I expected; internet service delivers the service exactly as promised; internet bank services completes a task accurately; internet banking services contains frequently asked questions sections to guide users; trust internet banking service of my bank; and isolated internet system are open and located in risky environment).

β_0 = constant term; $\beta_1, \beta_2, \& \beta_3$ = coefficient parameter of the variables; ε = error term .

Results and Discussions

The demographic distribution of the respondents that was administered on the questionnaire. The female respondents have the highest percentage frequency value of 65.5% (131) when compared to the male respondents with a value of 34.5% (69).

The age category of the respondents also contributed to the significant effect of the study. Age category between 18 & 25 years has the highest percentage frequency value of 35.0% (70), which is subsequently followed by age category between 31 & 40 years, 26 & 30 years, 41 & 50 years and 51 & 60 years with percentage frequency value of 27.5% (55), 24.0% (48), 8.0% (16) and 5.5% (11) respectively. However, the effect of educational qualification in the study cannot be ignored as respondents with degree qualification has the highest frequency value of 37.0% (74), which is subsequently followed by respondents having master's degree, illiterate, high school and intermediate with percentage frequency value of 32.0% (64), 19.0% (38), 7.0% (14) and 5.0% (10) respectively.

Furthermore, marital status contributed significantly to the study with respondents that are married having the highest percentage frequency value of 49.5% (99), which is subsequently followed by respondents that are unmarried, widow and divorcee having percentage frequency value of 36.0% (72), 8.5% (17) and 6.0% (12) respectively. In addition, profession of the respondents contributed significantly to the study with respondents that are self-employed having the highest percentage frequency value of 23.5% (47), which is subsequently followed by respondents that are business owners, government employee, student, private employee and house wife with percentage frequency value of 20.0% (40), 19.5% (39), 16.5% (33), 12.5%

(25) and 8.0% (16) respectively. The perception of the respondents on internet banking was also investigated upon in terms of status of usage. Respondents with years of usage between 5 & 10 years has the highest percentage frequency value of 61.0% (122), which is subsequently followed by less than 1 year, between 1 & 5 years and 10 & 15 years having percentage frequency value of 16.0% (32), 14.0% (28), and 9.0% (18) respectively. These values contributed significantly to the study.

Pearson correlation was used for validity analysis to test correlation between variables and shows strong positive correlation between most of the variables; the correlations are significant at .01 which are within acceptable confidence level. This reflects respondents general agreement with the variables included in the study.

The regression results on predicting customers' perception based on privacy, risk and security on internet banking showed the coefficient of determination (R^2) stood at approximately 0.774; this values implies that about 77.4% is been explained by the explanatory variables (privacy, risk and security) in the model while 22.6% is kept unexplained due to unforeseen circumstance in the cause of the research investigation. The adjusted R^2 value of approximately 77.0% explains the true nature of the R^2 . This model however, displayed a good fit.

In the regression analysis, privacy, risk and security as the study variables shows a significant effect based on customers' perception, although privacy and risk are negatively signed but still significant to the study. The level of significant of the variables was ascertain through the p-values (0.000, 0.000 & 0.000) of the t-statistic (-12.262, 17.032 & -9.494) that is lesser than the test of significant at 5% level. The overall test of significant, which is, the F-statistic (223.448), revealed that the formulated hypotheses (as explained above) were significant in explaining customers' perception on internet banking due to the p-value (0.000) of the F-statistic is lesser than 5%. Durbin Watson (DW) statistics was used to test autocorrelation and the value for all variables is 1.576. The closer the value of DW is to 2, the more the evidence is in favour of no autocorrelation (Gujarati, 2006). Thus, the DW value falls within limits and exhibit no problem of auto correlation.

Privacy

It is generally agreed by the respondents that internet banking services keep accurate records of account transaction, although cannot solve all banking issues that might probably occur. Due to the privacy constraints attached to internet banking in solving some challenges, respondents agreed that the banks provide them with knowledgeable staff so as to solve these problems which enhance the privacy protection of the customers of the considered banks. The null hypothesis (H_{01}) is therefore rejected and it is concluded that there is significant relationship between customers' perception and privacy on internet banking.

Risk

It is also generally agreed by the respondents that internet banking is easy to use through the required language services it rendered to customers either through information content or texts which are clearly explained on the internet banking site. It is in view of this respondents agreed that the overall satisfaction rating of internet banking in terms of risk free is very high through it accurate performance at point of execution. The null hypothesis (H_{02}) is therefore rejected and it is concluded that there is significant relationship between customers' perception and risk on internet banking.

Security

There is also a high level of acceptance by the respondents that they feel safe when using the internet banking site due to the overall security confident of the internet banking system anytime customers log into their account at any point of transaction. This revealed that the internet banking system are better than what

the respondents can imagine because it delivers an accurate services to customers by ensuring that the account holder is the rightful operator of the internet system through frequently asked questions to guide customers during point of transaction. This enhances the trust of the internet banking system which in turn secured the account against unsafe transaction. The null hypothesis (H_{03}) is therefore rejected and it is concluded that there is significant relationship between customers' perception and security on internet banking.

Conclusion and Recommendations

All the objectives of this study were achieved with reference to the research. The main objective was achieved as the factors like privacy, risk and security that determines customers' perception on internet banking were identified and analyzed. The relationship of the variables based on customers' perception was found to be positively associated with privacy, risk and security on internet banking. This however, revealed that customers' perception on internet banking has an encouraging factor in the banking industry. It is therefore recommended that the government and the industry regulatory authorities should make a positive impact on customer's mind in order to adopt the internet banking with confidence. Effective cooperation among the banks is needed to develop a platform of internet banking. Also, support from the government and industry regulators should be strengthened to increase the growth rate of internet banking services.

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