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**THE INFLUENCES OF E-SATISFACTION, E-TRUST AND HEDONIC  
MOTIVATION ON THE RELATIONSHIP BETWEEN E-BANKING  
ADOPTION AND ITS DETERMINANTS IN NIGERIA**

**SALIMON MARUF GBADEBO**



**UUM**  
Universiti Utara Malaysia

**DOCTOR OF PHILOSOPHY  
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May, 2016**

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**UUM**  
Universiti Utara Malaysia

**A thesis submitted to School of Business Management,  
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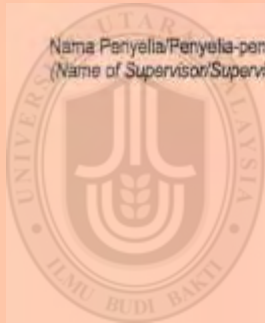


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## ABSTRACT

The main objective of this study is to investigate factors that can predict adoption of e-banking in Nigeria. Specifically, it aims at investigating mediating influences of e-satisfaction, e-trust and hedonic motivation on the relationship between e-banking adoption and its other determinants. The motivation of this study is driven by the inconsistent findings in the literature with respect to the relationships between e-banking adoption and its determinants: perceived usefulness, perceived ease of use, perceived security and facilitating condition. In line with the inconsistencies, various suggestions have emerged pointing to the need to investigate the possible mediating variables that could explain the inconsistencies. For that purpose, this study employed theories of Technology Acceptance Model (TAM), Universal Theory of Acceptance and Use of Technology (UTAUT) and Social Exchange theory to synchronize the possible relationships among the variables in the conceptual framework. Survey questionnaire was advocated and the questionnaires were distributed randomly to 382 customers of four major banks in Nigeria. Out of 291 returned questionnaires, 266 were useable for analysis. PLS-SEM was used to analyze both direct and indirect relationships among the variables of the study. The results reveal that perceived usefulness, perceived security, perceived ease of use, facilitating condition, and awareness are positive determinants of e-banking adoption, e-satisfaction, hedonic motivation and e-trust accordingly with an exception of perceived usefulness that does not determine e-trust. The study also found that e-satisfaction; e-trust and hedonic motivation mediate the relationship between perceived usefulness, perceived ease of use, perceived security and facilitating conditions and e-banking adoption. Finally, managerial, policy and theoretical implications as well as directions for future research are discussed in this paper.

Keywords: Perceived Usefulness, Perceived Ease of Use, E-Satisfaction, E-Trust and Hedonic Motivation

## ABSTRAK

Objektif utama kajian ini ialah untuk menyelidik faktor-faktor jangkaan yang menentukan penerimaan teknologi perbankan elektronik di Nigeria. Secara khususnya, ia memfokuskan kepada kajian tentang pengaruh pengantara yang melibatkan e-kepuasan, e-kepercayaan dan motivasi hedonik ke atas hubungan antara penerimaan perbankan elektronik dan faktor-faktor yang mempengaruhinya. Keperluan terhadap kajian ini dikenal pasti berdasarkan dapatan yang tidak konsisten dan diperolehi daripada sorotan kajian-kajian terdahulu, yang berkaitan dengan penerimaan perbankan elektronik dan faktor-faktor yang mempengaruhinya. Faktor-faktor tersebut ialah tanggapan penggunaan, tanggapan mudah digunakan, tanggapan keselamatan dan situasi yang memberi kemudahan. Selaras dengan hubungan yang tidak konsisten ini, ramai pengkaji bersetuju dengan keperluan untuk mengkaji kemungkinan wujudnya pengaruh pemboleh ubah pengantara yang mampu untuk menjelaskan hubungan ini. Oleh itu, kajian ini menggunakan beberapa teori iaitu *Technology Acceptance Model*, *Universal Theory of Acceptance and Use of Technology* dan *Social Exchange Theory* dengan tujuan untuk mengkaji secara serentak kemungkinan hubungan-hubungan yang wujud antara semua pemboleh ubah dalam kerangka teori. Data kajian telah dikumpul dengan menggunakan borang soal selidik yang telah diedarkan secara rawak dalam kalangan 382 pelanggan yang terdiri daripada empat buah bank terkemuka di Nigeria. Sebanyak 291 borang soal selidik telah dikembalikan, namun hanya 266 borang sahaja yang boleh digunakan untuk dianalisa. PLS-SEM telah digunakan untuk menganalisa hubungan terus dan hubungan pengantara antara pemboleh ubah-pemboleh ubah dalam kajian ini. Hasil kajian menunjukkan terdapat empat faktor penentu yang signifikan kepada penerimaan teknologi perbankan elektronik, empat faktor penentu e-kepuasan, tiga faktor penentu e-kepercayaan dan empat faktor penentu motivasi hedonik. Dapatan kajian ini juga turut menunjukkan e-kepuasan, e-kepercayaan dan motivasi hedonik adalah pengantara kepada hubungan antara tanggapan penggunaan, tanggapan mudah digunakan, tanggapan keselamatan dan situasi yang memberi kemudahan kepada penerimaan teknologi perbankan elektronik. Kajian ini turut membincangkan implikasi terhadap pengurusan, polisi dan teori, serta hala tuju untuk kajian akan datang.

Kata kunci: Persepsi atas kemanfaatan, Persepsi kemudahan penggunaan, E-Kepuasan, E-Amanah dan Motivasi hedonik



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## LIST OF ABBREVIATIONS

PC	Personal Computer
ACB	African Continental Bank
ATM	Automated Teller Machine
AVE	Average Variance Extracted
CBN	Central Bank of Nigeria
DOI	Diffusion of Information
DTPB	Decomposed Theory of Planned Behavior
E-Banking	Electronic Banking
ECS	Electronic Card Scheme
EFTs	Electronic Funds Transfers
E-Satisfaction	Electronic Satisfaction
E-Trust	Electronic Trust
ICB	Industrial and Commercial Bank
ICT	Information and Communication Technology
IFC	International Finance Corporation
KPMG	Kleynveld Main Goerdeler
NDIC	National Deposit Insurance Scheme
PEU	Perceived Ease of Use
PIN	Personal Identification Number
PLS	Partial Least Square
PU	Perceived Usefulness
PKI	Public Key Infrastructure

PoS	Point of Sales
RTGS	Real Time Gross Settlement
SEA	Social Exchange Theory
SEM	Structural Equation Modeling
SPSS	Statistical Package for Social Science
TBP	Theory of Plan Behavior
TRA	Theory of Reasoned Action
UNICEF	United Nations International Children Emergency Funds
US	United States
UTAUT	Universal Theory of Acceptance and Use of Technology
TAM	Technology Acceptance Model



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Service Industry is growing very fast as its major contribution to the development of the world economy is capturing the attention of all Stakeholders (Maiyaki & Mokthar, 2012). Today, the service industry accounts for almost two-thirds of the world economic outputs as the trade service sector constitutes one-fifth of the global trade while the commercial services export sectors are also growing very fast (World Bank, 2010). The contribution of the service sector to the economic development of countries such as Canada, USA, Japan and other industrialized countries of Europe in terms of GDP and employment generation cannot be underrated (World Bank, 2010). Importantly, the service sector in USA creates between 80% and 88% of available jobs while it enables USA to also achieve trade surplus arising from services exportation (Malthora, Ulgado, Agrawal, Shainesh & Wu, 2005; Maiyaki & Mokthar, 2012).

The trend of growth in the service industry is not limited to developed nations alone; developing countries of Asia, Latin America and Africa are also enjoying from the benefits and tremendous growth of the service sector (Park & Shin, 2012). The economic prosperities of Thailand, Singapore, Hong Kong and Malaysia for instance are majorly influenced by the service sector as these countries heavily depend on tourism and other service segments (Park & Shin, 2012). Africa as a continent is also witnessing serious upsurge in service sector as there are enormous business opportunities for consumer goods and services especially with the rising population of these countries (McKinsey

&Company, 2010). McKinsey Global Institute estimates that the service sector's annual revenue will surpass the revenue of other sectors such as agriculture and infrastructure and will reach \$520 billion dollars in year 2020.

Banking, being a sub-sector of the service industry, is also playing a pivotal role in the economy development of the world at large as the sector is supporting and propelling the real sector through mobilization of fund from surplus to the deficit end (Central Bank of Nigeria, 2012). Banks today occupy the center point of the global service industry enabling businesses to be done across the border especially with the advent of information technology and high penetration of internet. For instance, it has been argued that Nigeria banks are majorly contributing to the substantial growth of Nigeria GDP reaching 10.5% in 2009 (Central Bank of Nigeria, 2009) while a recent information states that the share of service sector to Nigeria GDP has increased from 23.6% in 1990 to 50.2% in 2013 (Kale, 2014).

In the recent business environment especially with substantial contribution of the service sector like banking to the development of world economy therefore, internet has become one of the indispensable technology tools being used by various business organizations (Chandio, Irani, Abbasi, & Nizamani, 2013). The reason for this is not farfetched since almost all aspects of human endeavors such as governance, buying and selling, learning, communications, banking and so on, are being touched by the proliferation of the World Wide Web (Odumeru, 2012). Particularly, the technological breakthrough in the fields of computing, communication engineering and electronic has helped many banking organizations to further embrace electronic banking (here called e-banking) as a way to

serve their customers better than the traditional banking system (Chong, Ooi, Lin, & Tan, 2010; Özkan, Bindusara, & Hackney, 2010)

Furthermore, the recent revolutions in the banking industry with new participants and other actors coming into the banking conventional business arena and especially with the globalization of business activities and service innovations, have made competition to be high and consequently forced banks to start providing more choices to their customers (Adesina & Ayo, 2010; Al-Majali, 2011). These developments have further provided enormous opportunities for different service providers to become flexible in terms of service provision since consumers of the contemporary are equally demanding for better services and facilities (Al-Majali & Mat, 2011). E-banking is therefore one of the flexible services being provided by the banks in the recent time (Sohrabi, Yee, & Nathan, 2013).

E-banking has been defined by different authors as a type of banking service that enables customers of banks to transfer funds, make enquiries on their accounts, settle bills, manage stocks online and perform other transactions through electronic communication channels without interacting with the officials of the banks directly (Liébana-Cabanillas, Muñoz-Leiva, & Rejón-Guardia, 2013; Yap, Wong, Loh, & Bak, 2010). Generally, e-banking channels include Mobile banking, Internet banking, Automated Teller Machines, PC Banking, electronic cheque clearing system and so on (Abushanab, Pearson, & Setterstrom, 2010; Central Bank of Nigeria, 2003a; Daniel, 1999; Özkan *et al.* 2010; Salhieh, Abu-Doleh, & Hijazi, 2011). These banking alternative channels are highly evolving and have brought significant paradigm shift in the banking sector and e-commerce industry.

The paradigm shift which electronic banking has brought includes the enormous benefits that can be gained by the customers and the banks. On the part of the customers for instance, e-banking has led to a large reduction in the transfer of physical cash from one destination to another, helps customers to transact at anytime and at their convenience, helps to reduce risk and cases of robbery, enhances better value for money, gives access to more information and makes available better tools to manage their businesses at a very fast pace (Juwaheer, Pudaruth, & Ramdin, 2012; Odumeru, 2012; Yap *et al.* 2010). For banks, overhead is significantly reduced, business processes are reengineered, and abundant opportunities to sell across border are made available while profit pool is improved. It also helps the banks to manage customers effectively, different innovative products are made available, and efficient payment and settlement systems are being introduced (Abushanab *et al.*, 2010; Odumeru, 2012). For instance, Abushanab *et al.* observed that banks spend an average of \$.01 per transaction through e-banking while the cost of similar transaction through branch banking costs an average of \$1.07. This is an enormous cost saving in overhead that can translate to profit.

Consequently in the last few decades e-banking has therefore become an important channel through which banks now made their services available to customers in many countries. It is also becoming one of the necessary tools for succeeding in the global and international business arena as most businesses are being carried out via e-banking (Yap *et al.* 2010). For instance, it is estimated that there are thousands of e-banking websites across the globe making business transactions to be facilitated easily across borders of many countries and bringing development across the globe (Chong *et al.* 2010).



Historically, the first bank to fully integrate internet into its operation in October 1995 was First Network Bank in the USA (Sathye, 1999). E-banking since then has also diffused to other countries of the world. Particularly, it has been observed that all other banks in developed countries such as United States and Europe have embraced e-banking fully while majority of banks in Asia and developing countries like Nigeria have also started serving their customers using e-banking through internet platform (Auta, 2010; Chong et al. 2010; Ndubisi & Sinti, 2006; Odumeru, 2012).

In developed and industrialized nations like USA, UK and other European countries, internet penetration is said be high. For instance, in Latin America about 254.9 million have access to internet and half a billion in Europe (Ajiboye, Kalejaiye, & Dada, 2013). In emerging countries such as Singapore, Malaysia and Brunei etc, the rate of internet penetration is 104.2%, 67% and 56% respectively (Infograph, 2013). In the Asia countries generally, over one billion people have access to internet thereby facilitating easy adoption of electronic banking and other e-commerce system (Ajiboye et al., 2013). In Africa, internet penetration is gradually evolving as 9.8% of global internet users are in Africa with about 268,209,162 million Africans having access to the internet (Internetlivestat, 2014). Though the internet penetration rate of Africa countries is relatively low to that of Asia and developed countries, banks in Africa are also using the penetration opportunity to provide e-banking services to the populace.

Generally, internet penetration is said to be low in Africa when compared to that of some Asia and many of the developed countries. However, Nigeria with population of over 178 million has the highest internet penetration in Africa affording its 67,101,452 people to

have access to internet facilities (Internetlivestat, 2014) and enabling all Banks in Nigeria to offer e-banking services to customers with the exception of those whose branches are located in remote areas and villages of the country (Ekwueme, Egbunike, & Okoye, 2010). Below is the excerpt (Table 1.0) of Internet usage among selected African countries.

Table 1.0

*Excerpt of Internet usage of some selected African countries*

S/N	Country	Population	No of Internet Users	% of Internet Users
1.	Angola	22137261	4433474	19.36
2.	Botswana	2038587	268038	13.15
3.	Ghana	26442178	5171993	19.56
4.	Kenya	45545980	16713319	36.70
5.	Nigeria	178516904	67101452	37.59
6.	Senegal	14548171	3194190	21.96
7.	Tanzania	50757459	7590794	14.96
8.	Uganda	38844624	6523949	16.79
9.	Zimbabwe	14599325	2852757	19.54

Source: Internetlivestat.com (2014)

Despite the high proliferation of internet among Nigerians as shown in the above table and the wide acknowledgment of the benefits of e-banking however, KPMG (2013) specifically reported that the rate of e-banking adoption in Nigeria is abysmally low when compared with other African countries like Kenya, Botswana, Zimbabwe, Uganda, Senegal, Ghana, Tanzania, Angola and Coted'Ivoire. Though, KPMG found that e-banking daily transactions in Nigeria do exceed 80 billion Naira; the country is still ranked low in electronic banking platforms such as mobile banking (2%) and mobile payment (1%) performance when compared with the performance of other selected African countries. Practically, amongst the factors that are identified for the low adoption of e-banking in Nigeria include high rate of insecurity and fraud, lack of awareness

among the customers, concentration of service provider in urban centers, lack of users friendliness of e-banking platform, difficulty of the channels, lack of interactive enjoyment and unreliability of the alternative channels (Auta, 2010; KPMG, 2013, 2014). For instance, KPMG (2014) notes that Nigerians adopt web-enabled gadgets very fast as they happily chat, surf and shop on their phones and other social media but few of them use e-banking to carry out their transaction due to lack of interactive enjoyment as majority of the customers easily get frustrated while using the e-banking channels. KPMG in this instance suggests that improvement in the customer experience by adding some robust features that will help to increase the rate of popularity and rate of adoption of e-banking in Nigeria.

Furthermore, International Finance Corporation (IFC) (2011) while corroborating the findings of KPMG (2013) also found that poor infrastructural facilities, poor regulatory environment, insecurity, and low trust in the financial institutions are some of the issues causing low adoption of e-banking in Nigeria. For instance, due to insecurity situation in Nigeria banking sector, it is estimated that a sum of N159 billion was generally lost to electronic frauds as at 1<sup>st</sup> quarter of 2013 (Uzor, 2013) thereby causing high level of distrust for this channel.

In comparing the performance of Nigeria with other selected African countries, Figure 1.0 below further shows the position which Nigeria occupies among other countries.



Figure 1.0. Mobile Payments and Mobile banking adoption rates in some African Countries (Source: KPMG (2013), Africa Banking Industry Customer Satisfaction Survey)

To further support the findings of KPMG (2013) and IFC (2011), other authorities also assert that e-banking is generally associated with various forms of issues which may have resulted to its poor performance globally. These issues are categorized into four groups of strategic, technological, operational, and reputational (Salhieh *et al.* 2011). The strategic issues are associated with board and management decisions with respect to policy formulation; technological challenge revolves round system break down, systems errors, defects in software, mistakes in operations, vulnerabilities of network, security inadequacies, cases of hackings, and ineffective recovery system (Central Bank of Nigeria, 2003b; Bahamas, 2006). Reputational issue includes significant negative public opinion about the banking institutions especially with consolidation and recapitalization of the banks that results in a critical loss of funding or customers (Basel Committee, 2000; Sanusi, 2011). These issues have gone a long way to affect the rate of e-banking adoption globally and in Nigeria in particular.

In addition to the practical evidences as initially shown, various academic literature though assert that e-banking remains an important channel of service to the customers and the banks; its rate of adoption is astronomically dropping. This is evident as recent cases have revealed that using technology to provide financial services is not living up to expectation and promises (Chiou & Shen, 2012; Liebana-Caniballas *et al.* 2013; Kesharawani & Radhakrishna, 2013; Kolodinsky, Hogert & Hilgert (2004); Shorabi *et al.* 2013). For instance, Kesharawani and Radhakrishna in their studies report that generally, users of e-banking are apprehensive while using e-banking channels for reasons that are adduced to lack of security (43%), unfriendly users interface of e-banking channels (39%), inadequate supporting facility (2%), and hostile users' environment (2%). This same position has been maintained by Kolodinsky *et al.* who conducted their studies in USA and discovered that one third of customers who had adopted e-banking services have stopped usage due to lack of satisfaction, lack of security and complexity of the channels.

Furthermore, the findings of Adesina & Charles, (2010), Auta, (2010), Dogarawa, (2010), Ezeoha ,(2005), Yapet *al.* (2010) reveal that e-banking channels are faced with several challenges. For instance, Adesina and Charles assert that even though e-banking services are numerous in Nigeria, evidences have revealed that lack of adequate security and insufficient facilities are among the factors causing low adoption but theoretical evidence to validate this is lacking. This same position has earlier been stated by Yap *et al.* when the authors note that news headlines about identity theft, scams, and phishing have culminated to lack of trust among users of e-banking and this has made the growth rate of e-banking not to keep pace with that of internet usage and recommended that trust in e-

banking should further be investigated empirically. Dogarawa, in line with others equally found that e-banking performance is far from satisfying the customers since many branches are still witnessing long queues while majority of customers are still handling huge cash for their transactions.

In view of the challenges being faced by e-banking, attentions of many researchers have been drawn to look into this. However, evidence has shown that there exist major gaps among the literature. The existence of such gaps is evident between e-banking adoption and its determinants globally as previous studies have produced mixed and conflicting results and thereby making it difficult to articulate factors that can be used to predict e-banking adoption (Al-Majali & Mat 2011; Kolondinskey *et al.* 2004; Ndubisi, & Sinti, 2006) and this further indicates that research on e-banking is still inconclusive.

## **1.2 Problem Statement**

It is arguable that e-banking has become an important platform that is helping banks and their customers to achieve their daily financial transaction objectives (KPMG, 2013, 2014). While this study cannot disconfirm the available arguments in support of this platform, there are reliable evidences that reveal that the rate of e-banking adoption is low globally while the case of Nigeria quickly calls for a major attention (IFC, 2011, KPMG, 2013, 2014). For instance, IFC and KPMG, traced the low rate of adoption in Nigeria to lack of awareness, insecurity, poor and inadequate infrastructural facilities, complexity of channel, lack of satisfaction and low level of trust among others. This same position has also been supported by other authorities that confirm that using technology to provide bank service has not lived up to the expectation (Chiou & Shen, 2012;

Kesharawani & Radhakrishna, 2013) . This low rate of adoption has almost defeated the new initiative of cashless policy recently introduced by Central Bank of Nigeria since majority of bank transactions are still being handled through cash processing (Odumeru, 2012) and which has further increased the cost of doing business and the vulnerability of the banks and their customers.

In view of the challenges being faced by e-banking around the globe many studies have been conducted with regards to its implementation and adoption especially in developed countries where the technology emanated (AbuShanab, *et al.*, 2010; Chong *et al.*, 2010; Sathye, 1999). Parts of the issues that are often discussed with regards to e-banking adoption include the degree of its usefulness, its ease of use, awareness of its full benefits, security concerns, facilitating conditions, level of satisfaction, trust, hedonic motivation and adoption difficulties (Adesina & Ayo, 2010; Akhlaq & Ahmed, 2013; Davis, 1989; Pikkarainen, *et al.* 2004; Venkatesh, Thong & Xu, 2012; Yang, 2009; Yap, *et al.* 2010).

Undoubtedly, the implementation of e-banking as a form of technology can generate many benefits for banks and their customers (Al-Majali & Mat, 2011; Chong *et al.* 2010; Tan & Teo, 2000). The benefits that may be derived from this technology include but not limited to cost reduction, effective service delivery, reduction in the rate banking fraud, competitive advantage, convenience, and increase in market share (Al-smadi, 2012; Ho & Ko, 2008; Safeena, Date & Kammani, 2011). However, several studies have empirically argued that the implementation and adoption of e-banking technology has not really brought about the desired and significant benefits in business relationship between the

banks and their customers (Adesina & Ayo, 2010; Agwu, 2012; Ibok& Ikoh, 2013; Odumeru; 2012). In fact existing studies have established that almost 50% of technology implementation (e.g., Hussein & Mourad, 2014) like e-banking often fails. This stems from the fact that e-banking channels are fraught with several challenges while its implementation as a technology has not measured up to the standard of the adopters (Hussein & Mourad, 2014; Ndubisi & Sinti, 2006).

Consequently, extant studies have discussed the relationship between e-banking adoption and its determinants with the purpose of finding better ways of resolving the problem of low adoption, however, disagreement remains about how this technology can effectively be adopted (Al-Majali & Mat, 2011; Ndubisi & Sinti, 2006). One of the reasons that account for this is the inconsistencies in the findings of previous studies and which indicates that e-banking adoption research is still inconclusive especially in developing countries (AbuShanab *et al.* 2010; Al-Majali & Mat, 2011; Ndubisi & Sinti, 2006).

For instance, perceived usefulness which refers to the extent to which e-banking is perceived to be useful in achieving users objectives (Davis *et al.*, 1989) has been widely researched and found to be significant in various contexts and especially in the prediction of e-banking adoption by most studies (e.g, Al-Majali & Mat, 2011; Chong *et al.* 2010; Tanet *al.*, 2010). However, contrary findings have been reported by some studies (e.g., Aboelmaged & Gebba, 2013; Kashier& Alexandria, 2009; Wang, 2008).

Furthermore, perceived ease of use has also been widely researched by previous studies but the outcomes of such studies are mixed. For instance, some of the studies present significant relationship (Akhlaq & Ahmed, 2013; Juwaheer *et al.* 2012; Lin & Nguyen,



2011; Tan *et al.* 2010) while others present insignificant relationship (Chandra, Srivastava & Theng, 2010; Puschel, Mazzon, Hernandez, 2010; Wessels & Drenna, 2010).

In addition, review of perceived security studies with relation to adoption of e-banking technology has been found to be inconsistent. Some authors like Aliyu, Younus and Tasmin, (2012), Chandra *et al.* (2010), Nor, Barbuta-Misu, and Sroe, (2011) and Shorabi *et al* (2010) for example all found perceived security to be positive in the prediction of e-banking adoption while some other scholars assert that same variable is not significant (e.g., Lichtenstein & Williamson, 2006; Tan *et al.*, 2010).

Moreover, the study of relationship between facilitating condition and e-banking adoption has also been found to be inconsistent. For instance, Chong *et al.* (2010), Tanand Teo (2000), Wu and Kuo (2008) and You (2011) found significant relationship between facilitating condition and e-banking adoption. However, AbuShanab *et al.* (2010), Maditinios, Chatzoudes, and Sarigiannidis, (2013) found a contrary insignificant relationship between facilitating conditions and e-banking.

In line with the above, awareness as a predicting variable has been researched by various scholars. However, the findings of these studies in predicting technology adoption have been inconsistent. A few examples indicate that awareness is significant and positive in e-banking adoption prediction (Al-Majali, 2011; Deb & Lomo-David, 2014; Ismail & Mohammed, 2012) while Prakash and Malik (2008), and Alfahim (2012) found insignificant relationship.

Notably, the inconsistencies as stated above seem to occur because several of the studies did not empirically take into consideration the mediating factors of e-satisfaction, e-trust and hedonic motivation that can enhance the relationship between e-banking adoption and its determinants (Baron & Kenny, 1986; Sekaran & Bougies 2010). Few studies that have however discussed e-satisfaction, e-trust and hedonic motivation in e-banking adoption model either discuss them in isolation, suggest them as intervening or as dependent variables but did not empirically test their mediating effect (e.g. Akhlaq & Ahmed, 2013; Eid, 2011; Liebannis-Cabanillas *et al.* 2013; Pagani, 2004; Pikkarainen *et al.*, 2004; Yap *et al.* 2009). Aside, the only study that investigated e-satisfaction in the content of online shopping was that of Lin and Sun (2009) and found a significant positive relationship between e-satisfaction and TAM factors but their study did not specify the different TAM factors which influence e-satisfaction as they aggregate such factors into one construct called “technology acceptance factor”. Pagani (2004) was also the only scholar who used perceived enjoyment (hedonic motivation) as an intervening variable in a qualitative study of third mobile generation while Akhlaq and Ahmed (2013) and Yap *et al.* (2009) tested intervening effect of E-trust in the field of internet banking adoption using intention as dependent variable and thereby ignoring the full mediation of this important variable. And as noted by Yap *et al.*, that despite the ability of e-trust to reduce perception of risk, no empirical study has been carried out in this regard. The scholar further argues that it is essential for banks practitioners and scholars to understand how trust in e-banking evolves and this can only be done if the trust can be treated as a mediating variable.

Trust therefore plays a very important role in the acceptance of e-banking and is provoked in an individual through both extrinsic and intrinsic factors. And as equally noted by Akhlaq and Ahmed, that by integrating such factors through trust, a richer understanding of an individual's underlying belief and subsequent adoption e-banking banking can be gained. This therefore points to the fact that trust acts an important mediator to boost adoption by relating the effect of other predictors to the adoption.

This assertion is equally buttressed recently by Sharifi and Esfidani (2014) who argued that since trust is based on the belief that other party in a relationship will perform as agreed; it is therefore regarded as the heart of other factors as the greater the trust, the longer the relationship. In this sense, trust in e-banking serves as an important mediator that can increase the rate of adoption and should further be investigated.

Consequently some scholars have therefore suggest that since there is lack of empirical studies in this respect, further studies should be carried out (Susanto, Lee, Zo & Ciganek, 2013; Wei & Chong, 2009; Yap et al, 2009; Zeng, Zuohao, Chen & Yang, 2009)as testing full mediation will enhance the relationship between e-banking adoption and its determinants (Baron & Kenny, 1986).In view of this, this study used perceived usefulness and perceived ease of along other external variables such perceived security, facilitating condition and awareness to predict e-satisfaction, e-trust and hedonic motivation towards e-banking adoption.

Furthermore, reviews of previous studies have equally revealed fragmentation in the models being used to predict e-banking adoption globally (Al-Majali & Mat, 2011; Ndubisi & Sinti, 2006). For instance, while Chong *et al.* (2010) examine five factors such

as perceived usefulness, perceived ease of use, government support, trust and adoption, Juwaheer *et al.* (2012) investigate 13 variables (perceived usefulness, perceived ease of use, subjective norms, attitude, behavioral intention, security, trust, awareness, age, income education gender and adoption). Adesina and Ayo (2010) include 6 variables (computer self efficacy, perceived credibility, perceived usefulness, perceived ease of use, attitude and usage of internet banking) while Yousafzai and Yani-de-Soriano (2012) investigate perceived usefulness, perceived ease of use, optimism, innovativeness, insecurity, discomfort, age, gender and intention to use.

Similarly, fragmentation is also noticed in e-trust and e-satisfaction model. For instance, while Yap *et al.* (2009) examine 6 predictors of e-trust (size of the bank, image, perceived privacy, perceived usefulness and perceived ease of use), Akhlaq and Ahmed (2013) examine perceived ease of use and perceived enjoyment (intrinsic motivation) and perceived usefulness (extrinsic motivation) while Yousafzai *et al.* (2009) examine five predictors (perceived ability, perceived benevolence, perceived integrity, perceived security and perceived privacy). Wang, Ngai and Wei, (2012) examine five predictors of e-satisfaction (perceived social presence, perceived media richness, perceived usefulness, and perceived enjoyment), Liébana-Cabanillas *et al.*,(2013) examine e-banking satisfaction using 3 predictors such as perceived usefulness, perceived ease of use accessibility and trust. The fragmentation is an indication that e-banking research is still in the infancy stage and further research is required to enhance our understanding of e-banking adoption (Ndubisi & Sinti, 2006).

Furthermore, despite the problems of low adoption facing e-banking in developing countries generally and Nigeria in particular, few studies have been conducted to investigate the reasons and causes of the low adoption (AbuShanab *et al.* 2010; Adesina & Ayo, 2010; Agwu, 2012; Akhlaq & Ahmed, 2013; Chong *et al.* 2010; Ibok & Ikoh, 2013; Kesharwani & Radhakrishna, 2013; Odumeru, 2010; Safeena *et al.* 2013) as most previous studies seem to concentrate on emerging and developed economy. For instance, Ibok & Ikoh assert that even though e-banking has been regarded to be important in several ways, fewer studies are available in the context of Nigeria and no attempt has been made to examine the reasons why the adopters are not satisfied with the service being rendered to them.

This same position has further been supported by other studies that equally maintain that the issue of trust which has been empirically found to be important in other information system and banker-customer traditional relationship especially in developing countries where legal system is weak has been largely neglected in electronic banking ‘virtual’ relationship (Akhlaq & Ahmed, 2013; Kolodinsky, *et al.* 2004; Yap *et al.* 2010). In fact Adesina and Ayo assert that the need to validate customer acceptance of e-banking through a comprehensive research is highly needed as this will help to increase the rate of patronage while Yap *et al.* recommended that trust in e-banking environment should be researched further.

In addition, most existing technology adoption theories and models have not been extensively tested outside developed countries (AbuShanab *et al.* 2010). Particularly, Alhudaithy & Kitchen, (2009) noted some limitations in most of the technology adoption

models as most of the theories are broad, vague and do not encompass all variables that can influence adoption of technology.

Furthermore, most of the existing literature on e-banking seems to concentrate on intention whereas adoption of technology which focuses on customer usage and retention has been neglected (Ho & Ko, 2008). Importantly, retaining customer using electronic banking is more significant than acquisition and building a relationship that is satisfying and trusting can be more rewarding for the organization (Akhlaq & Ahmed, 2013; Aldás-Manzano, Lassala-Navarré, Ruiz-Mafé, & Sanz-Blas, 2009).

Based on the aforementioned practical issues (most importantly, low adoption of e-banking in Nigeria banking sector) and various theoretical gaps, this empirical study investigated the relationships between perceived usefulness, perceived ease of use, perceived security, facilitating conditions, awareness and e-banking adoption. This study shall also examine the mediating effects of e-satisfaction, e-trust and hedonic motivation on the relationship between e-banking adoption and its determinants within Nigeria banking sector.

### **1.3 Research Questions**

Following the issues discussed in the research background and problem statement and in order to determine factors that affect the continuous adoption of e-banking in Nigeria, the following research questions are important:

1. What is the relationship between perceived usefulness, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria?

2. What is the relationship between Perceived ease of use, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria?
3. What is the relationship between perceived security, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria?
4. What is the relationship between facilitating conditions, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria?
5. What is the relationship between awareness and e-banking adoption in Nigeria?
6. What is the relationship between e-satisfaction, e-trust, hedonic motivation and e-banking adoption
7. Do e-satisfaction, e-trust, and hedonic motivation positively mediate between perceived usefulness, perceived ease of use, perceived security, facilitating conditions and e-banking adoption in Nigeria?

#### **1.4 Research Objectives**

This study intends to study the effect of factors that influence the adoption of e-banking in Nigeria. In order to do this, the following are the objectives of this research which are meant to operationalize the research questions.

1. To determine the relationship between perceived usefulness, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria.
2. To determine the relationship between perceived ease of use, e-satisfaction, trust, hedonic motivation and e-banking adoption in Nigeria.
3. To determine the relationship between perceived security, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria.

4. To determine the relationship between facilitating conditions, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria?
5. To determine the relationships between awareness and e-banking adoption in Nigeria.
6. To determine the relationship between e-satisfaction, e-trust, hedonic motivation and e-banking adoption
7. To determine whether e-satisfaction, e-trust, and hedonic motivation positively mediate between perceived usefulness, perceived ease of use, perceived security, facilitating condition and e-banking adoption

### **1.5 Significance of the Study**

This research studied the e-banking adoption in Nigeria. Given the importance of e-banking globally, studying factors that influence its adoption will significantly contribute to the body of knowledge and the outcomes of the research will help banking practitioners and policy makers to come up with policies that will solve miriads of problems confronting the banks and that will eventually improve the rate of e-banking adoption.

#### **1.5.1 Significance to Academics**

This study has reviewed literature extensively and come up with empirical findings. This research has therefore contributed to theory through its conceptual framework which has established a link between e-banking adoption and its determinants. The study has equally given opportunity to academic scholars to theoretically link e-banking determinants with e-satisfaction; e-trust and hedonic motivation through mediating



effects of the latter variables on e-banking adoption and its determinants within the Nigeria banking sector. Although there are existing literature that have established relationships between perceived usefulness, perceived ease of use, facilitating conditions, perceived security, awareness and e-banking adoption in different attempts (Akhlaq & Ahmed, 2013; Aldás-Manzano *et al.* 2009; Chandio *et al.*, 2013; Musiime & Ramadhan, 2011; Wang *et al.* 2003), studies that empirically established the mediating effect of e-satisfaction, e-trust and hedonic motivation on the relationship between e-banking adoption and its determinants seem scarce. Furthermore, this study has also made additional contribution through identifications of constructs that can be used to measure e-satisfaction, e-trust and hedonic motivation in the banking industry and which can link e-banking adoption to various predictors. All these have contributed to theory by making available a model that can ease predictions of e-banking continuous adoption in the nearest future.

This therefore implies that this study has added new information to the body of knowledge by extending TAM as a comprehensive model that can be used to investigate adoption of e-banking generally. In addition, the newly developed model with its hedonic motivation as a mediating variable has not been applied in developing countries in general and in Nigeria in particular. The inclusion of hedonic element as a mediating variable is therefore coming as an important contribution especially in the field of e-banking adoption since such variable has not been considered by previous scholars. It therefore suffices to say that this study has largely advanced new theory through this major contribution and this study will continue to be a point of reference for the academic scholars who may be interested in investigating adoption of e-banking.

### **1.5.2 Significance to Practitioners**

Practically, this study contributes majorly through recommendations for the purpose of improving the rate of e-banking adoption in Nigeria. Since extant studies have found that majority of e-banking users are not satisfied with and do not trust e-banking channels in Nigeria, the findings of this study would assist executive bankers and policy makers to come up with innovative and good policies and strategies that can help in the enhancement of e-banking channels designs with good interface and that are easy to operate. Aside, the study also makes recommendations towards ensuring that banks and the government make available necessary infrastructure that will enhance e-banking usage as well as ensuring that the banks always embark on awareness campaign and promotion for the purpose informing the users and intending users about the full benefits of e-banking.

In addition, the findings of this study is practically useful for Central Bank of Nigeria in its implementation of new cashless policy that tends to encourage virtual banking among Nigerians. Presently, financial transactions in Nigeria are majorly cash dominated as the handling cost is getting soared by the day and bearing on the profit being made by banks and increasing the vulnerability of the stakeholders. However, with the findings of this current study, it is hopeful that the tide of cash usage and its associated cost shall be reduced. For instance, KPMG (2013) in their report revealed that value of daily electronic funds do exceed ₦80 billion (eighty billion naira) per day; this amount can be increased if the e-banking channels can be improved on and with the findings of this study, the milestone can be achieved.

Further, issue of electronic-fraud has almost become a nightmare for the banks and their customers in Nigeria and across the globe. For instance, recent reports have indicated that rising cases of electronic frauds have made some deposit money banks and their customers to lose billions of naira thereby causing some banks in China, United States and other countries to stop the usage of Nigeria electronic payment cards. In this view, findings of this study will continue to help banks in Nigeria to come up with good policies through which occurrence of electronic frauds will be reduced significantly.

In addition, hedonic element which is found to be significant in predicting adoption of e-banking among other factors points to the fact that banks should not just emphasize utilitarian element of the online banking platforms but should equally lean on the intrinsic aspect. This finding therefore places responsibility on bank practitioners to incorporate those attributes that will serve the duo functions of usefulness and fun. Today, several organizations have started yielding to these calls by incorporating music, cartoons and other animation into their different online platforms. And as noted by (Lowry et al, 2013), hedonic motivation system is outweighing utilitarian motivation system by clocking billions in sales revenues annually and it is only an organization that can switch to this mode that will be able to join the team of winners.

### **1.6 Scope and Limitations of the Study**

This research is concerned with the factors affecting the continuous adoption of e-banking in Nigeria. The banking sector is chosen because of the challenge it is facing especially in the area of e-banking services. Importantly too, this sector occupies strategic position in the economic development of the nation thereby requires a study of this nature

to resolve some issues that are related to poor adoption of e-banking globally. In carrying out the study therefore, the study focuses on factors that are determining the adoption of e-banking in Nigeria. In doing this, the study extensively reviewed literature on Technology Acceptance Model major constructs (Perceived Usefulness and Perceived ease of use) (Davis, 1989). This model is chosen because extant authors have proved that TAM is parsimonious, simple, robust and superior than any other predictive information system model (Chang, 2010; Venkatesh & Bala, 2008; Yousafzai *et al.* 2009). In addition, the study also considered other constructs such as perceived security, facilitating condition, awareness as an extension of TAM (Abushanab *et al.*, 2010; Pikkarainen, Pikkarainen, Karjaluoto, & Pahlila, 2006; Tan *et al.* 2010). This research investigated e-banking adoption using these five constructs since extant theoretical and practical findings have revealed that these are the major issues facing Nigeria banks and customers. Most importantly, the study also delved into e-satisfaction, e-trust and hedonic motivation by establishing the mediating effects of the three constructs. This is very important since e-trust, e-satisfaction and hedonic motivations remain areas that have been underresearched in e-banking adoption.

Additionally, the study was carried out in Lagos State alone while four commercial banks were selected for the study. The selection of the four banks will help to increase external validity of the study as the result that is obtained will be generalized to other banks (AbuShanab, *et al.* 2010). As part of the scope, this study also considered holistically various types of e-banking services such as mobile banking, internet banking, ATM, Pos and so forth.

## 1.7 Operational Definition of Terms

It is important to operationally define some terms that are used in this research. Defining them in this way will help in their measurement and clearer understanding by critically consider their facets and properties. In this wise, the terms that are used in this research are defined as follows:

- a. Perceived Usefulness: This refers to the degree of believe which bank's customers have that using e-banking will help them to achieve their daily financial objectives.
- b. Perceived Ease of Use: This refers to the level of believe that using electronic banking will be free of both physical and mental effort.
- c. Perceived Security: This refers to the perception that transaction carried on the electronic banking website or other channels would be secured from intruder and no loss would be incurred in terms of private data or information supplied.
- d. Facilitating Condition: The perception that necessary supporting facilities that can generate behavior such as stable electricity, online enquiries, government regulation, stable internet services, training and so on are available
- e. Awareness : This refers to the availability of information about the full benefits, risks, and usage process that can make users of e-banking to continue usage
- f. E-Satisfaction: This refers to the online judgment of overall experience of users with regards to expectation and performance of electronic banking.
- g. E-trust : Willingness to use electronic banking with the expectation that the service provider will act according to service agreement, irrespective of the ability of customers to control or monitor the actions of the bank on the web.

- h. Hedonic Motivation: This refers to the fun or enjoyment which users derive and which serves as motivation while using e-banking.
- i. Adoption: This refers signing of contract and full usage of electronic banking channels to achieve banking transactions such as funds transfer, payment of bills, balance checking, and standing order and so on. The adoption is retention rather than an acquisition technique.

### **1.8 Organization of Thesis**

This research consists of six chapters. The summary of each chapter is stated below:

Chapter one is the background of the study and provides general overview of e-banking issue especially with the advent of internet technology. It also presents research problem statement, research questions, objectives of the study, significance of the study, scope and limitation of the study and organization of the thesis.

Chapter two is the literature review of the research and established underpinning theories of the study, defined concept of e-banking, and offered theoretical background for the study. The chapter also did a detail review of literature upon which the theoretical framework of the study was developed.

Chapter three introduced the Research Model and the Hypotheses based on the literature review of chapter two, with necessary constructs that determine e-banking adoption within the banking industry.

Chapter four contains the methodology of the research and details the quantitative approach that was employed in the course of the study. The chapter discusses the

research design, population of the study, sampling procedures, data collection and discussions on how the data of the study was collected and validated.

Chapter five contains analysis and presentation of the empirical results of the research.

Finally, chapter six summarizes and concludes with respect to the research questions and objectives of the study. The chapter also points out both practical and theoretical contribution of the study while it makes recommendations for future research.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents a detail review of literature with respect to adoption of e-banking in Nigeria. The chapter generally discusses the overview and origin of banking sector in Nigeria banking crisis and outlook, forms of e-banking channels, benefit of e-banking and key e-banking issues. The chapter also discusses underpinning theories of the study while the core constructs of the study with respect to the justification of their selection.

#### **2.2 Overview and origin of Banking Sector in Nigeria**

Origin of banking in Nigeria can be traced to the period between 1892 and 1894 when First Bank of Nigeria and African Banking Corporation were founded (Ajayi & Sosan, 2013; Dogarawa, 2011; Ezeoha, 2007). Down the history line, Banks owned by British colony have established their presence in Nigeria since they engaged in different forms of transactions which had impact on financial, trade and commercial activities of all West African countries ( Uche, 1999). Barclays bank started financial operations in Nigeria in 1925 through successful merger with the Anglo-Egyptian Bank, National Bank of South Africa and Colonial Bank (Ajayi & Sosan, 2013). In 1948, another bank called the British and French Bank for commerce and industry that later became United Bank for Africa was formed. Unfortunately however, these financial institutions were not serving the interest and needs of Africans and this perhaps led to the establishment of African Continental Bank (ACB) by Dr Nnamdi Azikwe. Though ACB was established later,



there are facts that it was not the first Nigeria bank to be established since Industrial and Commercial Bank (ICB) has been founded in 1929 as first indigenous bank but was liquidated in 1930 due to accounting incompetence, operations weakness, embezzlement and effects of economic recession of that time (Spulber, 1990). In 1931, the ACB was established to replace ICB and later established its branches in Lagos and Aba but also went into liquidation after six years of existence.

Furthermore, another milestone was achieved in 1947 when the Nigerian Farmers and Commercial Bank was also established. However, as a result of incessant crisis and numerous establishments of these indigenous banks, Mr. G.D. Paton who was an official of Bank of England was appointed to make general enquiries into the incessant crisis and make recommendations to the government. The report of these enquiries as submitted in 1952 led to the formulation of the first Ordinance Act that would ensure orderliness of commercial banks operations as well as prevent the establishments of banks that would not be viable (Beck, Cull, & Jerome, 2005). Importantly too, in 1958, legislation Draft which would ensure the establishment of Central Bank of Nigeria was presented to the House of Representatives and was passed into law for full implementation on the 1st of July 1959. The implication of this is that between 1892 to 1952, banking operations in Nigeria was free of regulation since anyone could establish a bank provided such a bank has been registered under Companies' Ordinance Act<sup>12</sup> (Ajayi & Sosan, 2013; Ezeoha, 2007).

In addition, within the period of 1959 and 1989, different and new banks started coming up due to the deregulation of the finance and banking sector which was introduced

through the creation of Structural Adjustment Programme (SAP) (Dogarawa, 2011; Nwagbara, 2011). This period equally witnessed the establishment of many deposit taken banks, finance houses, mortgage and loans houses and community banks. It was during this period (1988) that Nigeria Deposit Insurance Corporation (NDIC) was also established to complement the efforts of CBN in financial reforms and policy formulations (Dogarawa, 2011). The NDIC was charged with the responsibility of ensuring safe and sound banking services and insuring bank deposits through effective supervision. It was the basis of its assistant supervisory role with the Central Bank that the NDIC Act was useful.

Within the period of 1989 and 2012 however, many reforms have taken place in the landscape of banking institutions in Nigeria. Series of these reforms are in forms of consolidation, merger and acquisition. The latest of the reforms were done in 2005 and 2009 when commercial banks in Nigeria were transformed and rationalized (Anyawu, 2010). The latest transformation and rationalization of banks in Nigeria came up as a result of global financial meltdown and which urgently require proactive steps from Central regulatory Authority in Nigeria.

### **2.3 Banking crisis and recent outlook of banking system in Nigeria**

In 2007-2009, the global economy was generally hit by an economic and financial crisis as caused by the subprime bubble of August, 2007 in the USA. This crisis which led to the fall of many global renowned financial institutions also brought recession and made the entire nation to be bankrupt (Central Bank of Nigeria, 2010).

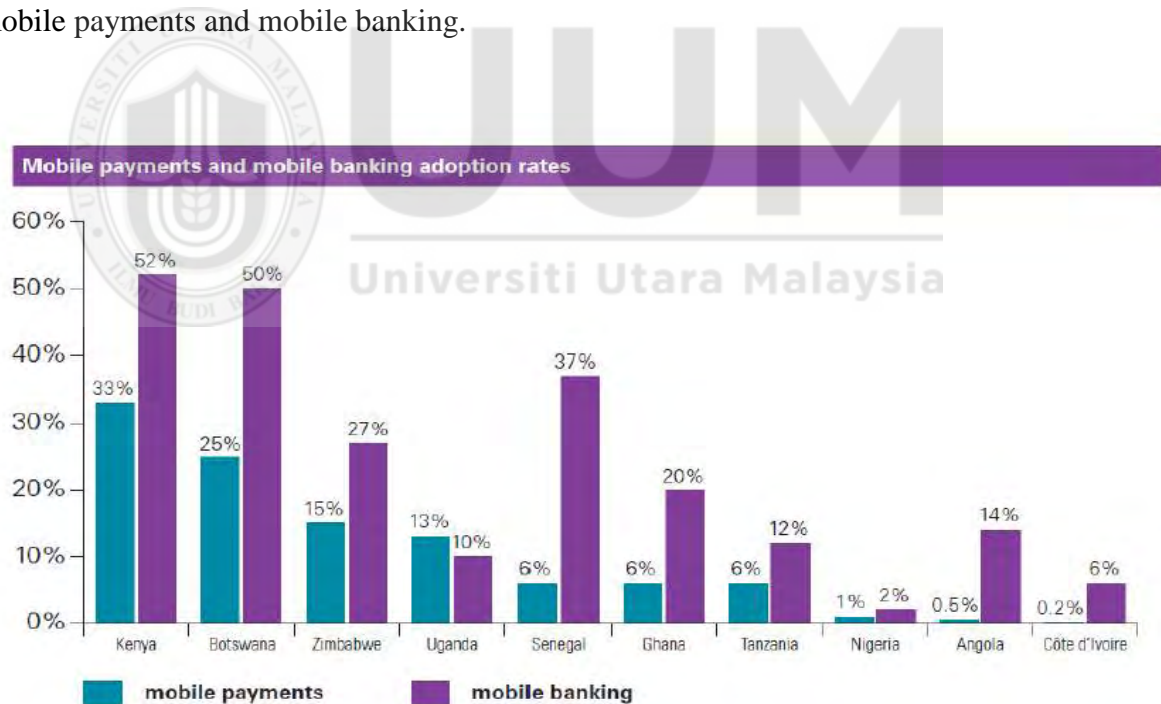
Nigeria as a country was not left out of the crisis since its economy got jittered while its banking institutions equally experienced a near collapse. The global crisis made the stock market of Nigeria to collapse by 70%, while many of the banks had to be rescued (Anyawu, 2010). For the purpose of stabilizing the system and in order to restore the confidence of the investors to the market, the Central of Bank of Nigeria quickly intervened through injection of N620bn fund into the banking sector and replaced the chief executives and executive directors at 8 Nigerian banks (Central Bank of Nigeria, 2010).

In view of the 2009 crisis that engulfed banking institution in Nigeria and the rescue exercise that followed, the institution is now wearing a different look when compared with the period before the crisis. The new look of the banking institution was made possible through merger, consolidation and acquisition that took place that time (Anyanwu, 2010). Importantly, the consolidation of Bank was focused on in order to ensure that banking businesses are further liberalized; ensure competition and the system safety; and proactively positioning the financial industry to carry out its function of financial intermediation and helping the country to develop economically (Central Bank of Nigeria, 2010).

Consequently today, banks have been structured into different categories and the universal nature of their operations which allow them to delve into non-financial businesses realigned. Importantly, banks were restructured into three different categories of commercial banking, specialized banking and investment banking operating at national, international, regional and mono-line level depending on the operating licenses

and capital requirements (Anyanwu, 2010). Today, we have 21 commercial banks in Nigeria with 5624 branches as at August 2012 and total assets that worth N21.82 trillion (\$130 billion) as at the end of 2012 but with a projection of \$168 billion by 2015 (CBN, 2012; Ernest, 2012; KPMG, 2013). Though, this new structure of banking in Nigeria has helped to strengthen banking operations generally, much still needs to be done in the area of e-banking which its performance continues to dwindle when compared with the performance of other African countries.

In view of the above, figure (2.1) below essentially shows the electronic banking performance of Nigeria and that of some other selected African countries with regards to mobile payments and mobile banking.



*Figure 2.1.* Performance of some African countries in Mobile banking and Mobile payment  
(Source: KPMG (2013): Electronic Payment adoption Report)

Figure 2.1 above shows that Nigeria has the lowest e-banking adoption with respect to mobile payment and mobile banking. Whereas, Kenya, Botswana, Zimbabwe, Uganda, and Tanzania, ranked 33%, 25%, 15%, 13%, 6% and 6% respectively in mobile payment, Nigeria with highest population in the African continent was ranked 1%. This ranking is also applicable to mobile banking where Nigeria 2% when compared with 52%, 50%, 27%, 10%, 37%, 20%, 12%, 14% and 6% of Kenya, Botswana, Zimbabwe, Uganda, Tanzania, Angola and Coted'Ivoire respectively.

In addition to the above figure that compares the electronic banking performance of Nigeria with other countries, the following figure equally compares the frequency of e-banking channels usage with branch services in Nigeria.

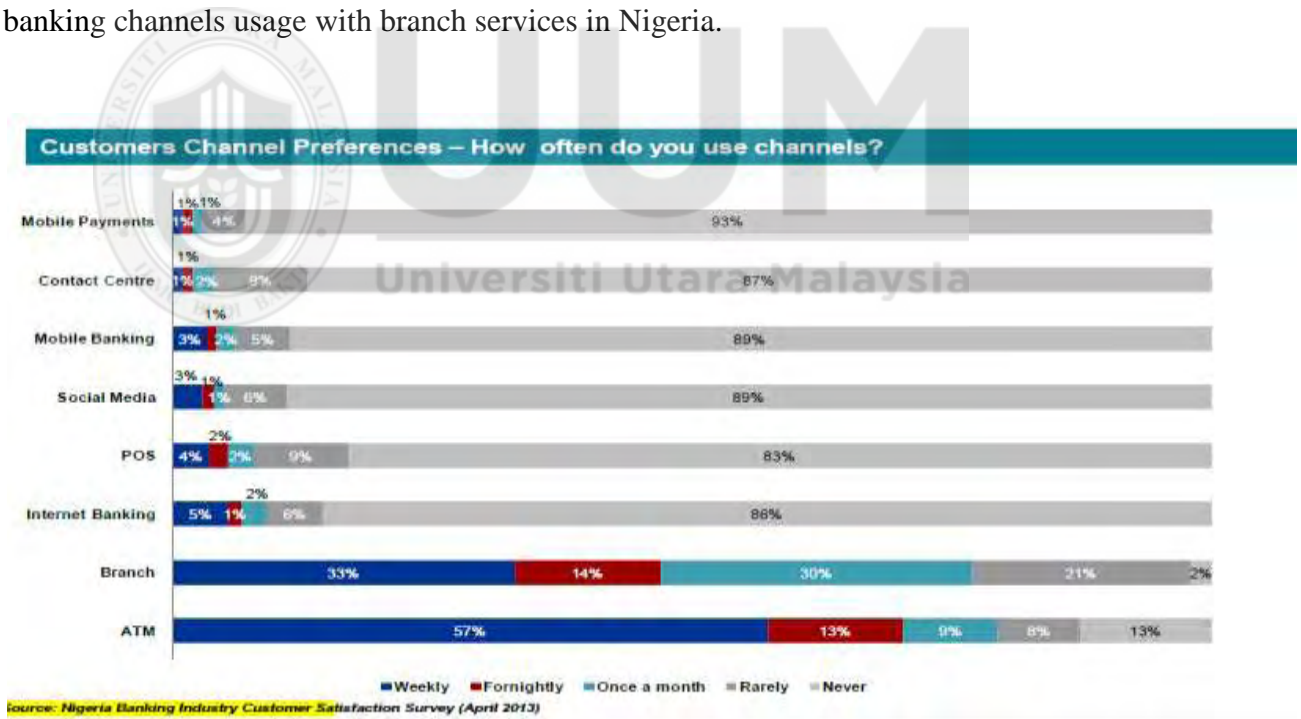


Figure 2.2. Customers Channel Preferences comparing frequency usage of channels (Source: KPMG (2013): Electronic Payment Adoption Report)

The figure (2.2) above shows that that branch service is the most used channel (80%) followed by ATMs (87%). The figure further reveals that majority of customers

partially use internet banking, mobile banking, mobile payment, contact centre, social media and point of sale. The figure 2.2 and 2.3 above certainly reveal the need to further inquire into the reasons for the low adoption.

## **2.4 Forms of E-banking channels**

Central Bank of Nigeria (2003) recognizes different forms of e-banking channels and these include: Mobile banking, Automated Teller Machine, Point of Sales, Internet banking, international cards schemes, electronic payments and switches.

### **2.4.1 Mobile banking**

Mobile banking otherwise known as telephone banking makes it possible for customers of banks to have access to banking facilities through their telephone lines and enables them to check their balances, make transfer, top-up airtime, generate mini statement, make online purchases, receive transaction alerts and hotlist their ATM cards.

### **2.4.2 Automated Teller Machine**

The basic function of Automated Teller Machine(ATM) is to dispense cash and makes services to be available 24 hours a day through stand alone machine. The machine allows the customers to also perform other transactions such as transfer of cash, cash deposit, balance of enquiries, and online purchase without interacting with bank officials. Operating through ATM however requires a Personal Identification Number (PIN) and usage of smart card in some instances. ATM which is the mostly used e-banking channels in Nigeria has steadily grown between 2003 and 2010.

Further, today's ATM operates through interconnectivity among operators as facilitated by the Inter-switch company. The company helps all the ATM service providers to connect, reconcile issues and settle bills among themselves through usage of cards.

### **2.4.3 Point of Sales terminals**

A point-of-sale (POS) terminal is a form of electronic banking channel that is computerized, web-enabled and can be used to record orders of customers, make payments, process debit and credit cards, and manage inventories since it is connected to other network systems. In Nigeria however, this alternative channel is not well embraced as most customers often equate their ATM cards with POS. Aside, other important reasons for not fully accept POS according to (Pos & Working Group, 2010) are:

1. Ignorance: POS just like any technology has not been well introduced to Nigerians and many of the potential customers and those who use the service lack awareness about its full benefits.
2. Similar experience: Many of the customers who use ATM have experienced poor quality service such as card being trapped and dispense error. The customers have equally associated this experience with POS thereby affecting its adoption.
3. Fear of Charge: Many of the customers do believe that using POS attracts extra charges thereby avoid its usage.
4. Fraud: Fraud has continued to threaten e-banking platform in Nigeria (Ezeoha, 2005) and POS being one of the channels of e-banking is not exempted. Many customers are afraid of using POS fully because of online fraud activities and privacy intrusion.

5. Attitude and lack of trust: The notion that is held by many customers is that nothing works in Nigeria. This is so because of their experience with regards to epileptic power supply, breakdown in communication, unstable political terrain and insecurity that have made similar technology not to be effective in the past.

#### **2.4.4 International cards schemes**

These are electronic cards such as Visa card, MasterCard, credit card and debit card that can be used to transact online using domiciliary accounts or any bank account that may be allowed by the CBN. These cards are electronically, microchip and PIN protected.

#### **2.4.5 Automated Delivery Channels**

These include: Homelink banking, online banking and internet banking. The home link banking makes it possible for customers of banks to transact banking such as purchases and settlement of bills within the confine of their rooms through television since banks would have provided a Home Deck Console. On-line banking on the other hand enables customers to transact businesses in any of the branches regardless of where account is domiciled. Internet banking is regarded as the worldwide connection of networks which makes communication with other related bank entities around the world to be possible

### **2.5 Benefits of e-banking**

E-banking in today's technology based world has become an important tool that is preferred by most customers to meet their ever changing needs. Importantly, the rate of its growth is far higher than other e-commerce sectors since financial service transactions are moving away from physical to data based orientation (Zekos, 2004). Today, virtually all the banks are being compelled to embrace technology using alternative channels such



as debit/credit cards, ATMs, RTGS, ECS-credit, ECS-debit, EFTs, mobile banking, internet banking and so on that are helping the banks to execute e-business activities such as transfer of funds, balance enquiry, bills payments, stop payment order, cheque book requisition, and so on at high rate of speed and efficiency (Kaur, 2013). The growth of e-banking across the world has been explosive and its attendant benefits are enormous to customers and the banks alike.

### **2.5.1 E-banking benefits for Banks**

Benefits of e-banking are numerous for banks. Extant scholars have documented some of the benefits to include cost savings, securing of new customers, efficiency in operations, improvement in reputations of banks, and customer satisfaction through fast and speedy services (Jayawardhena & Foley, 2000; Maditinos *et al.* 2013; Nor, *et al.* 2011; Pham, 2013).

For instance, in the area of cost reduction, (Tan & Teo, 2000) based on their survey discovered that it costs about US\$1 – 2 million to set up a specialized e-banking facility as this is much lower than setting up a traditional banking branch. In addition, the authors conclude that costs for running a traditional bank could gulp as much as 50% to 60% of the branch's revenue. This particular position has been corroborated by other studies which equally assert that the costs of running a transaction through online banking is far lower than similar transaction being carried out through branch (AbuShanab *et al.* 2010; Auta, 2010).

Moreover, Sheshunoff (2000) also asserts that among other essential factors that influence the adoption of e-banking facilities by banks is the necessity to build very

strong barriers that will not allow the customers to switch to another service provider. The position of the author is that once the customers have embraced and become familiar with the e-banking services, they found it difficult to patronize another bank because the cost of switching might be high in terms of time and cost that may be involved. Finally, the author further emphasizes that e-banking implementation can foster competitive advantages among banks especially in today's highly competitive banking environment (Smith, 2009).

E-banking due to application of internet facility also makes it possible for banks to offer 24 hours per day and 7 days a week services to their numerous customers (Pham, 2013). E-banking can improve customer satisfaction with the bank due to the fact that it makes customers less price sensitive, and improves their intention to e-purchase, and more loyalty to the bank through favorable words of mouth (Casaló, Flavián, & Guinalú, 2008; Pham, 2013).

### **2.5.2 E-banking benefits for Customers**

The benefits of e-banking are not meant for banks alone; customers as well enjoy many advantages of the e-banking. The tremendous benefits of e-banking have been made possible through internet which makes it possible for customers to access their accounts irrespective of place and time (Al-smadi, 2012). Besides, customers of today enjoy different and variety of services, especially those that are not being offered by the traditional branches. In fact extant scholars have asserted that one of the important benefits of e-banking is cost reduction since its adoption and usage is quite not expensive (Chandio *et al.* 2013; Maditinos *et al.* 2013). Though some customers believe that price is

one of the primary inhibitors of e-banking adoption (e.g., Sathye, 1999), the general consensus of authors is that e-banking is relative cheaper for customers than traditional banking (Abushanab *et al.*, 2010; Kesharwani & Radhakrishna, 2013; Safeena *et al.* 2011). For instance, AbuShanab *et al.* argue that a typical e-banking-based transaction costs an average of \$.01, while the cost of similar transactions at a traditional branch costs average of \$1.07. However, the issue of price determination is significantly influenced by a number of factors such as differences in geographic location and cost of internet connections and other facilities.

Furthermore, it is also believed that banks that are offering e-banking services today have become increasingly flexible to the changing needs and demands of customers (Jun & Cai, 2001). This is necessary since customers of today are more demanding and want to utilize e-banking to save time and money.

In addition to the benefits which customers can derive from e-banking, other authors have equally assert that accessibility and convenience are some of the factors that can bring satisfaction and loyalty (Mattila, Karjaluoto, & Pentto, 2003). Today, customers can operate banking transactions at their convenience, whenever they want and where they can enjoy a lot of privacy with more benefits than traditional banking (Lin & Nguyen, 2011). This position has further been corroborated by other authors when they further argue that the benefits of e-banking services are enormous in terms of its time and space limitless, cost reduction, swift complaints handling and better products and services offering (Chandra, Srivastava, & Theng, 2010; Salhieh *et al.* 2011).

## **2.6 Key e-banking Issues in Nigeria**

There is no doubt that today the global world is experiencing and facing problematic e-banking services. Equally important too is the fact that these issues have not been addressed adequately resolved for the purpose of achieving e-banking objectives (Pedro, 2012). Furthermore, these issues have become perennial and seriously undermining the process of e-banking services globally, particularly developing countries like Nigeria (Adesina & Ayo, 2010; Auta, 2010). These issues have elicited the reactions of various e-banking scholars with different and often conflicting opinions on the fundamental issues at stake; how the issues can be resolved; and the significance of such resolution in the highly competitive banking environment. Some of the e-banking issues identified are as follows:

### **2.6.1 E-Readiness**

Cain (2004) maintains a strong position that there is a great lack of strategic ‘e-readiness’ for e-banking in developing countries in particular. E-readiness has become a fundamental tool that is being used to generate different variants for the successful implementation of e-banking. These variants include different infrastructures, such as, legal system; data system; human resource; technology; strategic leadership and thinking. These variants of e-readiness pose different strategic challenges to e-banking in Nigeria (Central Bank of Nigeria, 2003b). E-readiness variants availability and their operations are at the macro-level of the whole nation, and they form important predictors of successful implementation of e-banking in Nigeria

### **2.6.2 Security Issue**

Successful and effective implementation of e-banking in Nigeria cannot be possible except the issue of security is addressed. Since e-banking is virtually dependent on Information and Communication Technology (ICT), the increase in convenience that it has brought therefore requires high level of insecurity (Anyanwu, Ezugwu & Abdullahi, 2012; Auta, 2010; Odumeru, 2012). The core security areas that require attention include integrity of transaction, confidentiality of information, fraud prevention and so on. Issue of frauds especially needs to be addressed as its cases have continued to intimidate users. Experience has shown that various types and forms of fraud which include advanced fee fraud, plastic card and ATM fraud, cheque fraud through clearing system, internal conspiracy and etc have been committed in Nigeria (Ezeoha, 2005). For instance, as a result of different form of frauds, a recent report has accounted for cumulative lost of N159 billion as at first quarter of 2013 (Uzor, 2013). Another key concern is that of intrusion of privacy. Nigeria e-banking channels and websites are seriously fraught with phishing and other related fraudulent activities which have importantly become enigma for banking authorities and the customers alike (Ezeoha, 2005). Doing business on the web requires provision of user ID, password and other information which may be easily compromised and exposed if adequate and effective security measures are not put in place. The issue of insecurity has adversely affected the level of trust and confidence in the e-banking channels in Nigeria (KPMG, 2013) and requires further investigation (Ezeoha, 2005).

### **2.6.3 System availability assurance**

Another issue of e-banking in Nigeria is epileptic internet and other facilitating support facilities. Since e-banking is totally dependent on internet availability, experience has shown that telecommunications services are still at best epileptic in Nigeria. This has importantly affected the rate of e-banking adoption when compared with other African countries among primary users (Stein, 2011). Importantly too, the service providers and government need to put in place supporting facilities such as fault tolerance, technical support, legal framework, backup facilities, and robust ICT setup. All these are important challenges and issues bordering on the adoption of e-banking in Nigeria.

### **2.6.4 Awareness**

Another issue of concern is awareness of e-banking availability and benefits in Nigeria. Extant e-banking authors in Nigeria have asserted that much efforts still need be put in place to create awareness about the availability of electronic banking products and services, how they operate and their benefits (Aliyu *et al.* 2012; Dogarawa, 2010). Importantly, other authors have arguably maintained that lack of awareness has become an important impediment to the adoption of e-banking (Sathye, 1999). Furthermore, Anyanwue *et al.* (2012) assert that most people have no general knowledge of Internet, let alone the existence of e-payments. The authors further argue that people are not familiar with ICT developments which are new trends in banking. Importantly, most people in Nigeria are still using physical cash for payment and deposit and not electronic banking since they are not aware of its existence and benefits (Anyanwu *et al.* 2012; Bankole & Brown, 2011)

### **2.6.5 Poor service quality**

Another major issue identified is poor quality service which has importantly affected level of customer satisfaction in Nigeria. KPMG (2012, 2013) has consistently noted a decline in overall satisfaction with e-banking channels such as internet banking and ATM. Importantly, KPMG noted that majority of customers (70%) still prefer to patronize a branch to make enquiries about their balance and for other transactions compared to only 30% of customers who use e-banking channels. KPMG also found out that many of Nigeria banking customers want an improved e-banking service in the areas of online security, reduced ATM cash dispense errors, convenience, service quality, more user-friendly e-banking platforms and so on.

### **2.6.6 Usability of electronic banking channels**

The issue of usability of electronic banking channels can be viewed from perspectives of usefulness and ease of use. Generally, there are cases of e-banking abandonment as over 50% of those who tried e-banking in developing countries jettisoned usage either because the channels are not user-friendly, complex or do not serve their purpose of achieving their daily objectives (Safeena, Kammani, & Date, 2013). In fact extant authors have found that the low rate of e-banking adoption has largely been empirically traced to lack of usefulness and user-friendliness of the e-banking channels.

## **2.7 Related Underpinning theories**

In general, the purpose of theory is to help us understand the basis behind the research. It does provide a logical and clearer picture about the connectivity that exists among

different constructs/variables with the purpose of gaining a better understanding of their relationship and how the constructs affect one another (Sekaran & Bougie, 2010).

This study is therefore based on three underpinning theories: Technology Acceptance Model, Universal Theory of Acceptance and Use of Technology (UTAUT) and Social exchange Theory. Predominantly, Technology Acceptance Model proposed by Davis (1989) is used to explain adoption of electronic banking. The essence of TAM is to enhance our understanding of an individual electronic banking adoption behavior. Previous studies have proved that TAM is better than many of the existing theories (e.g., Yousafzai, Pallister, & Foxall, 2009). Thus, the study applied TAM to explain and support how information technology and information system affect adoption behavior in the context of e-banking while UTAUT is used as a supporting information technology theory. Secondly, social exchange theory is a relationship marketing theory that is used to explain relationship that ensues between the service providers (banks) and their customers and how such a relationship has led to exchange of resources for the purpose of achieving the objectives of both parties.

### **2.7.1 Technology Acceptance Model**

Technology Acceptance model was developed by Davis (1989) based on Ajzen and Fishbein (1975) theory of reason action (TRA). The purpose of TAM according to (Davis, Bagozzi, & Warshaw, 1989) is:

*to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user*



*computing technologies and user populations, while at the same time being both parsimonious and theoretically justified*(Davis *et al.* 1989, p. 985).

Furthermore, other authors have proved that TAM is the most superior and simple model that can be used to explain user behavior of information system and information technology (Venkatesh & Bala, 2008; Yousafzai *et al.* 2009; Yusafzai *et al.* 2010). Though TAM was developed within organization context to predict individual employee acceptance of information system; it has been widely used outside organization to determine individual voluntary behavior towards acceptance of system usage (Aldás-Manzano *et al.*, 2009; Al-Majali & Mat, 2011; Chandio *et al.* 2013). The core constructs of TAM are two set of cognitive responses: Perceived usefulness and perceived ease of use which are key predictors of information technology adoption (Davis *et al.* 1989).

TAM posits that the beliefs of individuals with respect to information technology's perceived usefulness and perceived ease of use influence their attitudes towards the system (e-banking ) under consideration (Davis, 1989). Attitudes, as well as perceived usefulness influence behavioral intention and later explain actual information technology system usage. The implication of this is that individuals form intention to perform certain behavior towards a system that they have perceived to be useful and easily used (Davis *et al.* 1989).

Despite the simplicity and wide usage of TAM (Davis, 1989), there is considerable debate among researchers (e.g. Moon & Kim 2001, Wang *et al.* 2003, Abbasi *et al.* 2011) who argue and that the TAM's core constructs (i.e. PU and PEOU) may not be sufficient to explain user acceptance of new IT systems, as the factors influencing the acceptance of

a new IS (such as an e-banking adoption which is focus of this study) are likely to vary with the technology, target users and context. Apart from this, many other researchers have equally found that TAM core variables are inconsistent in actual prediction of user behavior while the model as a whole has refused to take into consideration various external factors such perceived security (Mann & Sahni, 2013; Yousafzai *et al.* 2009), facilitating conditions (Maditinos *et al.* 2013; Pikkarainen, *et al.* 2004), and awareness (Al-Majali & Nik Mat, 2011) as used in this study.

Taking into consideration the shortcomings and criticism of TAM as stated in the last paragraph, scholars have made adjustment to original TAM to explain intention, attitude and behavior of users. Some authors on one hand add new constructs while some remove some of the variables in the model. For instance, some authors examine direct influence of perceived ease of use on behavioral intention (e.g., Aldás-Manzano *et al.* 2009; Yousafzai *et al.* 2010). The premise behind this link is that when a system like e-banking is easily used the likelihood of it being adopted is higher. On the other hand, numerous researchers have equally removed behavioral Intention and system actual usage from the model thereby limiting their examination to the relationships between external factors, beliefs and attitudes (Chau & Lai, 2003). Some other authors however, examine the direct relationship between both or one of the two beliefs and actual usage of the system (Eriksson & Nilsson, 2005; Pikkarainen *et al.* 2004).

In addition, authors such as Venkatesh and Bala, (2008), Venkatesh and Davis, (2000) have also introduced certain antecedents to explain perceived usefulness and perceived ease of use of a system. For instance, Venkatesh and Davis while extending TAM

introduced antecedents such as social influence, image, job relevance, output quality and result demonstrability to explain perceived usefulness. The implication their extension suggests that the social influence processes (such as voluntariness, social norm and image) and cognitive mental processes (e.g., output quality, job relevance and result demonstrability) can affect perceived usefulness of a system and will explain up to 60% of variation in usage intentions.

Furthermore, in the context of internet banking some differences have equally been noted where authors such as Chau and Lai (2003) prove that one of the major determinants of PEU is accessibility. (Chau & Ngai, 2010) also considered perceived risk and social influence as determinants of PU. In addition, some other authors extend TAM by considering a direct relationship between external constructs and either attitude, intentions and or actual system usage (Lee, 2009; Nasri & Charfeddine, 2012). Other authors discovered that privacy/security concerns had influence on actual system usage and behavioral intentions (e.g., Pikkarainen *et al.* 2004).

Other authors such as Kim and Lee, (2013) also introduced external variables such as information quality, service quality and self efficacy to explain perceived usefulness and perceived ease of use and which eventually influenced satisfaction of mobile bank users. The lesson from this study posits that when a system is perceived useful and easily used it will be used continuously.

Moreover, some authors having examined the behavioural intention of TAM replaced it with continuance adoption/intention (e.g. Bhattacharjee, 2001, Chen *et al.* 2009). Their positions stem from the fact that TAM focuses on initial acceptance of information

system. In this clime, other authors such as Radomi and Nistor (2012) have found a positive relationship between perceived usefulness, perceived ease of use and continuance adoption of e-banking signifying that when a system is perceived useful and easily used, users will continue to use the system in the future.

### **2.7.2 Universal Theory of Acceptance and Use of Technology**

This theory is used to support TAM. Based on review of extant literature, Venkatesh *et al.* (2003) and Venkatesh *et al.* (2012) came up with UTAUT and UTAUT 2 respectively. Essentially, UTAUT (2003) has performance expectancy, social influence, facilitation conditions and effort expectancy as the main constructs of the model while Venkatesh *et al.* (2012) as a way of extending UTAUT added price, habit and hedonic motivation to their model. Performance expectancy which is akin to perceived usefulness (Davis, 1989) describes the extent in which a technology brings about certain desired benefits for the users. Effort expectancy which is also similar to perceived ease of use describes the easiness that is involved in the usage of a technology. Social influence is defined as the extent in which users of a technology believe that members of the society such as friends and family can influence their attitude towards system usage while facilitating condition refers to the perception that consumers hold about the availability of certain support and other facilities that will bring about behavior.

The basic assumption of UTAUT hinges on the premise that when these conditions are upheld, intention or behavior towards usage of a system can be achieved. Importantly, there has been a causal link among performance expectancy, effort expectancy, social influence and intention while facilitating conditions are associated with behavior

(Venkatesh *et al.*, 2003). In this respect various studies have since the introduction of UTAUT used it at the different levels and contexts to predict intention and behavior (AbuShanab *et al.* 2010; Pikkarainen *et al.* 2004).

While applying this theory to e-banking adoption, empirical evidences have revealed that facilitating conditions and hedonic motivations which are two of the constructs of UTAUT have been found to have significant impact on adoption behavior. For instance, Nor *et al.* (2011) in their study indicate that facilitating condition (Technical Resources) is a significant factor that influences users and potential users of e-banking facilities in Romanian. In essence, an individual is inclined to embrace e-banking if he or she believes that technical resources such as internet connection, structural support and other facilities are available.

Earlier study by Tan and Teo (2000), has equally substantiate that facilitating condition is an important factor that can spur individual to adopt e-banking. In their study, they found that availability of government and technological support are two important facilitating conditions. The study found that when government support in the form of endorsement, promotion of internet that will facilitate commercial activities and technology support like internet security and, high internet access speed are available, users will be willing to continue to use e-banking.

In addition, the study of Pikkarainen *et al.* (2004) equally found that perceived enjoyment which is a form of hedonic motivation significantly influences adoption of electronic banking. This suggests that users' behavior is stimulated when the system usage is perceived to be fun based on system features, such as back ground music, entertainment,

interactivity and so forth (Liao, Tsou & Huang, 2007; Ndubisi & Sinti, 2006, Pagani, 2004). This suggests that users' motivation is further enhanced to further use e-banking with the appropriateness of e-banking.

### **2.7.3 Social exchange theory**

Social Exchange Theory (SET) origin can be traced to social behavior theory which postulates that interaction that takes place between individuals brings about exchange of resources (Homans, 1958). The resources that are involved may be tangible such as money or goods or intangible such as friendship or social amenities.

Historically, scholars such as Blau, (1960, 1964), Emerson, (1962), (Homans, 1958) and Thibaut & Kelley, (1959) contributed immensely to the development of SET through their seminar works and researches. For instance, Homans (1958) was the first researcher to develop a theory which centers on social behavior as a form of exchange while Blau (1964) may be regarded as an important scholar who first had the landmark of using SET to explain his concept of '*social interaction*' as a form of exchange process.

SET basic assumption holds that parties are involved in a relationship with the strong expectation that there would be mutual benefit (s) that is rewarding (Lambe, Wittmann, & Spekman, 2001). In bankers-customers voluntary relationship for example, the banks expect that customers will part away with their resources for the purpose of helping the banks to achieve their objectives while the customers equally expect that the banks will use the resources in their disposal to execute their banking functions towards helping the customers to achieve desired objectives.

In view of the above, Lambe *et al.* (2001) for instance holistically captured the fundamental of SET when they assert that:

*SET postulates that exchange interactions involve economic and/or social outcomes. Overtime, each party in the exchange relationship compares the social and economic outcomes from these interactions to those that are available from exchange alternatives which determine their dependence on the exchange relationship. Positive economic and social outcomes over time increase the partners' trust of each other and commitment to maintaining the exchange relationship. Positive exchange interactions over time also produce relational exchange norms that govern the exchange partners' interactions.*

Credence to the above statement, extant authors have argued that the relationship that takes place between service providers (banks in this circumstance) and their customers is a form of social behavior which may eventually lead to social and economic benefits (Deb & Lomo-David, 2014; Eriksson *et al.*, 2005; Mai, Tuan & Yosi, 2013). Importantly, Individual customers initiate new relationship while keeping the existing ones based on the rewards they are expecting (Blau, 1964; Homans, 1958; Thibaut & Kelley, 1959). For instance, Lambe *et al.*, (2001) assert that though financial rewards are essential, what matters most in a social exchange behavior is the emotional reward which a customer can derive from existing relationship and which cannot be compared with that of competitors. The Banker-customer relationship that takes place therefore suggests that the customers on one part gain benefits such as prompt service, ease of transaction, secured website, and supporting facilities while the banks expect the customers to reciprocate by parting away with their money for the purpose of investment and profitability.

However, the banker-customer relationship may come to an end or continue depending on track of performance of the service provider (Ven, 1976). Levinthal and Fichman (1988) as cited in Kim (2012) for instance investigated factors that can lead to future continual relationships premised on previous exchanges and they discovered that time discrepancy and satisfaction are two fundamental constructs that can increase adoption of services. For time discrepancy, especially in the online context, orders and payment are sometimes made before goods/services are delivered and this connotes that the customers need to trust that the vendor (bank, in this circumstance) will execute its duties according to exchange service agreement. Therefore, consumer trust becomes an important factor that determines successful relationship between e-banker and customers and this can only be sustained if the former lives up to the expectation of the latter (Kim, 2012; Yap *et al.* 2010; Zhou, 2011a).

With regards to satisfaction, if consumers are satisfied with the service rendered, this will lead a mutual understanding between the two parties and this will eventually engender a continuous relationship (George & Kumar, 2013). Therefore, as the consumers' satisfaction increases with respect to the vendor's performance, the intention to continue the relationships with existing vendors increases.

## **2.8 Technology Adoption**

In the recent business environment, the direct influence of technology has been felt on several business stakeholders such as the customers, distributors, suppliers, companies and other players (Porter, 2001; Patrick & Dotsika, 2007). Several studies have been conducted on how the technology will continue to affect the ways businesses are



being carried out (Beheshti, Salehi-Sangari, & Engstrom, 2006; Shunk, Carter, Hovis & Talwur 2007; Yadav & Varadarjan, 2005). Some studies have earlier anticipated a revolution in the ‘marketing arena’ especially as business organizations and customers have started embracing different and novel ways of selling and buying products and services (Hoffman & Novak, 1997; Keeny & Marshall, 2000). As web therefore continues to gain ground for doing business, several authors over the last decade have generally focused on the factors that are determining the adoption of such technology by individual consumers and the organizations alike (Hussein & Mourad, 2014; Mourad, 2010).

However, while IT investments like e-banking and others are very substantial in many companies (Peppard, Ward, & Daniel, 2007) previous researches on technological adoption and management have suggested that anticipated benefits from the implementations of such system are often not realized (Hitt & Brynjolfsson, 1996). For instance, Neufeld, Dong and Higgins (2007) asserted that less than 50% of all IT projects initiatives ever meet their anticipated investment objectives. These failures according to some studies can be traced to some challenges in the business environment and therefore require quick interventions (Aiman-Smith & Green 2002).

While organizations must quickly react to many of these challenges (Umble, Haft & Umble 2003); investigation of those factors that are causing the failure may be essential for quick organizational decision. Importantly, the impact of a new technology on the performance of an organization can only be felt if such technology is largely used (Hall & Khan, 2003). Since the adoption itself is a product of many factors; understanding of

these factors affecting these decisions is essential to the technological change management.

### **2.8. 1 E-Commerce Technology**

Various internet technologies especially in the realm of e-business/e-commerce adoption have been discussed in literature. Some of these technologies include but not limited to E-trade, E-consulting, E-engineer, E-learning, E-mail, E-marketing, E-transactions, E-government, E-banking and so forth are being used to market and distribute information about products and services. Though the focus of this study is e-banking adoption which is later discussed comprehensively, a view of other technologies in e-commerce as mentioned above is hereby briefly discussed. The essence of briefly discussing some other e-business technologies is just to understand the factors that influence their adoption generally.

E-learning for instance, is an alternative way of teaching and learning in today's knowledge driven economy, and many organizations have begun to use this new innovation to develop the members of their organizations for the purpose achieving the organizations objectives (Hill & Wouters, 2010). Though e-learning has been broadly viewed from the perspective of computer technology, there are diverse approaches to its definitions. For instance, Fry (2001) described e-learning as the "delivery of training and education via networked interactivity and a range of other knowledge collection and distribution technologies." Other researchers have defined e-learning as distance education that uses computer-based technologies, information communication technologies (ICTs), and learning management systems (Derouin, Fritzsche & Salas, 2005; Govindasamy, 2001; Lowe & Holton, 2005). However, several factors have been found

to aid e-learning adoption generally and this includes: Organizational support in form of provision of effective e-learning platform, technical support, trouble shooting, availability of required information, training and guideline; e-learning characteristics such as authenticity of e-learning platform, and complexity; learners' characteristics with respect to self-efficacy and openness to change (Sawang, Newton & Jamieson, 2013). Below are some of the factors (Table 2.1) being used by some studies in studying the adoption of e-learning:



Table: 2.1

*List of factors used in predicting e-learning*

<b>Author</b>	<b>Independent Variables</b>	<b>Dependent Variables</b>
<b>Sawang, Newton &amp; Jamieson (2013)</b>	Learners' features (Self efficacy & Openness to change)  Organizational Support (Provision of e-learning platform, technical support, trouble shooting, information availability, training and guideline).  E-learning Characteristics (Authenticity of e-learning platform and complexity)	Intention to adopt
<b>Booker, Deltor &amp; Serenko (2012)</b>	Perceived usefulness Self efficacy Anxiety Overall Information Literacy Instruction (ILI)	Behavioral Intention
<b>Li, Duan, Fu, &amp; Alford (2012)</b>	Self-efficacy Service quality Course quality Perceived ease of use Perceived usefulness	Behavioral intention to reuse
<b>Wu &amp; Hwung (2010)</b>	Media richness Attitude towards learning Extrinsic motivation Climate of learning Usability of e-learning	E-learning performance
<b>Lee, Hsueh, &amp; Hsu (2011)</b>	Perceived usefulness Perceived ease of use Triability Compatibility Complexity Relative advantage Observability	Behavioral Intention

Furthermore, E-marketing in the recent time has become one of the innovative and technology based activities that have impacted the manners in which businesses are carried out. It has become most important aspect of global marketing that is helping business organizations through internet medium to interact, dialogue, communicate with and provide services to their numerous customers (Coviello, Brodie, Brookers & Palmer,

2003; Dabholkar, 1994). E-marketing is significantly different from traditional marketing since it heavily relies on internet to ensure interaction and exchange of information between service providers and their customers (Brodie, Winklhofer, Coviello & Johnston, 2007). Extant literature has critically examined different factors that determine penetration and adoption of e-marketing. These factors include organizational capabilities and internal resources such as organizational readiness, internal data base, network marketing, and management support (Sadowski, Maitland & Dongen, 2002; Sultan & Rohm, 2004; Tsotsou & Vlachopoulou, 2011). Summarily, the following table shows some of the factors being used to predict adoption of e-market.

Table:2.2

*List of factors for the prediction of E-market*

<b>Authors</b>	<b>Independent Variables</b>	<b>Dependent Variable</b>
<b>Johnson (2009)</b>	Knowledge Deficits Trust Size of the organizations Organization readiness Perception of Risk Network Marketing Support of the Management Internal Data Base	E-market Adoption          E-market Adoption
<b>Duan, Deng and Corbit (2012)</b>	Technology Context Organization Context Environment Context Trust context	E-market Adoption
<b>Wei, Marthanda, Chong, Ooi &amp; Aramugam (2008)</b>	Perceived usefulness Perceived ease of use Social influence Trust Perceived Cost	Consumer Intention
<b>Li &amp; Hie (2012)</b>	Environment perspective (social cultural environment, institutional environment, economic environment) Firm perspective (managerial attitude, size and structure of the firm, corporate strategy) Technological Perspective (macro-technology environment, and strength of the firm)	Adoption

Moreover, the proliferation of internet technology and development in ICT has equally brought innovative ways of serving and reaching the people by the government. With the emergence of concept of e-government, government agencies and departments globally are moving from traditional ways of providing services to electronic channels with a bid of making people having effective access to services (Kamal, Themistocleous & Morabits, 2009; Irani, Elliman, & Jackson, 2007). In a recent survey by United Nation (2012), around 190 governments globally have instituted websites and using ICT to deliver services to their people. This importantly indicates that e-government has certain benefits which include savings of cost and time, government transparency; procedures simplification; friendliness of government functionaries and so forth (Laudon & Laudon, 2009). However, while e-government services have continued to gain ground internationally, their adoptions have been fraught with certain challenges especially in developing countries. Among factors that previous studies have found to influence the adoption of e-government include but not limited to lack of awareness, infrastructure, technical skills, ineffective government regulation and so forth. Below table shows a number of factors that have been used to determine adoption of adoption of e-government.

Table :2.3

*List of factors used in predicting adoption of e-government adoption*

<b>Author</b>	<b>Independent Variables</b>	<b>Dependent Variables</b>
<b>Ahmad, Markkula &amp; Oivo (2013)</b>	Performance Expectancy Effort expectancy Social influence Facilitating condition Behavioral intention	User Behavior
<b>Alomari, Woods &amp; Sandhu (2012)</b>	Government Trust Internet Trust Attitudes Internet and Computer skill confidence Website design Perceived ease of use Relevant advantage Compatibility complexity	E-government Adoption
<b>Alomari, Sandhu, &amp; Woods(2013)</b>	Trust in the internet Religious views Computer and internet skill Digital divide Words of Mouth Favoritism Resistance to change Relative advantage Perceived ease of use Perceived usefulness Compatibility Image Social influence Service quality Risk perception Trust	E-government Adoption

### **2.8.2 E-banking adoption and its determinants**

The emergence of electronic banking has made several banking organizations to start developing information technology and marketing strategies for the purpose of staying competitive (Al-smadi, 2012). According to Venkatesh, Morris, Davis, & Davis, (2003), for any information system to be successfully implemented, users' acceptance and

eventual adaptation must be seriously considered. In essence, successful implementation of any information system would not be possible if the users are not motivated to use it and accompany benefits will not accrue to the organizations (Al-smadi, 2012). For customers to be motivated towards usage of electronic banking therefore, their concerns must be duly addressed by understanding key factors that can determine the adoption of electronic banking among the banking customers.

In this period of modern-day information technology and marketing research therefore, how to determine factors that are influencing users' acceptance of new technology is often regarded as one of the most mature research areas (Abushanab *et al.*, 2010). In the past, researchers have approached adoption of technology from different levels and perspectives. Many of the researchers have approached technology acceptance from organizations perspective by examining the relationship between organization's performance and Information Technology expenditure (e.g., Banker, Kauffman, & Mahmood, 1993). On the other hand, authors have equally examined IT adoption determinants from individual levels (Davis, 1989; Davis *et al.* 1989). As an important dependent variable, understanding what makes people to use and continue to adopt e-banking is attracting the interest of many researchers (Yousafzai, *et al.* 2010). In recent times, different theoretical perspectives and fragmented models have been used to explain the determinants of IT use and adoption, including the intention models from social psychology (Chiou & Shen, 2012; Ismail & Mohammed, 2012). Importantly, most of these researches dwelled on behavioral intentions (which is acquisition oriented) than intention to continue to adopt (which is retention oriented) (Ho & Ko, 2008)



Further, the fact that there has been a major paradigm shift from IT conventional based research to customer behavior, extant researchers on e-banking have indicated that customer continuous acceptance is an essential factor in determining the future success of electronic banking and has called contemporary researchers to conduct research that will bring about a comprehensive understanding of this customer-based electronic revolution (Ho & Ko, 2008; Lassar, Manolis, & Lassar, 2005; Yousafzai *et al.* 2009).

In studying information technology adoption therefore, different and extant scholars have come up with different system adoption models. Among various and popular models include technological acceptance model (TAM) (Davis, 1989), theory of reason action (TRA) (Fishbein & Ajzen, 1975), Diffusion of innovation theory (DOI), (Rogers, 1983), theory of planned behavior (TPB) (Ajzen, 1985, 1981), Decomposed theory of planned behavior (DTBP) (Taylor & Todd, 1995) and UTAUT (Venkatesh *et al.* 2003, Venkatesh, 2012).

However, TAM among other system usage determinants model is the mostly and extensively used model in the contexts of organization where individual employees are the focus and other online contexts where customers are the subject of research (Abbasi,Chandio, Soomro & Shah,2011; Davis *et al.* 1989, Venkatesh & Davis 2000; Yousafzai *et al.* 2010).The reason for the popular and continuous usage of TAM to investigate e-service related products and services is that its main constructs (perceived usefulness and perceived ease of use) are parsimonious, simple and robust and proved valid to explain information system adoption behaviour across contexts when compared

with other models (Abbasi, et al, 2011; Chandio *et al.*, 2013; Chang, 2010; Lee, Hsieh, & Chen, 2013; Venkatesh & Bala, 2008; Yousafzai *et al.*, 2009).

In view of this, this study use TAM as the major determinant of e-banking since perceived usefulness and perceived ease of use are among the major issues confronting the e-banking system in Nigeria. As an extension of TAM however, this study discussed other determining variables such perceived security (e.g., Yousafzai *et al.* 2009), facilitating conditions (e.g., Venkatesh, *et al.* 2012), awareness (Pikkarainen, Pikkarainen, Karjaluoto, & Pahlila, 2006), e-satisfaction, and e-trust (Eid, 2011) and hedonic motivation (Pikkarainen, *et al.* 2004; Venkatesh, *et al.* 2012) which have equally been identified as major challenges facing e-banking adoption in Nigeria. Extending TAM concept is in line with the arguments of other scholars who maintain that though TAM is multipurpose, other constructs can be added depending on situations and issues at hand (See, Adesina & Ayo, 2010; Chong *et al.* 2010; Juwaheer *et al.* 2012).

### **2.8.2.1 Perceived Usefulness and e-banking adoption**

Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989). Perceived usefulness from Davis' point of view specifically refers to being effective and productive at work by virtue of time that is saved and relative importance of the system usage that is attached to the individual's work (Aldás-Manzano *et al.* 2009). This definition was given in the context of organization where usage of computer was the focus. Findings from Davis' research consequently revealed that perceived usefulness significantly predicted current and future usage of system. However, several authors have subsequently carried

out various studies in the field of e-banking or self support banking system where the focus was customers (Adesina & Ayo, 2010; Akhlaq & Ahmed, 2013; Aldás-Manzano *et al.*, 2009; Chong *et al.*, 2010; Juwaheer *et al.*, 2012; Lin & Nguyen, 2011; Pikkarainen *et al.*, 2004; Safeena, *et al.* 2011; Wessels & Drennan, 2010; Yuan, Liu, Yao, & Liu, 2014). These studies are critically discussed in the following paragraphs.

Adesina & Ayo (2010), extended Technology Acceptance Model (TAM) core constructs to include perceived credibility and computer self-efficacy for the purpose of investigating 292 users of e-banking from different commercial banks in Nigeria. The objective of their study was to critically examine those factors that could determine acceptance of e-banking within the context of Nigeria with regards to customers' attitude and confidence. The study employed multiple regression analysis and discovered that perceived usefulness along perceived ease of use, perceived credibility, and computer self efficacy significantly predicted customers attitude towards adoption of e-banking in Nigeria. Furthermore, Aldás-Manzano *et al.* (2009) having the primary objective of studying those factors that determine usage of e-banking, also examined factors that can influence e-banking adoption in Spain using trust, product involvement, perceived risks, perceived ease of use and perceived usefulness to study the behavior of 511 Spanish e – banking users through Structural equation modeling techniques. The finding of the study reveals that perceived usefulness in conjunction with other variables directly and significantly influences e-banking usage in Spain. The outcome of the study implies that the need of customers should be seriously taken into consideration while designing e-banking websites. When the website is carefully designed to take care of who the customers are , the type of service they want and how they should be contacted, makes the

customer to perceive e-banking to be useful to achieve their objectives (Aldás-Manzano et al., 2009). However, a major gap in this study and which is common to most studies in social science is the potential response bias since the data of the study was collected through self reporting for both independent and dependent variables.

Furthermore, Chong *et al.*(2010), empirically examined factors that can influence adoption of e-banking among 103 respondents in Vietnam using perceived ease of use, perceived usefulness, government support, and trust. The authors analyzed their data through correlation and multiple regression analysis technique and found that perceived usefulness with government support and trust significantly influences intention to continue to use online banking. The findings of this study indicate that for banks to increase rate of e-banking adoption, necessary characteristics which are useful to users should be embedded in online facilities and the customers should be made aware of these features. In addition, Juwaheer *et al.* (2012) investigated factors that can influence the adoption of e-banking in Mauritius using theory of reasoned action, theory of planned behavior and technology acceptance model while incorporating demographic variables, security, users trust and level of awareness of e-banking. The authors validated their model with questionnaires that were distributed to 384 respondents of various banks that spread across nine districts in Mauritius and analyzed their data with statistical program SPSS using inferential and descriptive analysis. The finding of the study reveals that perceived usefulness along subjective norms, perceived ease of use, trust, attitudes, security, awareness about e-banking and behavioral intentions, positively influences e-banking adoption.

In addition, Pikkarainen *et al.* (2004), having the primary goal of increasing understanding of those antecedents that can affect customer acceptance of e-banking, carried out a study using technology acceptance model (TAM) core variables with perceived enjoyment, awareness about e-banking, security and privacy and quality of internet connection in Finland and discovered that perceived usefulness and awareness about e-banking significantly influenced acceptance of e-banking among 268 respondents. The tenet of their findings with regards to perceived usefulness is that banks should build electronic website that can help e-banking users to achieve their objectives. The findings of Safeena *et al.* (2011) also corroborate with the findings of previously discussed authors having investigated perceived usefulness, perceived ease of use and perceived risk on the adoption of e-banking among 116 respondents in India. This study used SPSS to analyze data and discovered that perceived usefulness among other factors significantly influenced of e-banking adoption in India. Practical implication of the findings suggests that service provider needs to highlight the advantages which e-banking has and this can be done by creating awareness about the details benefits that are associated with the usage through advertisement and promotional campaign.

Even though several authors have found positive significance evidence for perceived usefulness in the adoption of e-banking, there are cases where perceived usefulness has been found to be insignificant or has weak relationship (Akhlaq & Ahmed, 2013; Kasheir & Alexandria, 2009; Singer & Flaherty, 2012; Wang, 2008). The inconsistencies in findings have called for further researcher in the field of e-banking (Ndubisi & Sinti, 2006).

In view of insignificant relationship between perceived usefulness and e-service adoption, Wang, (2008) while empirically investigated factors that are influencing users' adoption of contactless credit card among 312 respondents in Taiwan discovered that perceived usefulness among other factors such as perceived ease of use, perceived security, compatibility, trust, facilitating support and consumer involvement did not significantly influence adoption of contactless credit card. The author having used logistic regression technique to critically analyze his data suggests that though payment through contactless credit card can increase speed of transaction and performance, it can only save (12 to 14 seconds) of users when compared with that of traditional credit card transaction. This further suggests that contactless service provider should work further on time efficiency of the card in order to improve on the rate of adoption.

In addition to the finding of Wang (2008), Singer & Flaherty, (2012) carried out a research to determine factors that make 231 respondents to increase the intensity and frequency of online banking usage in USA. Having used multinomial logit regression technique to analyze perceived usefulness, perceived ease of use, frequency and intensity of usage among other factors discovered that perceived usefulness has negative relationship with adoption and usage of online banking. The negative relationship between frequency of usage and perceived usefulness as found in their study suggests that the behavior of individuals in the course of using e-banking is valued by the marginal utility received, not the total utility received (Mankiw, 2008). This further suggests that high usage of e-banking brings about high total utility which may eventually lead to a drastic fall in marginal utility. Since marginal utility determines individual behavior, service providers should therefore put all efforts in place to ensure that the marginal

utility propensity is increased among users. This can be achieved by ensuring that the screens of website are regularly updated with new materials that will pique the interest of users and will avoid their marginality from been reduced after each usage. Importantly, the authors further assert that: *It is important to note that “freshening” such screens should not mean adding greater complexity or additional material to those screens”* as this will reduce the level of usage of the platform.

In view of the inconclusive and mixed results with respect to perceived usefulness for the purpose of e-banking adoption, this study therefore further examined the perceived usefulness as recommended by past studies (e.g., Teo *et al.* 2013;Yousafzai *et al.* 2010). The inclusion of perceived usefulness will further enhance understanding of those factors that can be used to predict adoption by future researchers.

#### **2.8.2. 2 Perceived ease of Use**

Perceived ease of use refers to *“the degree to which a person believes that using a particular system would be free of effort”* (Davis, 1989). It is often regarded as the subjective feeling of the effortlessness of a system which affects the adoption of technology. It remains an important factor that determines development, delivery and acceptance of e-banking services. A system is perceived to be easily used overtime since the longer the usage of a system, the more the proximity of acceptance (Safeena *et al.*, 2011). The definition of perceived ease of use was given in the context of organization where usage of computer was the focus (Davis, 1989). Findings from Davis’ research consequently revealed that perceived ease of use significantly predicted current and future usage of system at a lesser degree than perceived usefulness. Extant authors have

equally established substantial evidence and found significant relationship between e-banking system adoption and perceived ease of use (Al-Majali & Mat, 2011; Dimitriadis & Kyrezis, 2011; Juwaheer *et al.*, 2012; Lin, 2011; Odumeru, 2012; Safeena, *et al.* 2011; Tan *et al.*, 2010; Teoh *et al.* 2013).

For instance, Al-Majali & Mat, (2011) examined success factors towards adoption of e-banking among 532 University staff in Jordan. The researchers used Innovation Diffusion Theory (IDT) and analyzed their data with structural equation modeling technique and discovered that perceived ease of use along perceived usefulness, trialability, trust, awareness and compatibility significantly and positively determines adoption of e-banking. The implication of their findings suggests that for e-banking service to be fully adopted, service provider should make operation of e-banking channels to be easy. In addition, Odumeru (2012) also investigated factors that can predict adoption of e-banking in Nigeria using modified TAM as a research framework. The research was cross sectional in nature and through which 249 valid questionnaires were received and analyzed using Linear Multiple Regression technique and SPSS. The result of their study indicates that perceived ease of use with perceived benefit, perceived usefulness, perceived enjoyment and perceived risk among other factors significantly influence e-banking acceptance in Nigeria. The implication of this study indicates that a system that is user-friendly will be highly accepted than a system that is not thereby prompting all relevant stakeholders like e-banking software and hardware developer, banks officials to continuously enhance the interface of e-banking channels so as to ensure increase in the acceptance of e-banking.



Furthermore, Tan et al. (2010), investigated factors that influence the adoption of e-banking service in Malaysia with the aid of 231 self-administered questionnaire. The study critically examined perceived ease of use, perceived usefulness, social influence, trust, perceived financial cost and perceived security as predictor variables of e-banking acceptance. After thorough analysis with multiple regression analysis technique, it was discovered that perceived ease of use among other factors significantly influences adoption intention of e-banking in Malaysia. The implication of their study seems to suggest that for the rate of e-banking to be significantly increased, it is essential that e-banking portals remain friendly. It further suggests that bank officials should redirect their attention towards improving navigation of the channels as well as provide necessary functionality that may be required to meet different needs of each user. Aside, the researchers also suggest that banks should continuously organize training programs that will enhance the skills of operation among users and this will help to increase the perception of ease of use.

In addition, Teoh *et al.* (2013), studied factors that can influence e-payment in Malaysia with benefits, trust, self efficacy, ease of use and security as predicting variables. The researcher used 183 valid questionnaires that were received from respondents and analyzed their data with the aid of multiple linear regression technique. The result of the study reveals that perceived ease of use with perceived usefulness and self-efficacy significantly influence perception of e-payment in Malaysia. The implication of their findings further reinforces the belief that when e-payment channel is easily operated it will be adopted fully by the users. The findings also indicate that there is a need to educate the consumers of e-payment on how to make use of different e-payment channels

as well as pass necessary information such as terms and conditions guiding payment, return policies, warranty and so on. All these could boost rate of adoption especially when the procedures of operation are been reviewed continuously based on the feedback from customers.

Furthermore, Safeena, *et al.* (2011), examined factors that could influence acceptance of e-banking in India among 116 respondents using SPSS and multiple regression analysis technique. They used perceived ease of use, perceived usefulness, and perceived risk as predicting variables in order to ascertain what drives e-banking usage and adoption. The results of their study indicate that perceived ease of use among other factors significantly influences adoption of internet banking in India. The implication of their findings also suggests that customers' intention to continuously use e-banking is largely induced by ease of usage of the system. The practical implication also points out that bank official should always make the members of the public and various users to be aware of conveniences and other benefits that are associated with e-banking. This will go a long way to boost the rate of adoption.

Moreover, Juwaheer *et al.* (2012), having the primary objectives of determining factors that can influence the adoption of e-banking in Mauritius examined 384 respondents via questionnaires. The authors used SPSS and inferential statistical analysis technique to analyze their data using perceived ease of use, perceived usefulness, subjective norms, attitudes, security and trust, level of awareness and demographic factors as predicting variables. Their findings reveal that perceived ease of use among other factors has a direct influence on e-banking acceptance in Mauritius. The results of their study which aligned with that of Ajzen (2002), Bandura (1982) and Hill, Ikuta, Kawasaki, and

Ogino,(1986) indicated that perceived ease of use will bring about increase in the rate of adoption of technology and equally suggests that designers of e-banking channels should provide a month-trial-basis application of e-banking services for consumers to be familiarized with e-banking system. The study also suggests that several demos should be integrated into e-banking interface through which customers will receive self-directed instruction that will facilitate usage.

Despite that several researchers have found perceived ease of use to be significant in their studies, others have since found contrary relationship (Chandra et al. 2010; Nor *et al.*2011; Wessels & Drennan, 2010). Nor et al., (2011) for instance conducted a study with the objective of determining factors that impact on the adoption of electronic Banking among Romanian banking customers. The author used mobile, home and internet banking as major electronic banking technologies and gathered their data among 440 Romans. Having used a perceived usefulness, perceived ease of use, self-efficacy, security, compatibility, cost and time as major predictors of e-banking through multiple regression analysis technique, the author discovered that perceived ease and self-efficacy are two factors that are not significant among the seven predicting variables of the study.

In addition to the findings of Nor *et al.* (2011), Wessels & Drennan (2010) have initially carried out a study to find out which factors serve as inhibitors and motivators of mobile banking acceptance among 314 Australians. The model of the study was constructed based on perceived usefulness, perceived ease of use, need for interaction and perceived risk as the predicting factor of attitude as mediating factor of mobile banking adoption. The data of the study was analyzed with correlation and multiple regression analysis technique and it was discovered that perceived ease of use did not predict attitude toward

mobile banking adoption intention. The result of this study with regards to perceived ease of use opposes existing findings which demonstrate a positive relationship between perceived ease of use, attitude and adoption intention of self service technology (Curran & Meuter, 2005; Dabholkar & Bagozzi, 2002). The implication of this finding suggests that distinct from the fact that frequent usage, personalization, and location specificity features of mobile services that make their adoption different from other self service technology, (Rao & Troshani, 2007), the high level of relationship between mobile devices and their users may also be partially accountable for this negative result (Chae & Kim, 2003; O'Donnell, Jackson, Shelly, & Ligertwood, 2007). Namely, the authors further assert that it seems that the dexterity and proficiency of consumers in the usage of mobile phone technology is gradually eliminating perceived ease of use as one of the major determinants of e-banking usage predictors.

Notably, the inconsistencies as noted in using perceived ease of use to predict adoption could be traced to some factors as noted by (Kumar, et al, 2012) that perceived ease of use is a representation of cognitive belief that is formed based on potentially second-hand information from media, referent others, and other sources and therefore influenced intentions as established by previous studies. However usage experience tends to make users face reality as they will be able to evaluate realistically the features that are inherent in the product or service and thereby make decisions on continuance usage. This therefore requires that a further study be carried out to understand how perceived ease of use can further be used to predict e-banking adoption (Chong *et al.* 2010) for the purpose of filling a research gap.

### 2.8.2.3 Perceived Security and e-banking adoption

Importance of security in banking transaction cannot be overemphasized. In fact, its significance in an online service like e-banking is more paramount than in traditional or mortal and brick transactions (Yousafzai *et al.* 2009). Perceived security is essentially defined as the degree which customers believe that transactions being carried out using a particular channel will be free from risk, fraud and intruders. In e-commerce, perceived security indicates how secured the customers feel while carrying out their transactions online. Importantly, perceived security in e-commerce has been approached from a broader view to include confidentiality and authentication of information as well as customers' detailed sense of well-being that may be liken to actual protection while carrying out transaction in offline environment (Shin & Shin, 2011). Most importantly, since online banking has been engendered with insecurity, technological solutions as well the feelings of online security are essential towards adoption of technology (Chellappa & Pavlou, 2002). Therefore, a site that is secured may not indicate the degree of security precautions being proffered while a site that is highly insecure can mislead the customers that it is secured (Shin & Shin, 2011). Accordingly, several studies have established relationship between perceived security and e-service adoption (Al-smadi, 2012; Mann & Sahni, 2013; Özkan *et al.*, 2010; Polasik & Wisniewski, 2009; Susanto *et al.* 2013; Yousafzai *et al.* 2009; Yousafzai, Pallister, & Foxall, 2003)

In this clime, Al-smadi (2012), in a bid to understand factors that could influence the adoption of electronic banking in Jordan examined five cultural dimensions with perceived risk integrating technology acceptance model (TAM) and theory of planned behavior (TPB). The researchers collected their data via questionnaires from 387

customers across 26 banks in Jordan and did their analysis with multiple regression analysis technique. The result of their study indicates that perceived risk among other factors has direct influence on attitude of customers to accept e-banking. Importantly, this has practical implication which requires that banks should develop and improve their security strategies that will protect customers' personal information, guaranty unconditional loss, reduce waiting time and delay possibility while transacting on the web. All these might lead to high confidence among users to continuously adopt e-banking.

Furthermore, Mann and Shani (2013) examined perceived security risk, perceived ease of use, demographic variables and adoption behavior on adoption of internet banking among 350 active users of e-banking which are categorized into innovators, early adopters, early majority, late majority and laggard. The researchers discovered that perceived security is a significant factor that inhibits late majority and laggards from adopting of e-banking. The implication of their finding reveals that concern for security is the biggest factor causing low adoption in India and thereby asserts that responding quickly to issue of security will help to restore confidence in the alternative channel and will eventually increase rate of adoption. Additionally, Ozkan *et al.* (2009) having the objective of investigating critical factors that may influence adoption of e-payment facilities, combined TAM and theory of Reasoned Action (TRA) in their study. The authors mainly used deductive approach to consider both primary and secondary data through which hypotheses were developed. Their data were collected from 155 respondents and analyzed with SPSS package. Their findings reveal that perceived security among other six predictors is necessary to predict e-payment adoption in United Kingdom. This aptly

points out that for the rate of e-payment adoption to be increased, necessary strategies must be put in place to improve system security that will serve as motivators for customers. The service provider must also convince the customers that their websites are safe havens to build long-term relationship. This can further be achieved through customers' education about the safety attributes such as secured servers, digital certificates, and third-party assurance seals that are available.

In line with previous authors, Polasik & Wisniewski (2009) also critically examined factors that influence decisions of customers to adopt online banking in Poland using 3519 interactive questionnaires. The authors used perceived security, internet experience, awareness, type of internet connection used, use of other banking products and demographic variables as predicting factor of e-banking and discovered perceived security among other variables is the most significant factor that predicts internet banking adoption through binomial logistic regression technique. The implication of this is that e-banking service provider should strive to ensure that e-channels are well protected by eliminating any form of threats. This can be done through introduction of two-factor authentication systems, security token, daily transaction limits, and guarantee to refund any lost fund that may occur through e-banking fraud. Furthermore, the authors assert that customers should be educated on how to take precautions by not responding to unsolicited mails and keep their password secretly. The authors also suggest that banks should equally advise their clients to install anti-virus, firewall and anti-spyware software on their system as all these will ensure that the customers are well protected while carrying out their online banking.

Furthermore, Susanto *et al.* (2013) having keen interest of examining factors that can influence initial trust towards adoption of e-banking in Indonesia examined perceived security, perceived privacy, bank reputation, usability of website, trust propensity, government support and relative benefit to predict adoption intention among 251 undergraduate students of Jakarta University. The authors assessed their complex model with Partial Least Square (PLS) and analyzed their data with SPSS while the outcome their study revealed that perceived security among other factors has positive and strong influence on initial trust and adoption intention of e-banking. The authors assert that even though “security may be a difficult challenge for firms in developing countries to address as infrastructure deficiencies are common barriers”, the implication of their study suggests that banks should improve on their security measures as this will help to increase trust and subsequent adoption of e-banking. Their findings importantly tally with the findings of other authors ( e.g. Pikkarainen *et al.* 2004; Tan & Teo, 2000).

Additionally, Aliyu, Younus, and Tasmin, (2012) investigated factors influencing adoption of e-banking in Nigeria. The data used were gathered from 125 university staff in Bayero University using perceived security, level of awareness, cost, reluctance to change, accessibility and perceived ease of use as predicting factors of e-banking adoption. The researcher used SPSS to quantitatively analyze their data and discovered that perceived security among other factors is important and greatly determines acceptability of e-banking in Nigeria. Importantly, the implication of their findings suggest that banks in Nigeria should be wary of security of their e-channels since hacking of websites and fraud have continued to intimidate most of the users. The authors further assert that when security measures such as advanced encryption, and firewalls are built



into their websites, customers will be protected and rate of e-banking adoption will be improved.

Even though perceived security as discussed above has been found to have a significant relationship with e-banking adoption, some other studies found insignificant relationship (Kasheir & Alexandria, 2009; Teoh et al., 2013) which has therefore calls for further research in this context. For instance, the study of Teoh *et al.* (2013) was conducted with the purpose of determining significant antecedents of e-payment adoption in Malaysia. The authors having discovered that the use and growth of e-payment among Malaysians is reported to be faster than the global growth, with 20 percent of online transactions made through this means compared to the global scale of 15 percent used perceived ease of use, benefits, security, self efficacy and trust as predicting factors that can assist the Central Bank of Malaysia to meet its projection of increasing the number of e-payment transactions per capita to 200 by 2020. Furthermore, the author sampled 183 users of e-payment and analyzed their data with multiple regression techniques. The results of the study indicate that perceived security and trust are not significant in predicting e-payment. The researchers in this respect recommended that trust and security should be further investigated and this will fill a gap in literature.

#### **2.8.2.4 Facilitating Conditions and e-banking adoption**

Facilitating condition was first used by Venkatesh *et al.* (2003) to determine the behavior of users towards information technology adoption in the context of organization. In their words, Venkatesh, *et al.*(2012) however defined facilitating conditions as the ‘‘consumers’ perceptions of the resources and support available to perform a behavior’’

while considering information technology acceptance from customers angle. Facilitating conditions include the degree and type of support that are provided for individual users and which has strong effect on their adoption of technology (Yu & Land, 2005). For internet services to be widely embraced some of the facilitating conditions that should be available include ease of access, excellent user interface, online support, government support in terms of regulation, internet facilities, power supply, training on how to use internet services and so on (Auta, 2010; Deb & Lomo-David, 2014; Venkateshet *al.* 2012). These conditions have been found to have direct impact on behavioral intention (e.g., Ajzen, 1991; Taylor & Todd, 1995), such as internet marketing use (Tan, Chong, & Lin, 2013). Extant authors have equally suggested that when these conditions are readily available, internet services and applications like e-banking will also become more feasible and will therefore stimulate the interest of users to adopt e-banking (Chemingui & Lallouna, 2013; Chong *et al.* 2010; Kurnia, Peng, & Liu, 2010; Pikkarainen *et al.*, 2004; Tan & Teo, 2000; Wang, 2008; Yu, 2011).

For instance, Yu (2011) having the objective of knowing the factors that influence individual to embrace mobile banking in Taiwan, employed the Unified Theory of Acceptance and Use of Technology (UTAUT) to examine 441 respondents. Importantly, the author used facilitating conditions, perceived cost, perceived credibility, performance expectancy, and intention to predict actual behavior towards mobile banking usage. The results of the study having subjected their data to thorough analysis using PLS and SPSS package indicate that facilitating conditions among other factors significantly influence the behavior of mobile banking users in Taiwan. The implications of their findings suggest that beyond making mobile useful and easy to use, banks should ensure that that

mobile banking services match the living/working styles of users by making available necessary supporting facilities that will enhance usage.

In addition to the findings of Yu (2011), Tan and Teo (2000) had earlier found significance evidence for facilitating condition in the form of government support. The researchers having used the theory of planned behavior (Ajzen, 1985) and diffusion of innovations theory (Rogers, 1983) discovered that social, perceived behavioral control and attitudinal factors along government support are the important variables that significantly influenced adoption of e-banking in Singapore. Their study was carried out based on online questionnaire survey among 454 faculty members of University of Singapore while they analyzed their data using multiple linear regression technique. The implication of their study suggests that when government actively supports e-banking, it brings about credibility as both active and potential users will have confidence in the channel thereby making the likelihood of adoption to be high.

The findings of Yu (2011) and Tan and Teo (2000) corroborate that of Kurnia, Peng, & Liu, (2010). The researchers theoretically assert that facilitating conditions in form of government support in the area of heavy investments that assisted in resuscitating national information communication technology and logistic infrastructures has helped to significantly improve the rate of adoption of e-banking. In addition, the passage of new EC laws and regulations by the government which ensures that e-banking users are legally protected have helped in improving the rate of adoption.

Furthermore, Wu (2008) having the objectives of investigating factors that motivate people to adopt contactless credit card which is one of the recent promising

technological innovations in the field of e-payments, the author used innovation diffusion theory, and technology acceptance model with other relevant literature to investigate 312 respondents in Taiwan. Further, perceived usefulness, perceived ease of use, perceived risk, compatibility, trust, availability of infrastructure and involvement of customers were used as predictive factors and discovered that facilitating condition inform of availability of infrastructure among other variables has significant effect on contactless credit card adoption. The implication of their findings suggests that since most customers in Taiwan regard usage of contactless credit card to be inconvenient, making accessibility of the payment systems and infrastructure at every possible available becomes prerequisite for adoption.

Despite that some authors have found positive and significant relationship between facilitating conditions and adoption of e-banking, others have since found contradictory results (Abushanab *et al.* 2010; Maditinos *et al.* 2013; Pikkarainen *et al.* 2004). For instance, Pikkarainen *et al.* (2004) with the objective of increasing the understanding of those factors that can influence online banking acceptance in Spain conducted a study using technology acceptance core variables (perceived usefulness and ease of use) and facilitating condition (quality of internet connection), perceived enjoyment, security and privacy and awareness about e-banking to investigate e-banking adoption in Spain. The authors studied 268 respondents and analyzed their data with correlational technique and found that facilitating condition does not play significant and direct role in the adoption of e-banking. The insignificant link between e-banking and internet connectivity (FC) can be traced to the fact that Spain has advanced in internet technology and this made internet

accessibility to be regular and stable. This case is contrary in most developing countries like Nigeria.

Furthermore, Abushanab *et al.* (2010) extended UTAUT (Venkatesh, 2003) by adding personality dimensions such as (self efficacy, innovativeness of individual, trust, perceived risk, locus of control and anxiety) to facilitating conditions, subjective norms, effort expectancy and performance expectancy to predict internet banking adoption intention in Jordan. Summarily, the findings of their study which indicate that facilitating condition has insignificant connection with adoption intention of e-banking in Jordan. The result of this study implies that that Jordanian intention to accept Internet banking is not influenced by the supportive facilities which are provided by Jordanian banks. This could possibly be explained by potential adopters not being familiar with the services or websites that Jordanian banks provide in support of Internet banking. The insignificance result that is obtained in this study implies that that intention of Jordanian to accept Internet banking is not influenced by the supporting facilities which the banks in Jordan provide. This could possibly be explained by the fact that the country of study is a developing one and that potential adopters are not being familiar with the services or websites that Jordanian banks provide in support of Internet banking since such facilities are still relatively new.

In addition to the above, a recent study carried out by Maditinos *et al.* (2013) revealed an indirect relationship between facilitating condition and e-banking adoption. Their study which extended TAM through incorporation of facilitating condition and perceived risk, was carried out with the purpose of determining factors that can influence adoption of

electronic banking in Greece. The data of the study was collected among 213 respondents and was analyzed with structural equation modeling technique. Importantly, the findings of the study reveal the robustness of TAM core variables in positively predicting adoption of e-banking. However, contrary to other studies (Chemingui & Lallouna, 2013; T. Pikkarainen *et al.* 2004; Yu, 2011), facilitating condition has no direct effect on e-banking adoption but direct effect on perceived ease of use towards prediction of e-banking.

In view of the various contradictory findings between facilitating conditions and e-service adoption in various contexts, a further research is called to elicit a better understanding of factors that can predict e-banking adoption.

#### **2.8.2.5 Awareness and adoption of e-banking**

Awareness refers to the extent to which the users of online banking are informed about the availability, benefits and challenges of the new innovation (Fonchamnyo, 2013). In this realm, Rogers and Shoemaker (1971) emphasized that customers passed through certain process of knowledge acquisition, belief, confirmation and decision making for adoption or otherwise. This position is also corroborated by other authors who assert that adoption of online banking will highly be influenced by the amount of information that customers possess (Pikkarainen *et al.* 2004). In fact low awareness about the benefits and challenges of e-banking has been major hindrance to adoption as most customers are uncertain about the channel and are even afraid of committing errors in the course of using the alternative channel (Juwaheer *et al.* 2012).

Extant studies have therefore found positive relationship between awareness and e-service adoption stating that when customers are aware of the benefits of e-banking the rate of adoption will be high (Al-Majali, 2011; Deb & Lomo-David, 2014; Dimitriadis & Kyrezis, 2011; Hanafizadeh & Reza, 2012; Ismail & Mohammed, 2012). For instance, Al-Majali and Mat (2011) having discovered that that the rate of internet banking adoption in Jordan is very low carried out an empirical study to determine success factors that can influence and bring about an improvement in the level adoption. The authors used Diffusion of information (DOI) theory with their research model containing six predictive factors which include perceived usefulness, perceived ease of use, trialability, compatibility, trust and awareness. The study validly used 517 University staff of Jordan and having subjected the data received to thorough screening and analysis, it was discovered that awareness among other factors significantly and positively influenced the rate of adoption. The implication of their study suggests that awareness plays a very significant role and that for customers to efficiently and frequently adopt e-banking; banks should publicize the availability and benefits of e-banking through promotion and awareness campaign. Their findings are in line with the discoveries of other authors (e.g.,Sohail & Shanmugham, 2003) who found that the awareness about e-banking plays significant role in e-banking adoption.

Furthermore, Dimitriadis and Kyrezis (2011) discovered that few authors have examined what makes customers to develop beliefs and trust intention in the adoption of different e-banking channels and subsequently carried out a study by integrating TAM key variables with customers' level of awareness, trusting beliefs and trusting intention to find out factors that can induce adoption of self support banking channels. Importantly, the results

of their study revealed that level of information about e-banking among other factors significantly determines what makes selected 762 bank customers to accept e-banking. The implication of their study suggests that the level of customer information on the intention to use e-banking seriously requires bank managers to increase the tempo of information diffusion among users and non users of the alternative channels. The authors emphasized that since education and information are easy tasks for banks when compared to other sectors because the banks are in possession of detailed data base of their customers and can use that opportunity to send customized SMS and other direct low-cost information about e-banking to their various customers. In addition, since non-users of e-banking frequently visit branch for transactions, branch managers can also use the opportunity to communicate and motivate them to start using SST channels through demo, pamphlets, face-to-face communication and so on.

Moreover, Ismail and Mohammed (2012) in their attempt to study factors that influence the usage of e-banking among customers of retail banks in Sudan administered questionnaires to 400 various users of e-banking channels. Data analysis was then based on 269 valid responses. The results of their study eventually indicate that Automated Teller Machine (ATM) is the most used e-banking channel and also discovered that eleven factors which include frequent breakdown of ATM, inability of customers to report technical problems, lack of clear regulations protecting e-banking transactions, inaccessibility of internet facility, weakness of banks to supply detail information about e-banking are among factors that are affecting e-banking adoption. The implications of their study suggest that the Sudanese banks should intensify their efforts towards raising



awareness about e-banking as this would eventually help to increase the rate of patronage among actual and potential users of e-banking in Sudan.

In addition, Deb and Lomo-David (2014) having the objective of determining factors that impact the adoption of e-banking in India developed a conceptual model based on TAM and DOI. The authors collected their data from 600 respondents through questionnaire and analyzed the data using SPSS and AMOS. Importantly, Perceived communication along perceived usefulness, perceived ease of use, social influence, and perceived benevolence, facilitating condition and perceived security and privacy were used as predictors of e-banking adoption. The findings of the study revealed that perceived communication in form of open, timely and accurate information sharing with customers leads to positive attitude towards m-banking. The findings of their study which corroborate with that of (Mukherjee & Nath, 2003) suggest that for customers to develop trust towards e-banking adoption, managers must intensify effort towards transparent communication of the benefits, challenges and availability of e-banking.

Even though importance of awareness to e-banking adoption has been significantly established as discussed above; other studies however found an insignificant relationship between e-banking adoption and awareness (Al-fahim 2012; Prakash & Malik 2008). For instance, Prakash and Malik's study which was conducted among 300 users and non users of e-banking used accessibility to internet, awareness about e-banking, price, security, trust, ease of use and convenience as the predictors of e-banking. The result of their study indicates that awareness about e-banking is not significant. This finding contradicts the empirical of previous authors (Aliyu et al., 2012; Juwaheer et al.,

2012) who found that when customers are aware about the availability and benefits of e-banking, the rate of adoption will improve.

Based on the importance of awareness in predicting e-banking adoption and the inconsistencies in the findings of previous researchers, this study further investigates awareness in line with suggestion of Yap *et al.* (2010) as this will further enhance factors that can be used to predicting e-banking adoption.

#### **2.8.2.6 E- satisfaction and adoption of e-banking**

One of the most significant factors underlying the success and adoption of information system is satisfaction (DeLone & McLean, 2003). Satisfaction is a reflection of cumulative feeling which customers developed in the course of multiple interactions with e-banking service provider and it does reflect a gap between perceived service expectation and actual performance. Importantly, when actual performance exceeds perceived expectation, satisfaction will result (Zhou, 2011b). Fornell, Johnson, Anderson, Cha, and Bryant, (1996) who equally recognized that satisfaction has a positive significant impact on company's performance categorized it into transaction-specific and overall-satisfaction. The transaction-specific satisfaction is regarded as the critical evaluation of customer's experiences and consequent reactions with respect to a specific service encounter (Cronin & Taylor, 1992; Wen, 2007), while overall satisfaction refers to the overall customer's evaluations of his consumption experience (Taylor & Baker 1994).

The focus of most studies is on overall satisfaction which measures overall level of satisfaction or dissatisfaction that may arise from overall experiences and encounters with

e-banking service provider. Empirically, many studies have established that when customers are dissatisfied, they may not ask for additional service in the future and perhaps engage in act of switching to other service provider or patronize other alternative channels like branch services (Yap, Ramayah, & Shahidan, 2012 ).

However, the era of online transactions has given rise to the new ways through which customers are being satisfied and this has clearly demarcated online satisfaction from traditional satisfaction (Anderson & Srinivisan, 2003; Ribbink,Riel, Liljander, & Streukens, 2004). The role of satisfaction in this realm has been found to be very significant especially that e-customers do not deal directly with the staff or company that is offering the service (Zheng *et al.* 2009). Furthermore, the era of internet technology where customers interact with computers extensively especially in e-commerce based businesses has evoked many studies in this field (e.g., Evanschitzky *et al.* 2004; Ribbink *et al.* 2004; Szymanski & Hise, 2000) and this implies that the perception of e-customers about satisfaction is totally different when compared with that of their offline counterparts. Likewise, the important consequences of overall online service satisfaction may also be diverse (Ribbink *et al.* 2004; Szymanski & Hise, 2000). Findings have however shown that studies that delve into what brings about online satisfaction generally are quite sparse (Zhang *et al.* 2009) and especially in e-banking since it has just started attracting the attention of marketing researchers (Liebanas-Cabanillas *et al.* 2013).

In view of the above therefore, extant authors have empirically established determinants of satisfaction especially but a view of them concentrated on e-banking adoption while none of them has established the mediating effect of e-satisfaction by using TAM variable. Importantly, perceived ease of use, perceived usefulness, perceived security,

and facilitating condition have been established as major antecedents of e-banking satisfaction and which will lead to adoption (Chan *et al.* 2010; Eid, 2011; Ibok & Ikoh, 2013; Kim, Kim, & Kim, 2009; Lee, Choi, Kim, & Hong, 2007; Liébana-Cabanillas *et al.* 2013; Wang, Hsieh, & Song, 2012; Zhou, 2011a, 2011b).

For instance, Ibok and Ikoh (2013) observed that rate of e-banking satisfaction in Nigeria is dwindling and carried out a study to determine factors that can improve the rate of satisfaction and adoption among 40 customers. The authors used account accessibility, perceived ease of use, security and privacy, account control and account transaction as predicting factors. Having analyzed their data with multiple regression technique, the study found a positive relationship between perceived ease of use and satisfaction among other factors. The implication of their study suggests that by improving on the predictive factors such as ease of use of e-banking facilities will help banks' management to increase level of satisfaction and adoption in Nigeria.

In addition, Zhou, (2011) carried out a study to determine factors that can influence the adoption of mobile website in China. The author used valid questionnaire responses from 229 mobile site users and subjected their data to thorough analysis using structural equation modeling. Using information theory, Technology acceptance constructs and trust, the authors found that perceived ease of use and perceived usefulness among other variables positively determine mobile usage satisfaction in China. The practical implication of their study suggests that for users of mobile sites to be satisfied, mobile sites should easily be used and be capable of helping achieving their daily objectives. This can be achieved by ensuring that a well-designed mobile site interface is presented

to the users as well as deliver accurate, comprehensive and timely information which will help users to perceive mobile site to be useful.

In line with Ibok and Ikoh (2013), Zhou (2011), Lee et al., (2007) while examining the influence of culture on the post adoption behavior of mobile internet users in Korea, Hong Kong and Taiwan made a lot of empirical discoveries with regards to perceived usefulness and perceived ease of use. The study was carried out using 3518, 1168 and 435 valid online questionnaire responses from Korea, Hog Kong and Taiwan respectively to determine which factors significantly influence mobile site satisfaction. Importantly, the results of their study indicate that cultural factors such as individualism, avoidance of uncertainty, context inclination, monochromic inclination along perceived usefulness and ease of use significantly influence mobile site satisfaction. The implication of their study indicates that cultural lens of individual user of technology helps to determine the perceived extent of usefulness and ease of use of the system and which eventually affects level of satisfaction. However, the studies of Kumar & Ravindran, (2012) and Mai, Tuan, and Yoshi, (2013) found insignificant relationship between perceived ease of use and e-satisfaction in the context of mobile banking and online shopping respectively.

For instance, Kumar and Ravindran, (2012) as cited above conducted a study with the objective of knowing factors that impact early adopters of mobile banking in India and which will eventually bring about increase in the rate of adoption. The study made use of perceived ease of use and perceived usefulness with other constructs such as perceived credibility, perceived service quality and perceived risk towards improving rating of mobile banking satisfaction and subsequent rate of adoption. The data of the study was

collected from 184 valid respondents and was analyzed with Structural Equation Modeling and PLS techniques. The end product of their study indicates that while other constructs are significant, perceived ease use and perceived risk are not significantly related to satisfaction. The implication of their study suggests that perceived ease of use is a cognitive belief which the users form based on second-hand information from various sources such as friends, popular media and others upon which their intentions are formed. The authors further suggest that however, the reality may come to fruition when users have adopted the channel and discovered that their performance in term of ease of use does not match their expectation especially when they have been able to realistically evaluate the channels.

Furthermore, Eid (2011) empirically determine the factors that can generate loyalty among e-commerce customers in Saudi Arabia. The author distributed 500 questionnaires among e-commerce users and did their analysis with 218 valid and usable responses. The predictive factors in this study include user-interface-quality, information quality, perceived security and perceived privacy. The result of structural equation modeling of the study indicates that the data collected fit their model as perceived security among other factors significantly influenced e-customers satisfaction. The implication of this study since suggested that for loyalty to be enhanced in e-banking services, educational resources, stock trading, online purchase of books, and participation in e-auction, the service provider must improve on the level of security of the channels as this will significantly affect satisfaction of the users.

In addition to the findings of other authors, Chan *et al.* (2010) examined 12 factors that can predict users' satisfaction of e-government technology. The factors are categorized into external variables and technology adoption core beliefs. The external variables are the predictors and are further categorized into market preparation stage (awareness), Targeting stage (compatibility and self-efficacy), positioning stage (flexibility and avoidance personal interaction), and execution stage (trust, convenience and assistance). The technology adoption beliefs which serve as mediating factors include performance expectancy, effort expectancy, social influence and facilitating conditions. In testing the model of the study, a two-stage survey among 1,179 Hong Kong citizens was executed with the purpose of determining factors that can influence adoption of e-government services. The result of their study reveals that facilitating conditions among other factors significantly influence citizen satisfaction of e-government services. The implication of their finding points out that for citizens to be satisfied with e-government services, necessary supporting facilities such as public workstations through which smart-card-based services can be equally and easily accessed should be provided. This also has important and similar implication for e-banking services.

Consequent from above discussions, it is apparent that various factors are used as the determinants of satisfaction in an online environment and which points to fragmentation in the models used for the prediction (Ndubisi & Sinti, 2006). Evidence has also shown that e-satisfaction is either used as an intervening or dependent variable (e.g, George & Kumar, 2013; Liebanas-cabanilas *et al*, 2013) as no full mediation of satisfaction in the context of e-banking using the predictors and dependent variable of this study has been tested.

### **2.8.2.7 E-Trust and adoption of e-banking**

The feature and characteristics of online service delivery has given rise to a lack of trust among some e-banking customers. This arises due to lack of personal and direct interaction between service provider and customer (Akhlaq & Ahmed, 2013). The lack of physical interaction which consequentially creates a vacuum between the customers and service provider importantly implies that the customers cannot directly observe front line officers or the physical office space with the purpose of judging how trustworthy the service provider is (Susanto *et al.* 2013; Yap *et al.* 2010). Activities being carried out in the online environment do not permit instant and simultaneous exchange of goods/service and money since there is a spatial and temporal separation of buyers and sellers. Further, the fear of hackers who often intrude privacy has importantly created uncertainties in the online services and couple with the news of frauds and other associated activities that have dominated the headline of news in the recent time (Yap *et al.* 2010). Due to lack of trust, skepticism and uncertainty, a gap has been created and it is the duty of bank managers to quickly to bridge this gap so as to grow e-banking as an important medium through which banks can perform good and excellent service delivery (Yap *et al.* 2010).

Trust has therefore been conceptualized as a situation when one party or a customer has confidence and believes that the service provider has integrity and can be relied on (Morgan & Hunt, 1994). Trust can importantly be defined as ‘a willingness to rely on an exchange partner in whom one has confidence’ (Morgan& Hunt, 1994, p.23). Extant literature on trust has suggested that confidence forms the bedrock of trust since one party has the strong belief that the service provider is consistent, honest, helpful, fair,



benevolent and competent and would not take personal advantage of service agreement (Chandra et al., 2010; Ulaga & Eggert, 2006)

In addition, Aydin, Özer and Arasil, (2005), further assert that for service provider to gain trust, the recipient of service must believe that the action being performed will result in positive and desired outcomes and such outcomes will continuously be delivered in the future. From the perspective of (Ganesan, 1994), trust has two components: performance or credibility trust and benevolence trust ( Yap *et al.* 2012)

In online environment generally and e-banking service in particular, concept of trust has been defined as “a psychological state which leads to the willingness of customer to perform banking transactions on the internet, expecting that the bank will fulfill its obligations, irrespective of customer’s ability to monitor or control bank’s actions”(Tan *et al.* 2010). However, previous authors have empirically established relationship between creating trust in online banking just like any other e- transaction and perceived usefulness, perceived ease of use, facilitating conditions and perceived security (Akhlaq & Ahmed, 2013; Chellappa & Pavlou, 2002; Liébana-Cabanillas et al. 2013; Yap *et al.* 2010; S. Yousafzai et al. 2009; Yu & Land, 2005).

Akhlaq and Ahmed (2013) for instance carried out a study in a low income country like Pakistan to determine which factor can prompt an individual to develop trust and adopt e-banking. In this research, the authors studied both intrinsic motivation (such as perceived ease of use and perceived enjoyment) and extrinsic motivation (perceived usefulness) among 109 respondents. In analyzing their data, a structural equation modeling technique was used and they discovered that perceived ease of use and perceived enjoyment played

positive significant role in developing trust in e-banking adoption. The results of their study are in line with the findings of previous authors (e.g., Aldás-Manzano *et al.* 2009), and practically suggest that for e-banking rate of usage to be increased in Pakistan, more attention should be paid to those factors (such as perceived ease of use of e-channels) that will make users to develop trust. In this clime, when banks make users interface to be easier and enjoyable, users will trust the banks since they will believe that more resources are been committed to the relationships. The findings Aldás-Manzano *et al.* (2009) equally support that of Akhlaq and Ahmed (2013) when they conducted a study among 511 users of internet banking in Spain. The predictors in their model include financial services involment, perceived usefulness, ease of use, trust and perceived risk. Having analysed their data, the results of the study indicate that perceived ease of use significantly influences trust towards internet banking use in Spain. The implications of the finding of this study implies that trust which is a key variable in the adoption of e-banking can be earned through perceived ease of use that is communicated to users through good system design.

Though Akhlaq and Ahmed (2013) and Aldás-Manzano *et al.*, (2009), the finding of Yap *et al.* (2009) is however contrary since they found that perceived ease of use is not a significant factor in trust towards adoption of e-banking. The authors for instance discovered that the growth rate of e-banking does not match with that of internet and adduced this to inadequate trust among users of e-banking among 202 customers in Australia. In view of this, the author conducted a study with purpose of knowing which factors can bring an improvement using attributes of traditional branch (such as size and reputation) and attributes of e-banking (such as perceived security, perceived ease of use

and perceived privacy) to determine trust towards adoption of e-banking. It is important to state perceived ease of use and perceived usefulness were found to be insignificant in this study. This contradiction in findings has further suggested further and extensive research into this domain.

In addition to the previously discussed views, Yousafzai *et al.*, (2009) identified perceived security as one of the antecedents of trust in internet banking adoption. Having ascertained that trust which occupies importance place in the banker-customer relationship has not been fully translated to the electronic world, Yousafzai et al (2009) conducted a study in order to develop and validate a multi-dimensional model of trust for e-banking. In conducting their study, the authors collected valid data from 441 Internet banking users in Scotland and analyzed the data with SEM. The results of their study reveal that perceived security along perceived privacy, and perceived trustworthiness positively influenced e-banking trust in Scotland. The implication of their study suggests that though the purpose of banker-customer relationship is for the customer to receive efficient and useful e-banking services, banks must pay serious attention to those factors that can help customers to build trust in the services which the banks are rendering. In view of this therefore, it is highly essential that banks incorporate different security mechanisms such as guarantees against fraud, good and clear policy statements, and clear graphical presentation of security systems into their website. Importantly, this may prompt the customers to be more willing to accepting risk if they are sure that their banks can be depended on.

Furthermore, Yu and Land, (2005) in their quest to determine whether there are any unique factors that can make users to adopt wireless mobile technology in Texas conducted a study among 357 MBA university students. Using Structural equation modelling to analyse their data, the authors discovered that facilitating conditions in the form online support, regulatory and protective legal framework and technical training on how to use wireless mobile technology can engender trust in adoption. The implication of this study suggests that to improve acceptance of WIMT, all hands must be on deck to ensure that relevant policies, regulations and legal frameworks are put in place to protect users. In addition, special training and technical support that will enhance user's ability are also required among the potential and early mobile data services users. Importantly, trust was positively linked with intention to adopt wireless services and which indicates that trust occupies a pivotal position in virtual environment irrespective of the context.

In addition to the above studies, Chellappa and Pavlou (2002) had initially conducted a study in USA with the purpose of discovering factors that can engender trust in e-commerce adoption. Critically, the authors used four antecedents of perceived security (such as encryption, protection, verification and authentication) as independent variables while perceived security was mediating between independent variable and trust (DV). The result of their study that was conducted among 179 customers revealed a significant relationship between perceived security and e-commerce trust.

In view of the of the inconsistencies in the above studies and which further shows that research in this respect is inconclusive (Al-Maji & Mat, 2011), this study further investigated e-trust. This is also in line with the recommendation of Yap *et al.* (2013)

who assert that the growth of e-banking has not kept up with that of internet due to lack of trust. Yap *et al.* (2013) further suggest that trust as a mediator should be further be investigated as studies in this perspective are scarce.

#### **2.8.2.8 Hedonic Motivation and adoption of e-banking**

Hedonic Motivation otherwise known as perceived fun or perceived enjoyment has been conceptualized as an important variable that can stimulate adoption of technology. Venkatesh *et al.*(2012) for instance defined it as the pleasure or fun that may motivate users to using e-banking while Pikkarainen, *et al.* (2004) conceptualized hedonic motivation as the degree to which the process of using computer is deemed to be enjoyable in its entirety. Importantly, hedonic motivation is intrinsic in nature and system features such as background music, web animation, web entertainment, speed and download, site interactivity and so forth can motivate users to actively adopt technology (Ndubisi & Sinti, 2006).

Furthermore, many other recent studies consider implication of hedonic motivation on the adoption of e-banking. For instance, the studies of Chtourou and Souiden, 2010; Curran and Meuter's (2007) and Anto'n *et al* (2013) have all confirmed that the enjoyment felt in the course of using e-banking can bring about adoption of e-banking. This same position is equally maintained by Sun and Zhang (2006) who found that acceptance of information technologies is highly influenced by the fun derived while using the facilities. In fact, Sun and Zhang (2006) maintain that those who enjoy the usage of information system will likely adopt the system fully.

In addition, a number of other studies also noticed the significance of hedonic motivation by establishing a positive correlation between intention/usage of mobile banking (Nysveen *et al.* 2005; Pikkarainen *et al.*, 2004; Teo *et al.* 1999). For instance, Nysveen *et al.* (2005) found that hedonic motivation positively influenced the intention of female customers who chat through mobile platform than male users. This result as obtained by Nysveen *et al.* (2005) is also similar to that of Teo *et al.* (1999) who found that perceived enjoyment has positive correlation with frequency of Internet usage. Teo *et al.* (1999) definitely believe that Internet usage offers motivation and it is exciting especially if it offers adequate security that can motivate users (Bockarjovas & Steg, 2014). On the other hand however, Pikkarainen *et al.* (2004) examined e-banking banking acceptance and found that hedonic motivation has no positive correlation with e-banking acceptance. This is also in line with the findings of Igbaria *et al.* (1995) in the usage of data processing systems and Ndubisi and Sinti (2006) who found that hedonic motivation is not significant in the adoption of e-banking. It is therefore expected that using of e-banking would generate motivation that can encourage customers to adopt the services. However, the contradictory findings in the above studies make a further research to be necessary (Al-majali & Mat, 2011; Ndubisi & Sinti, 2006) and this is in line with the recommendation of Wei *et al.*, 2010 who recommended that factor such as perceived enjoyment (equivalent of hedonic motivation) that has been empirically tested should be researched further as this may further enhance our understanding about factors that can be used to predict e-banking adoption.

## 2.9 Chapter Summary

This chapter reviews and discusses past electronic banking adoption literature. Specifically, it discusses in details determinants of e-banking adoption such as perceived usefulness, perceived ease of use, facilitating condition, perceived security and awareness from the perspective of e-banking in particular and e-commerce generally. Besides, the chapter also considers the evolution of banking and e-banking in Nigeria, marketing of e-banking services, banking crisis and recent outlook of banking operations in Nigeria. It also discusses the underpinning theories with a few to elicit to understanding how e-banking adoption can be improved.



## CHAPTER THREE

### RESEARCH FRAMEWORK AND HYPOTHESIS

#### 3.1 Introduction

This chapter contains the conceptual model and hypotheses of the research. The model which is created from extensive review of literature shows the relationships that exist between independent variables (perceived security, perceived usefulness, awareness, facilitating condition, perceived security) and dependent variable (e-banking adoption). The model also diagrammatically introduces the mediating variables (e-satisfaction, e-trust and hedonic motivation) and how they mediate between independent variables and dependent variable of the study. In addition, the chapter also explains essential information on the theoretical and practical gaps of the study, while it finally presents the hypotheses that shall be tested in order to establish relationship among all the variables of this study.

#### 3.2 The conceptual model of the study

Based on the extensive literature review in the preceding chapter, the framework of this study that is shown in figure 3.1 is conceptualized. From the framework, there are five independent, three mediating and one dependent variable. Basically, the independent variables are: (1) perceived usefulness (2) Perceived ease of use (3) perceived security (4) facilitating condition and (5) awareness while the dependent variable of the study is e-banking adoption. The mediating variables are e-satisfaction, e-trust and Hedonic Motivation. Figure 3.1 below shows the theoretical relationships that exist among all the variables upon which hypotheses of the study shall be formulated.



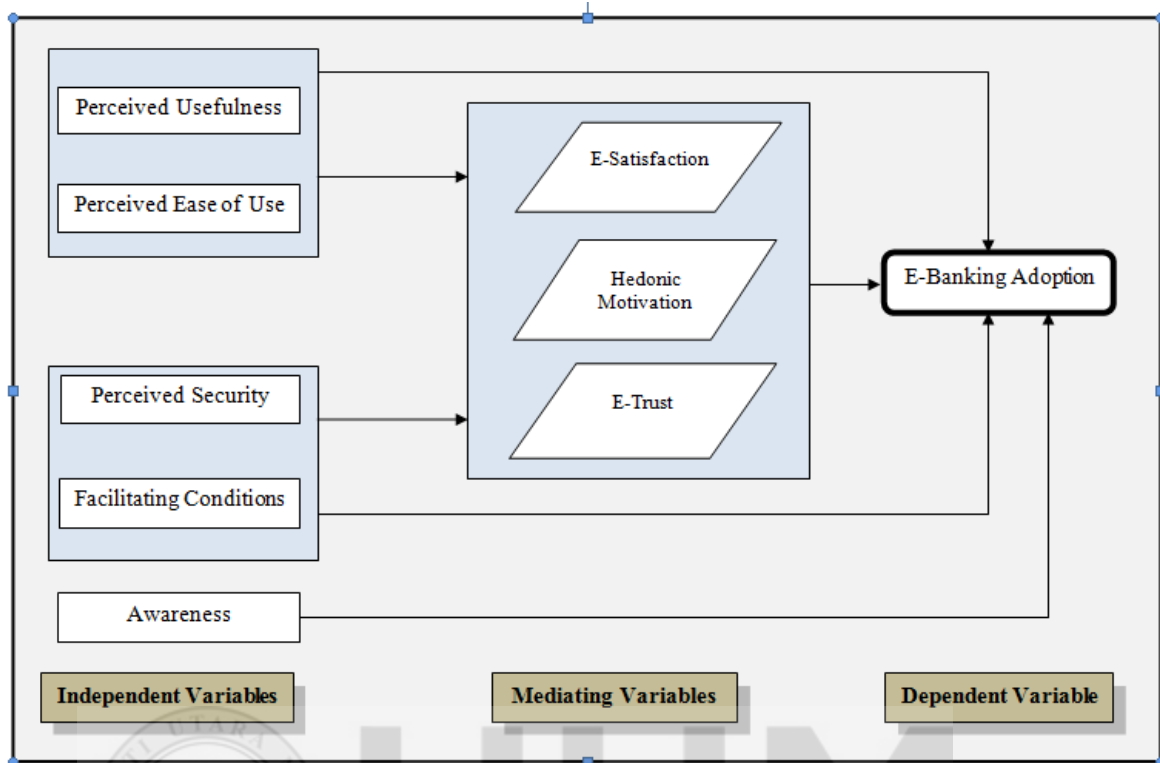


Figure 3.1: The conceptual Framework of the Study

### 3.3 The case of E-banking adoption and its determinants

From the above conceptual framework, the main focus of this study is e-banking adoption. Practically and theoretically, it has been established that the rate of electronic banking adoption is very low both in developed and developing countries despite the benefits that may be gained from its adoption (Abushanab et al. 2010; Adesina & Ayo, 2010; Agwu, 2012). For instance, it has been discovered that one out of every six users of electronic banking in USA and in other developed countries is not ready to become active user of e-banking either because the channel is vulnerable to security issue or because the process of operating the channel is too tasking or ambiguous.

The case of e-banking adoption in developing countries also calls for urgent attention as it has also been found that the rate of its adoption is also low (Ndubisi & Sinti, 2006; Safeena, *et al.* 2011). Practically, (KPMG, 2013) have found that the rate of adoption in Nigeria is abysmally low when compared with other African countries like Zimbabwe, Angola, Ghana, Kenya, Botswana, and Senegal. In support of the practical findings, Academic Scholars have equally found that the rate of adoption of e-banking in Nigeria is also low and have equally attributed this to insecurity, lack of adequate facility and lack of awareness about e-banking benefits (Adesina & Ayo, 2010; Agwu, 2012; Bankole & Brown, 2011). Other authors have also asserted that majority of bank customers in Nigeria perceived that e-banking channels lack good interface, complicated and not easily operated to achieve their daily objectives (Auta, 2010).

Furthermore, due to poor quality service among the e-banking service providers, majority of customers are highly dissatisfied with the service being rendered to them while they have also developed distrust for the channels due to security issues that have made many of the customers to lose their money to electronic frauds (Adesina & Ayo, 2010; Dogarawa, 2010; Odumeru, 2012) . Though various authors have examined different antecedents of e-banking adoptions, their findings remain fragmented and mixed (Al-Majali, 2011; Ndubisi & Sinti, 2006) thereby calling for further investigation.

In view of this, the next section based on the conceptual framework that is presented above will examine the relationships that exist between e-banking adoption, its determinants and other mediating variables.

### 3.3.1 Perceived usefulness

Perceived usefulness is defined as “the potential user’s subjective probability that using a particular system will enhance job performance in an organizational context” (Davis, 1989). From the view of customers however, a system is perceived to be useful when it can be accessed in an easier and agile manner and when the benefits of the usage will help them to achieve their daily objectives (Liébana-Cabanillas et al., 2013; Nasri & Charfeddine, 2012). Other authors have also argued that perceived usefulness of a system has a greater influence on satisfaction (Wu, 2013; Zhou, 2011b). In this respect therefore, online service satisfaction has been extensively studied since late 90s (Kuo & Wu, 2008) as it has been proved that when there is improvement in service rendition, satisfaction will be enhanced and future repurchase intention will be reignited and thereby brings about continuous adoption of e-channel (Chiou & Shen, 2012; Eid, 2011). In the context of e-banking, it has further been argued that satisfaction is a corner stone of success as service providers use different channels to customize the services and products being rendered with purpose of meeting the needs of users (Mattila, 2001). Riquelme, Mekkaoui, and Rios, (2009) have also demonstrated that the end product of good services being rendered by an entity in an online environment is e-satisfaction that can make customers to continue to use or adopt such services (Casaló *et al.*, 2008). Furthermore, other Information Technology adoption scholars such as (Bhattacharjee, 2001; Davis, 1989; Venkatesh & Davis, 2000) have constantly found positive relationship between perceived usefulness and users’ adoption intention.

Trust on the other hand has been widely researched and established to be an important predictor of customer patronage of services in offline transactions. However, it remains

area of challenge as it has been under-researched in online context and should further be researched (Akhlaq & Ahmed, 2013). To establish trust in online context, especially in the e-banking channels, a customer must be assured that transaction carried out in the online environment is highly secured and information supplied will not be compromised or traded for the benefit of a third party (Yap *et al.* 2010). The role which trust plays in the development of a customer and service provider relationship is very important especially in the context of e-banking where there is absence of personal interaction and where services involved are very complex (Chemingui & Lallouna, 2013). Previous studies of online banking have established that trust is an essential predictor of online adoption (Daniel, 1999; Özkan *et al.* 2010). For customers to develop trust in e-banking, they must therefore have confidence in the channel and found the channels to be useful to achieve their objectives (Aldás-Manzano *et al.* 2009). Perceived usefulness is therefore defined as the perception that e-banking is useful in achieving e-banking transactional objectives that will eventually bring trust, satisfaction, perceived enjoyment and adoption.

Consequently therefore, some authors have found that perceived usefulness have links with e-trust, e-satisfaction and e-adoption (*e.g.*, Kim & Lee, 2013; Liébana-Cabanillas *et al.*, 2013; Pikkarainen, *et al.*, 2004; Tan, *et al.*, 2010; Yap *et al.*, 2010). Kim & Lee (2013), for instance, examined key factors that are influencing customer satisfaction in mobile sector of Korea using information quality, service quality, self efficacy, perceived usefulness and ease of use variables among 256 users in Korea. The result of the study reveals that perceived usefulness has significant mediating effect on customer satisfaction. This signifies that when mobile services through internet are perceived

useful, the rate of satisfaction of users will be high. Furthermore, Liebana-Cabanillas *et al.* (2013) further examined 986 e-banking users in Spain using TAM variables: perceived usefulness, perceived ease of use (Davis, 1989) and accessibility and Trust. The result of the study reveals that perceived usefulness has significant effect on satisfaction. This clearly demonstrates that when e-banking users perceived that e-banking services are useful, they tend to be satisfied and develop trust (Wu, 2013; Zhou, 2011b)

Furthermore, Pikkarainen *et al.* (2004), through focus studies with professional bankers, extensive review of literature on e-banking and TAM variables developed a model that was used to predict acceptance of e-banking among 268 respondents in Finland. The study eventually added 4 other variables (perceived enjoyment, information about online banking, quality of internet connection and security and privacy) to perceived usefulness and perceived ease of use. Their findings reveal that perceived usefulness among other variables significantly predict acceptance of online banking. In the same clime, Yap *et al.* (2010) investigated factors that can be used to predict trust in both traditional and online banking among 202 bank customers in Australia using hierarchical regression and five other variables such as perceived usefulness, perceive ease of use, perceived security, perceived privacy, size and reputation of banks. The authors discovered that perceived usefulness among other factors significantly predicted trust which eventually predicted willingness to adopt e-banking. Pagani (2004) equally found a relationship between perceived usefulness and hedonic motivation but in a qualitative study.

Based on the foregoing discussion and arguments, the following hypotheses are hereby formulated:

H1a: There is a positive relationship between Perceived Usefulness and e-satisfaction in the banking sector of Nigeria

H1b: There is a positive relationship between Perceived usefulness and e-trust in the banking sector of Nigeria.

H1c: There is a positive relationship between Perceived usefulness and Hedonic Motivation in the banking sector of Nigeria.

H1d: There is a positive relationship between Perceived usefulness and e-banking adoption in the banking sector of Nigeria.

### **3.3.2 Perceived ease of use**

Perceived ease of use is one of the constructs of TAM that is used to describe the degree in which customers believe that certain system is easily operated and required less physical and mental effort (Davis, 1989). In the words of Davis (1989), perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort." The fact that a system is perceived to be useful does not automatically result to usage especially when the system is perceived to be difficult to comprehend (Davis, 1989; Mann & Sahni, 2013; Safeena, *et al.* 2011; Zhou, 2013). Various authors have examined system usage in different contexts and have come up with different antecedents of perceived ease of use (e.g., Kim *et al.*, 2013; Liebana-Cabanillas, *et al.* 2013; Taylor, Sohail & Al-jabri, 2013; Venkatesh, 2000). Venkatesh, for instance critically examined system usage in the context of information system and came up with two set of antecedents of perceived ease of use namely anchors and adjustments. Anchors (such as computer self efficacy, perception of external control and computer anxiety) and

adjustments (such as perceive enjoyment and objective usability) are set of controls and believe that serve either as inhibitors or enablers to system adoption. Kim and Lee, are of the view that a system is perceived to be easily operated when the system provides quality information and service quality.

Furthermore, Rogers (1995) theoretically observed that complexity of a system will further constitute a barrier that will discourage users from adopting an innovation especially where the users do not have opportunity to interact face-to-face with the service provider, thereby advocates that a system that is user friendly and ease to use will pose less threat to users. In this clime too, Pikkarainen, *et al.* (2004) Yu, (2011) and Liébana-Cabanillas *et al.* (2013) assert that a system that is perceived to be easier to learn and easier to use will likely be adopted than a system that is perceived to be difficult. The same findings have been established in the field of online banking, wireless internet and World Wide Web (Chong, *et al.* 2010; Mann & Sahni, 2013).

Importantly, perceived ease of use has also been regarded as an important determinant of users' satisfaction in information system and electronic services adoption (Kim & Lee, 2013; Polites *et al.* 2012). In line with e-banking, extant authors have theoretically proposed and found that ease of use has direct effect on satisfaction (Liébana-Cabanillas *et al.* 2013).

Furthermore, trust is regarded as the definite believe in service provider and formed the basis upon which banker-customer relationship is built. Trust especially becomes more significant in the e-banking environment than it is in the traditional banking environment (Akhlaq & Ahmed, 2013) since transaction in the former has become more uncertain and

risky than in the latter. From the point of security, internet banking is perceived to be inherently risky (Chiou & Shen, 2012). Trust has therefore been found among other significant factors that can determine customer attitude towards acceptance and adoption of e-banking (Chiou & Shen, 2012; Thamizhvanan & Xavier, 2013). Various studies have found that customers will develop trust in e-banking channels that are user-friendly and which give them less physical and mental stress in operations since they will believe that the e-banking service providers are committing more resources to the relationship (Akhlaq & Ahmed, 2013). In addition, Wu and Chen (2005) assert that ease of use of a system can engender trust since it helps the users to nurse the positive impression about online service provider. Importantly, ease of interaction, searching effortlessly, and perfect navigation and stable links have all been linked to online trust development (Aldás-Manzano *et al.* 2009). In view of the related discussions, key and empirical relationships have been established between perceived ease of use, e-trust, e-satisfaction and e-adoption (Kim & Lee, 2013; Liébana-Cabanillas *et al.* 2013; Wang, 2008; Yap *et al.* 2010).

For instance, Liébana-Cabanillas *et al.* (2013) in Spain developed a behavioral model that can be used to explain e-banking users' satisfaction using some constructs such as accessibility, trust, ease of use and usefulness. Having used the data extracted from e-banking satisfaction survey carried out by a financial institution in Spain, the authors empirically discovered that ease of use among other endogenous factors predicted e-satisfaction. Kim and Lee (2013), in the same vein found that perceived ease of use positively related to customer satisfaction in the context of mobile sector in Korea. Kim and Lee (2013) examined the behavior of 256 users using variables such as information



quality, service quality, self efficacy, perceived usefulness and ease of use and discovered that perceived ease of use among others significantly influences customers' satisfaction. Akhlaq and Ahmed, (2013) also examine the effect of motivations such as extrinsic (Perceived usefulness) and intrinsic (perceived ease of use and perceived enjoyment) on trust towards acceptance of e-banking in Pakistan. The scholars studied 109 respondents using structural equation modeling to analyze their data and discovered that perceived ease of use and perceived enjoyment significantly influenced trust towards e-banking behavioral intention.

Additionally, Mann and Sahni, (2013) having examined 350 users of online banking by classifying them into four major categories of innovators, early majority, late majority and laggards (Rogers 1995) by using four variables of perceived ease of use, perceived security, demographic variables and adoption behavior discovered that perceived ease of use has significant and greater effect on internet adoption of innovators than other categories. In addition the study of Chtorou and Souiden (2010) found a relationship between perceived ease of use and hedonic motivation. This indicates that these studies have further established that perceived ease of use of a system will bring about easy interaction and will result to adoption of e-banking. Based on the above, the following hypotheses are hereby formulated:

H2a: There is a positive relationship between Perceived ease of use and e-satisfaction in the banking sector of Nigeria.

H2b: There is a positive relationship between Perceived ease of use and e-trust in the banking sector of Nigeria

H2c: There is a positive relationship between Perceived ease of use e-banking adoption in the banking sector of Nigeria.

H2d: There is a positive relationship between Perceived ease of use and hedonic motivation in the banking sector of Nigeria.

### **3.3.3 Perceived Security**

Perceived security refers to the perception which online banking users hold with respect to the vulnerability of their transaction details. The importance of security in online transaction has been emphasized by various studies and it is often regarded as the degree in which transaction that is carried out online is protected from intruders or unauthorized persons (Adesina & Ayo, 2010; Fonchamnyo, 2013; Juwaheer et al. 2012; Sohrabi et al. 2013). The fear of insufficient security has been regarded as a major impediment to the adoption of e-channels transaction as cases of frauds have continued to intimidate and made users to develop negative feelings (Chiou & Shen, 2012; George & Kumar, 2013; Tan et al. 2010). Furthermore, extant scholars have empirically reported security as either an inhibitor of adoption of online service where customers feel unsafe and where they have been exposed (Salhieh et al., 2011; Susanto et al. 2013) or as enabler or motivator where they perceived that the channels are highly protected from fraudsters (Bockarjova & Steg, 2014; Tan *et al.*, 2010)

Furthermore, many previous studies have empirically established relationship between online satisfaction and perceived security (e.g., Eid, 2011) on one hand and between online trust and perceived security on the other (Akhlaq & Ahmed, 2013; Yap *et al.* 2010). Consequently, security has become an important variable that determines the level of satisfaction, trust and motivation in the online environment and will equally determine

whether services rendered will be adopted continuously or not (Adesina & Ayo, 2010; Bockarjova & Steg, 2014; Mann & Shani, 2013; Pikkarainen et al., 2004).

Eid, (2011), while examining the antecedents of customers loyalty in online business to customer (B2C) relationship in Saudi Arabia using users interface quality, information quality, perceived security, perceived privacy, e-satisfaction and e-trust, Eid, discovered that perceived security among other variables significantly influences e-satisfaction and e-trust towards prediction of loyalty. The finding of Yousafzai *et al* (2009) reveals a negative relationship between perceived security risk and adoption. Based on the above discussion, the following hypotheses are hereby formulated:

H3a: There is a positive relationship between Perceived Security positively relates to e-satisfaction in the banking sector of Nigeria.

H3b: There is a positive relationship between Perceived Security positively and e-trust in the banking sector of Nigeria.

H3c: There is a negative relationship between Perceived Security and e-banking adoption in the banking sector of Nigeria.

H3d: There is a positive relationship between Perceived Security positively and hedonic motivation in the banking sector of Nigeria.

#### **3.3.4 Facilitating conditions**

Facilitating conditions refer to consumers' perceptions of the resources and support available to perform a behavior (Venkatesh *et al*,2012). It includes the degree and type of support that are provided for individual users and which has strong effect on their adoption of technology (Yu & Land, 2005). For internet services to be widely embraced

some of the facilitating conditions that should be available include ease of access, excellent user interface, online support, government support in terms of regulation, internet facilities, power supply, site-aesthetics, training on how to use internet services and so on (Auta, 2010; Deb & Lomo-David, 2014; Venkatesh, *et al.*, 2012). These are important consideration as facilitating conditions have been found to have a direct influence on behavioral intention (Ajzen, 1991; Taylor and Todd, 1995), such as internet marketing use (Tan, Chong, & Lin, 2013). Extant authors have equally suggested that when these conditions are readily available, internet services and applications like e-banking will also become more feasible and will therefore stimulate the interest of users to adopt e-banking fully (Tan & Teo, 2000).

Moreover, while facilitating conditions are often conceptualized to directly influence use of information system products and services (Taylor & Todd, 1995; Venkatesh *et al.*, 2003), the position of dissonance theory is that there are circumstances where the facilitating conditions could inhibit adoption and make individuals to negatively adjust their behavior in line with the situation (Festinger, 1957). Contrarily however, when there are enough resources such as government support, desk support, legal resources, adequate training, aesthetics environment, and peer support, individuals may likely adjust their attitudes positively since there may be fewer reasons why they have to engage in the negative behavior (Chan *et al.* 2010). Therefore, similar to other factors, this study expects facilitating conditions to influence user satisfaction, trust and hedonic motivation since such conditions are in existence in the voluntary setting like that of electronic banking (Hsieh *et al.* 2008; Sykes *et al.* 2009).

Consequently, extant authors have established relationship between facilitating condition, e-satisfaction, e-trust hedonic motivation and online service usage (Abushanab *et al.*, 2010; Chan *et al.* 2010; Sathye, 1999; Yu & Land, 2005; Yu *et al.* 2015). Abushanab *et al* (2010), found an insignificant relationship between facilitating condition and usage intention. Chan *et al.* (2010), established a positive relationship between facilitating condition and satisfaction while Yu and Land, (2005) empirically established a significant relationship between facilitating condition and trust. Additionally, the study of Kha, Moon and Rho, (2011), found a positive relationship between facilitating condition and hedonic motivation while the study of Oechslein, Fleischmann and Hess (2014) found a negative relationship facilitating condition and adoption. Based on the above discussion, the following hypotheses are hereby formulated:

H4a: There is a negative relationship between Facilitating Conditions and e-satisfaction in the banking sector of Nigeria.

H4b: There is a positive relationship between Facilitating Conditions and e-trust in the banking sector of Nigeria.

H4c: There is a negative relationship between Facilitating Conditions and e-banking adoption in the banking sector of Nigeria.

H4d: There is a positive relationship between Facilitating Conditions and hedonic motivation in the banking sector of Nigeria.

### **3.3.5 Awareness**

Awareness refers to the degree of information which users have about the availability, benefits and challenges of the new innovation (Fonchamnyo, 2013). In this study,

awareness is directly linked to adoption without taking into consideration the joint effect of other variables based on the position of previous scholars (e.g, Guiltinand & Donnelly, 1983; Juwaheer *et al.* 2012) who argue that awareness is a single variable that should be considered either before or after adoption. Consequently, Rogers, (2003) emphasized that customers passed through certain process of knowledge acquisition, belief, confirmation and decision making for adoption or otherwise. This position is also corroborated by other authors who assert that adoption of online banking will highly be influenced by the amount of information that customers possess (Pikkarainen *et al.* 2004). In fact low awareness about the benefits and challenges of e-banking has been major hindrance to adoption as most customers are uncertain about the channel and are even afraid of committing errors in the course of using the alternative channel (Juwaheer *et al.* 2012)

Consequently, several authors have established positively relationship between e-service adoption and awareness stating that when customers are aware of the availability, challenges and benefits of e-banking, the rate of usage and adoption will be high (Al-Majali & Mat, 2011; Pikkarainen *et al.* 2004; Polasik & Wisniewski, 2009; Sathye, 1996).

For instance, Al-Majali and Mat (2011), surveyed group of internet banking users in Jordan and discovered that awareness and quality of information about internet banking significantly influences internet banking adoption among 507 respondents in Jordan. To support the finding of Al-Majali and Mat (2011), Polasik and Wisniewski (2009), had earlier carried out a study among 3519 internet users in Poland with the aid of interactive online questionnaires. Their findings reveal that marketing exposure as regards the

information about availability and benefits of e-banking services is a ruling factor for predicting of online banking site stickness. These findings are in line with that of Sathye (1996), who also discovered that one of major factor that is inhibiting adoption of online banking among business firms and individual residents in Australia is lack of awareness. Based on the discussion above, the following hypothesis is hereby formulated:

H5: Awareness positively relates to e-banking adoption

### **3.4 The Relationship between e-Satisfaction, e-Trust, Hedonic Motivation, e-banking adoption and its determinants.**

#### **3.4.1 e-Satisfaction**

As discussed earlier, the trend of customer satisfaction has become a centre point in service setting and among the marketing scholars. It is often used to evaluate the process of buying, consuming and measuring the performance of a product or service either in the short or long run and it is therefore essential for the responses of consumers (Liébana-Cabanillas *et al.*, 2013). The entire teams of marketing and management expert have displayed strong interest in the ability of organizations to go the extra miles of meeting and exceeding the needs of customers as this will determine future purchase behaviour and repeated patronage (Musiime & Ramadhan, 2011; Yap *et al.* 2012). Most importantly, the era of banking where the nature and feature of services being rendered can be difficult to measure has ushered in new ways of satisfying the customers. This is especially important in the emergence of e-banking where customers do not interact directly with the official of the bank but the alternative channels such as website, mobile phone, Automated Teller machine and so on (Auta, 2010; Sohail & Shanmugham, 2003; Wessels & Drennan, 2010). Importantly, the quality of experience of a customer with online business will therefore be determined by the website that is thoughtfully designed,

good policies, excellent customer service and streamlined business procedures (Al-Kasasbeh, Dasgupta, & AL-Faouri, 2011).

In view of the above, e-banking users will therefore adopt and use e-banking services regularly when they feel satisfied with the nature of service rendered, if the e-channel is perceived useful to achieve daily objectives, if they can easily operate the channels with less stress, feel secured and when necessary facilities that will aid the usage are available (Eid, 2011; George & Kumar, 2013; Liébana-Cabanillas *et al.* 2013).

Consequently, important link has been established by various researchers in different contexts between e-satisfaction and online adoption of services (e.g., Wang, Ngai, & Wei, 2012; Zhou, 2013). Wang *et al.* (2012) examined the role of personality on continuance intention and usage with instant messaging in China. The researcher developed a model and empirically validated it using perceived usefulness, perceived enjoyment and customer satisfaction. The findings of the study revealed that customer satisfaction positively influences continuous intention through mediation effect. Zhou (2013) in the year that followed examined the effects of system quality, information quality, perceived enjoyment and customer satisfaction on continuous usage of mobile sites in China. The author used data gathered from 231 respondents and discovered that customer satisfaction of mobile internet usage positively influenced continuous usage through mediating effect. Eid (2011) also established mediating effect of e-satisfaction between perceived security and e-customer loyalty in e-commerce in Saudi Arabia. The implications of these findings pivot around building a system with good interface in terms of desirable features will enhance customer satisfaction and subsequently



continuous usage of the system. Notably however, most of the previous studies have failed to fully examine the mediating effect of e-satisfaction in the content of e-banking adoption thereby pointing to a gap to be filled. For instance, the study of Liebanas-Cabanilas et al, (2013) only considered satisfaction as a dependent variable using ease of use, usefulness, accessibility and trust as predictors. The same goes for George and Kumar(2013) where satisfaction was treated as a dependent with perceived security, perceived usefulness and perceived as ease of use as predictors Amin (2015) and Ravindran and Kumar (2012) suggested e-satisfaction as intervening variable and failed to consider its full mediating effect.

Conclusively, based on the aforementioned facts and arguments in support of the relationships between e-satisfaction, Perceived usefulness, perceived ease of use, perceived security, and facilitating condition, and coupled with that there is a lack of agreement of among scholars and the need to introduce a mediator that can carry the effects of the predictors to e-banking adoption with the purpose of increasing the rate of adoption (Baron & Kenny, 1986, Sekaran & Bouigie, 2010). This is also in line with the recommendation of Zeng et al (2009) that argued that indirect effect of satisfaction should be further tested by taking into consideration actual behavior instead of intention being used by most studies. In view of the above, this study hereby proposes the following direct and indirect hypotheses:

H6a: There is a positive relationship between e-Satisfaction e-banking adoption in the banking sector of Nigeria.

### **Mediating Hypotheses:**

H6b: E-satisfaction positively mediates the relationship between Perceived Usefulness and e-banking adoption in the banking sector of Nigeria.

H6c: E-satisfaction positively mediates the relationship between Perceived ease of Use and e-banking adoption in the banking sector of Nigeria.

H6d: E-satisfaction positively mediates the relationship between Perceived Security and e-banking adoption in the banking sector of Nigeria.

H6e: E-satisfaction negatively mediates the relationship between Facilitating Conditions and e-banking adoption in the banking sector of Nigeria.

### **3.4.2 e-Trust**

Trust generally refers to the belief that a customer holds that the promise of a service provider can be relied upon and that, in any circumstances, the service provider will not act in such a way that it will jeopardize the interest of the customer (Morgan & Hunt, 1994). In line with Morgan and Hunt, other authors have asserted that trust is an indication that the vendor has competence and integrity to deliver services as agreed (Chemingui & Lallouna, 2013). When customers trust the service provider however, they tend to see value in the services being rendered and thereby develop interest towards adoption. Furthermore, Yousafzai *et al.* (2009) in their study of online banking defined trust as: ‘willingness to perform banking trans- actions on the internet, expecting that the bank will fulfill its obligations, irrespective of the customer’s ability to monitor or control the bank’s actions on the Internet’.

They further reinforced this definition by stating that integrity, benevolence and ability are the clear yardsticks that can be used to measure the degree of banker trust. In the context of online shopping, trust is conceptualized from two angles of trusting intention and trusting beliefs (Dimitriadis & Kyrezis, 2011). Trusting intention implies that intending online shopper is ready to accept any form of vulnerability in the course of shopping online while trusting beliefs center on the faith which online shopper has about benevolence, competence, honesty and predictability of the online store (Dimitriadis & Kyrezis, 2011). Importantly, various scholars have established relationship between e-trust and e-banking adoption (Akhalq & Ahmed, 2013; Al-Majali & Mat, 2011; Chong *et al.* 2010; Juwaheer *et al.* 2012; Shorabi *et al.* 2013; Teoh *et al.* 2013).

Chong *et al.* (2010) for instance examined 106 online banking users in Vietnam using trust among other variables and discovered that trust has significant and positive relationship with online banking adoption. In their study security and privacy of transactions make customers to develop trust and adopt online channels. Furthermore, Al-Majali & Mat (2011) critically use six variables to predict internet banking service adoption among 507 University lecturers in Jordan and discovered that trust among the six variables has significant relationship with e-banking adoption signifying that when e-channels service providers are trustworthy in terms of service delivery, the customers would fully adopt the channels.

Furthermore, Juwaheer *et al.* (2012) investigated factors that can be used to predict e-banking acceptance in Mauritius using theory of planned behavior, Technology acceptance model and Technology Readiness Index variables. In this study, they

incorporated trust along perceived ease of use, perceived usefulness, level of awareness, subjective norm, attitude, behavioral intentions and demographical variables and discovered that trust among others significantly plays positive role in predicting acceptance level of internet banking. The findings of Juwaheer *et al.* Al-Majali and Mat (2011), and Chong *et al.* (2010) tallied with that of Sohrabi *et al.* (2013) who carried out similar research in Malaysia using 268 online banking respondents. Sohrabi *et al.* (2013) discovered that trust and privacy in online channels are very important in predicting adoption implying that banks should improve on their security measures by improving their privacy and security policies as well as incorporate features such as firewalls, authentications, and encryption that will further strengthen the security capacity of the e-channels. Akhlaq and Ahmed (2013) also empirically found intervening effect of trust between to adopt e-banking and intrinsic variables such as perceived ease of use and perceived enjoyment. The findings of Ribbink *et al.* (2004) also confirm mediating effect of e-satisfaction and e-trust in the field of e-commerce.

However, the findings Teoh *et al.* (2013) contradict other authors. They carried out similar studies in Malaysia among 183 e-payment users and discovered that trust does not significantly and positively influence adoption of e-payment in Malaysia. This case has since therefore call for further investigation trust in online context.

Importantly however, most of the studies discussed above have largely ignored mediating variable of e-trust despite that there is no consensus among the scholars. In a recent study, Susanto et al (2013) recommend that trust should be further explored as a mediator while Yap et al assert that despite e-trust is capable of reducing the perception of risk, no

empirical attempts been made to tests in veracity, thereby recommended further mediating effect of this variable by future researcher. Despite the recommendation, most researches in the field of e-banking afterwards have either used this variable either as independent, intervening or dependent variable thereby creating a gap to be filled.

In view of the various findings and arguments on the relationship between e-trust, perceived usefulness, perceived ease of use and facilitating condition, the following hypotheses are hereby formulated:

H7a: There is a positive relationship between e-Trust e-banking and adoption in the banking sector of Nigeria.

**Mediating Hypotheses:**

H7b: E-Trust positively mediates the relationship between Perceived Usefulness and e-banking adoption in the banking sector of Nigeria.

H7c: E-Trust positively mediates the relationship between Perceived ease of Use and e-banking adoption in the banking sector of Nigeria.

H7d: E-Trust positively mediates the relationship between Perceived Security and e-banking adoption in the banking sector of Nigeria.

H7e: E-Trust positively mediates the relationship between Facilitating Conditions and e-banking adoption in the banking sector of Nigeria.

**3.4.3 Hedonic Motivation**

This refers to the degree of fun/motivation that is derived from the usage of e-banking (Venkatesh *et al.* 2012). It is often regarded as an intrinsic stimulus that spurs an individual to use and adopt e-banking and has been empirically proved to have positive

correlation with time and frequency of usage of internet banking (Pikkarainen, *et al.* 2004). Notably, fun and playfulness have been used interchangeably by previous studies (Igarria *et al.* 1994; Moon & Kim, 2001). Igarria *et al.* (1994) for instance regards fun as those activities that one engages in voluntarily without any form of reward or promise of reward. The scholars found that usage of a system correlates positively with fun. In the case of Moon and Kim, they considered perceived playfulness to have three parts of curiosity, concentration and enjoyment and found it to positively impact intention and adoption of internet usage. This is also in line with the findings of Pikkarainen *et al.* (2004).

In addition, Kim, Park and Oh, (2008) also regards fun as an important predictor of digital mobile television while the opinion was supported by Fang *et al.* (2005) whose studies found that attitude of customers for gaming tasks was influenced by fun but not for transactional and general tasks. Fun was also influenced by ease of use in the study of Bruner and Kumar (2005) who reported its significant effect on the attitude toward usage than usefulness. Curran and Meuter (2007) affirmed that fun is more significant than utility in self-service technologies in the context of banking while Hong, Thong, Moon and Tam, (2008) in the course of testing several mobile usages came to a conclusion that fun influences the attitude toward the act in the context of using mobile information services and entertainment services. Through an exploratory study, Pagani (2004) conceptualized a model through which fun mediates between usefulness and act thereby suggesting that usefulness influences adoption. This result was, however, not confirmed by Liao *et al.* (2007) and Kim *et al.* (2008) who found that perceived enjoyment (i.e. hedonic motivation) influences usefulness. Bockarjova and Steg (2014) established

relationship between security and motivation to adopting electronic vehicles in Netherlands.

Based on the inconsistent findings among scholars about the influence of these variables on the adoption of e-banking, it is however suffices to say that these variables alone are not sufficient to engender adoption among users unless other factor like hedonic motivation is considered as a mediating variable that will carry the effect of the predictors to the adoption (Chtourou & Souiden, 2010; Ernst, 2015; Pagani, 2004) thereby attenuating the low rate of adoption. Pagani (2004) in a qualitative study of third generation mobile multimedia services confirms the mediating effect of fun between perceived usefulness and adoption, Chtourou and Souiden confirm indirect effect of ease use on act through fun in a mobile device study, while Ernst (2015) asserts that perceived enjoyment mediates between perceived risk and adoption of Social Network Sites (SNS).

Based on the above arguments, the following hypotheses are hereby formulated:

H8a: There is a positive relationship between hedonic motivation and e-banking adoption in the banking sector of Nigeria.

**Mediating Hypotheses:**

H8b: Hedonic motivation positively mediates the relationship between Perceived Usefulness and e-banking adoption in the banking sector of Nigeria.

H8c: Hedonic motivation positively mediates the relationship between Perceived ease of Use and e-banking adoption in the banking sector of Nigeria.

H8d: Hedonic motivation positively mediates the relationship between Perceived Security and e-banking adoption in the banking sector of Nigeria.

H8e: Hedonic motivation positively mediates the relationship between Facilitating Conditions and e-banking adoption in the banking sector of Nigeria.

### **3.5 Chapter Summary**

This chapter has deeply discussed the hypothesized research model which has been empirically investigated in this study. The chapter critically analyzed the need to determine the influence of perceived usefulness, perceived ease of use, perceived security, facilitating conditions, and awareness on e-banking continuous adoption in Nigeria. It also discussed the roles and impact of e-satisfaction, e-trust and hedonic motivation as mediating variables on the relationship between e-banking continuous adoption and its determinants and how all the variables are interlinked in the conceptual framework. Importantly too, the chapter discussed each of the nine variables and how they linked one another based on the arguments and findings of the exiting studies and upon which direct and indirect hypotheses of the study were formulated.



## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

#### **4.1 Introduction**

Chapter four mainly discusses the research method that is used in this study. This chapter starts by introducing the research design, population and sampling, operationalization of the constructs, and survey type. Information with regards to the data collection processes and data analysis strategies are also discussed in detail.

#### **4.2 Research Design**

The research design helps to give meaning and direction to the entire research project as it provides detail steps that should be followed in gathering and analyzing the data for the research. Basically, research designs can be categorized into two folds of exploratory and conclusive (Malthora, 2012). Conclusive designs which are meant to help in determination, evaluation and selection of alternative course of action can either be causal or descriptive in nature (Malthora, 2012). Descriptive designs can further be categorized into longitudinal and cross-sectional. Cross-sectional which is also called a sample survey helps the researcher to collect data about certain phenomenon once, at a point in time, and perhaps over a period of days, weeks or months for the purpose of answering a research question (Malthora, 2012; Saunders, Lewis & Thornhill, 2007; Sekaran & Bougie, 2010). On the other hand, longitudinal design helps to collect information and track changes that happen over a long period of time than the period covered by cross-sectional. In longitudinal, the researcher might be interested in comparing two or more different events or behavior in order to know the changes that

have occurred or accomplished thereby gather data at two different periods of time (Sekaran & Bougie, 2010).

For this research, cross-sectional design was used since the researcher collected data once and over a period of time. This type of design is chosen over longitudinal because of time constraints, cost effectiveness, and simplicity of cross-sectional to select sample that is a representative of the entire population since different respondents are chosen each time a survey is carried out (Malthora, 2012). Additionally, most studies in e-banking adoption generally use cross-sectional technique because of its practicality and time duration.

Furthermore, the researcher collected data of this study through questionnaire survey. The technique was used in order to obtain the perception of the respondents about the issue under consideration. The method also avails the researcher both the theoretical and practical merits to attitudinal and perceptual research (Mathora, 2012; Zikmund, 2003). Moreover it is also a common instrument used e-banking adoption and marketing studies generally.

### **4.3 Sampling Method**

This section discusses the population of the study, unit of analysis, sampling size, sampling frame, and how questionnaires were distributed to the respondents.

#### **4.3.1 Population of the Study**

The population of this study comprises all electronic banking customers (who are homogenous in their features) of selected banks currently operating in Nigeria. It should be noted that due to the homogenous nature of services which Nigeria retail banks render to their various customers, this study selected banks that are located in Lagos City.

Choosing banks that are located in Lagos is based on the credence that it is not part of the objective of this study to compare banks of different regions. Aside, Lagos being the commercial headquarter of Nigeria is the largest city in Nigeria, the fastest growing in Africa with population of 17.5 million and accommodates all branches of each of the 21 retail banks in Nigeria (Lagos State Bureau of Statistics, 2005). Also, apart from the fact that retail bank customers patronize different 21 retail banks in Nigeria; their features and nature of service they receive are also similar in all the regions (Akinci, Askoy & Atilgan, 2004; Maiyaki, 2012). Therefore, a conclusion can be reached that the sample size that will be drawn from the entire population will be homogenous (Babie, 1990) since users are the respondents of the study. Accordingly, Babie (1990) asserts that homogeneity of a studying population gives room for relaxation of stringent condition guiding sampling procedure and equally makes generalization of such population possible.

#### **4.3.2 Unit of Analysis**

Unit of analysis is defined as the subject that is being studied in a research. The subject can be an individual, a household, political jurisdiction, group of organization/individual or a social interaction, and so on which bears relevance to the researcher's study (Rea & Parker, 2005). In this study, the unit of analysis is individual electronic banking customers who are patronizing selected retail banks in Nigeria. Previous studies in service marketing and other social researches have adopted individual as unit of their analysis especially when studying banking sector (Al-Jabri & Sohail, 2012; Ndubisi & Sinti, 2006). Most importantly, this research is particularly interested in studying those factors such as perceived usefulness, ease of use, awareness, facilitating condition,

perceived security, e-satisfaction, e-trust and hedonic motivation that spur individual to adopting e-banking services.

#### **4.3.3 Sampling Size Determination**

For the purpose of accomplishing maximum population size representativeness, this study used multi-stage cluster sampling procedure. Multi-stage cluster sampling is a type of sampling technique that involves population of the study to be divided into groups after which one or more of the groups are selected randomly and which makes every element within the selected group to be sampled (Rea & Parker, 2005). Using this technique is apparent because the type of population that is involved is complex and may not be well represented by a straightforward sampling technique (Rea & Parker, 2005). In essence, taking samples from the large population that cannot be easily selected or gotten may require special creation and execution of a sample design (Babbie, 1990). In addition, where it is very costly and impractical to obtain a sample frame, usage of cluster sampling becomes necessary (Cooper & Schindler 2008).

Importantly therefore, cluster sampling falls under probability sampling techniques and it helps to increase the efficiency of sample by decreasing cost (Rea & Parker, 2005). In addition, the concept of cluster has been proved to be capable of producing unbiased estimates of the population mean and can equally produce representative data (Hair, Money, Samouel, & Page, 2007; Sekaran & Bougie, 2010). Cluster sampling requires researcher to first divide the population under study into clusters or subpopulations after which selection of elements within each cluster is made. In view of the fact that the population of this study is large, multi-stage cluster sampling was appropriate to produce

fair representation of population and generalization of the research findings (Hair, et al, 2007; Sekaran & Bougie, 2010).

In using multistage cluster techniques, there are three important procedures: The population under study is first stratified, secondly clustered and finally randomly selected using probability sampling technique (Malthora, 2012; Rea & Parker, 2005). In view of this, the population under study was first stratified into four based on the banks grouping adopted from Offor (2009), clustered, and then randomly selected to ensure participation of the four (clusters) selected banks in the research. Thus, four banks were randomly selected in order to ensure that each of the bank's categories is fairly represented as shown below.

Table 4.1  
*Categorization of Nigeria banks based on means of capitalization*

<b>Group</b>	<b>Banks</b>	<b>Means of Capitalization</b>
<b>i</b>	First Bank Nig. Plc, Zenith Bank, Guaranty Trust Bank, UBA, Union Bank, Access Bank	Achieved capital threshold mostly on their own.
<b>ii</b>	Diamond Bank, Fidelity Bank, ECO Bank, Wema Bank, Mainstreet Bank, Keystone Bank,	Achieved capital threshold by merger
<b>iii</b>	FCMB, Skye Bank, Unity Bank, Sterling Bank, Heritage Banking company, Enterprise Bank	Achieved capital threshold by way of 4 or more banks Partnering out of necessity.
<b>iv</b>	Stanbic IBTC, Standard Chartered Bank, CitiBank	Wholly foreign banks

Source : Adapted from Offor, (2009)

From the population frame as obtained from head of operations of each selected bank through telephone conversations (see Table 4.2), one hundred and thirty nine thousand, two hundred (139200) customers are selected out of the clusters. Based on Krejcie and Morgan, (1970)'s sample size therefore, 382 is the minimum sample size that is required

for the population size (N) of 139200 and will be appropriate to be representative of the total population. In addition, and because the customer base size of each bank is different, probability proportionate to size (PPS) sampling technique is further used to ensure that the size sample that is selected is a representative of the total population (Babbie, 1990).

Table 4.2

*Sample Frame*

<b>Bank</b>	<b>Population</b>	<b>Calculation</b>	<b>Proportionate Sampling</b>
<b>First Bank Nigeria Plc</b>	46500	46500/139200x382	128
<b>Wema Bank Nigeria Plc</b>	35700	35700/139200x382	98
<b>Skye Bank</b>	40500	40500/139200x382	111
<b>Stanbic IBTC</b>	16500	16500/139200x382	45
<b>Total</b>	139200		382

To further confirm that the sample size that has been calculated for this study is absolute, appropriate and it is independent of the population, a further step was taken by using statistical power test (Cohen, 1997; Ticehurst & Veal, 1999). The power of a statistical test is regarded as the possibility of rejecting effect size or null hypothesis of a particular sample size at a specific alpha level (Cohen, 1988). The test can detect a difference that truly exists in any larger population. The statistical test is been used in addition to other methods of determining sample size so that the probability of discovering the effects of different sample sizes is obviously known (Ramalu, 2010).

Therefore, using the G\*Power 3.1 software, sample size is often computed based on four parameters of power (1-β); effect size (f<sup>2</sup>); alpha significance level (α); and number of exogenous variables in the research model (Faul, Erdfelder, Lang, & Buchner, 2007). In view of this, a priori power analysis was conducted with G\*Power 3.1 software package (Faul *et al.*, 2007) as shown in figure 4.1.

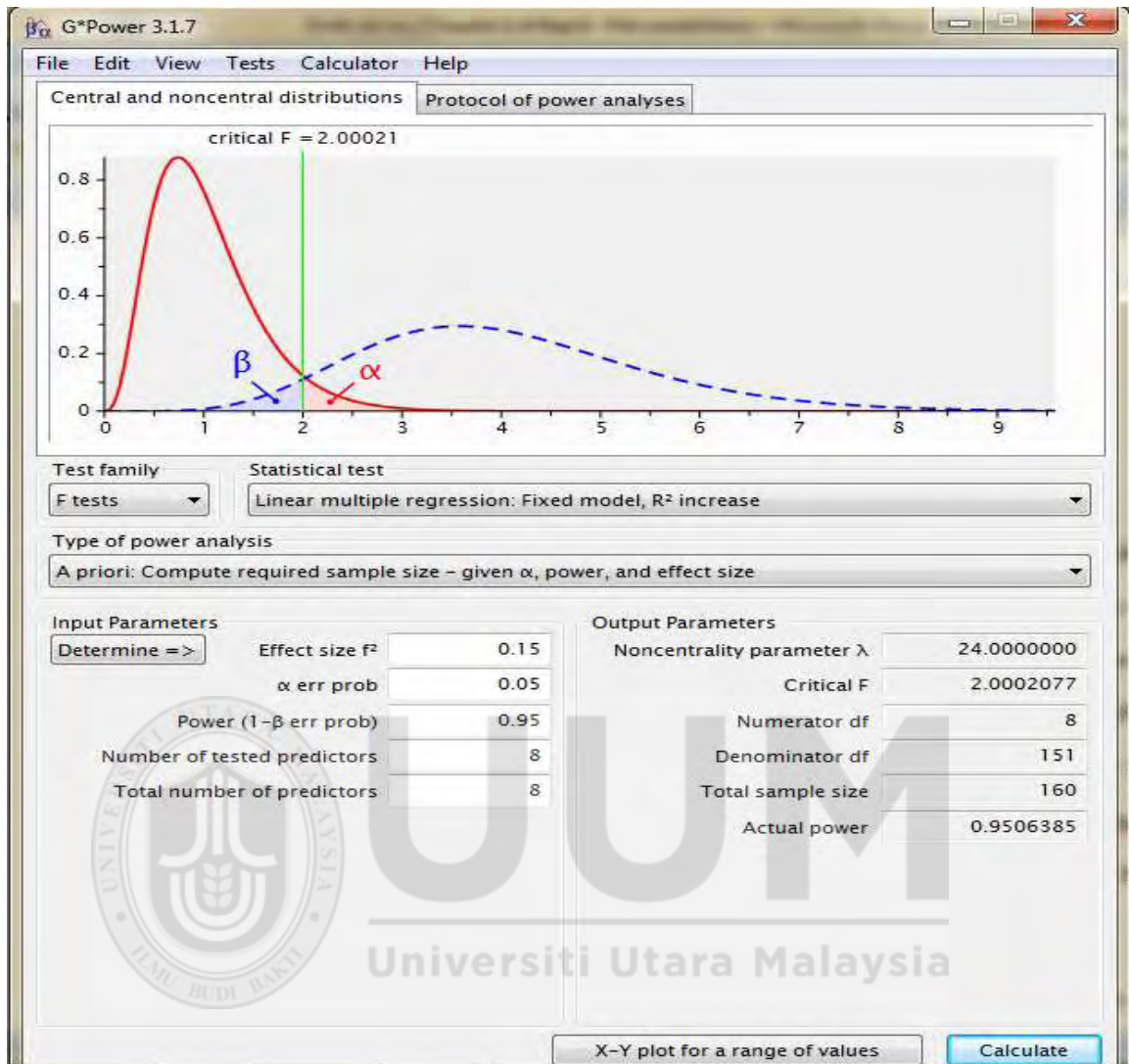


Figure 4.1.GPower

As can be seen from figure 4.1 above and based on the recommendation of Cohen (1997), parameters of power ( $1 - \beta$ , 0.95); effect size ( $f^2$ , 0.15); alpha significance level ( $\alpha$ , 0.05); and 8 predictors were used to further determine the sample size with the aid of G\*Power 3.1 software. Based on this calculation a total sample size of 160 is deemed appropriate for the population of this study. However, the sample size of 160 as calculated by G\*Power may be inadequate for a larger population of 139,200, hence the researcher revert to a more generalized scientific guideline suggested by Krejcie and Morgan (1970) as initially used.

Hence a total of 382 customers were indicated to be adequate for the population of 139,200 subjects as used in this study.

The sample size that is determined for this study is appropriate as it surpasses the standard set by Roscoe's (1975) rule of thumb which states that for most research, a sample size that is bigger than 30 and less than 500 is suitable. Additionally, Hair *et al.* (2010) suggests that sample should be 10 times or more large than number of research variables for multivariate research. In line with Hair *et al.* the sample size of this study should be 90 but 382 as calculated was used for this study.

Having derived the sample size of this study through multi-stage cluster sampling procedure and further substantiated by G\*Power calculation as explained above, the questionnaires of this research were therefore administered systematically (Wessels & Drennan, 2010; Yang, 2009). The systematic technique is similar to random sampling technique of administering questionnaire and it is often chosen by researchers because of its periodic quality and simplicity as it allows the researcher to add a degree of process or system to random selection of objects (Sekaran & Bougie, 2010; Zikmund, Babin, Carr & Griffin, 2010). It also helps to avoid the bias and the risk of convenience sampling.

The systematic sampling distribution technique was adopted since the heads of operations were able to personally distribute the questionnaires to their customers by using the customer sample frames available in each bank. This is line with the culture/policy of commercial banks in Nigeria as experience has shown that the banks do not release the list of their customers to researchers. It was also appropriate since e-banking customers



do not come to the branch for operations but the heads of operations have access to their addresses.

The systematic sampling distribution process is simple as the head of operations first randomly picked a customer from the sample size, and subsequently picked  $n$ 'th customer from the list going forward until the selection of the figure required was met (Sekaran & Bougie, 2010, Zikmund *et al.* 2010). Basically, three steps are involved in the process. In the first step, the heads of operations were thought how to assign a number to every element in the population of each bank selected. The next step requires determination of the sample size for each of the population of each selected bank and which has been determined initially by the researcher. The last step is to divide the entire population by the sample size in order to arrive at proportionate sample size as this permits every  $n$ 'th member of the population to be chosen. For instance, the entire population of Wema Bank is 35700 while the proportionate sample size is 98. This therefore made the head of operation to pick every 98th customer from the customer list until the required number was achieved. This process was achieved in collaboration with the researcher since the heads of operations gave their maximum cooperation within the three and half months that the collection took place. It is however important to note that the researcher thoroughly engaged the heads of operations who were former colleagues of his on how to go about the systematic nature of the process and how the issue of bias which could distort the whole process could be avoided. Since the heads of operations were convinced enough about the likely benefits of the outcome of the research, they maximally cooperated and distributed the questionnaires according to schedule while the researcher followed up for the period that the exercise spanned through.

#### **4.4 Operationalization of variables and instrumentation**

This section operationalizes the variables of this work as its validated items or measures were adapted from previous studies. Importantly, the independent, mediating and dependent variables of the study were measured unidimensionally and reflectively following approaches of some recent studies (e.g, Deb & Lomo-David, 2014; Juwaheer *et al.* 2012; You, 2013; Zhou, 2013). A unidimensional/reflective construct implies that the items measuring the constructs are closely related. When constructs are measured unidimensionally and/ reflectively therefore, deletion of some of their items in the course of measurement model assessments will not necessary hamper their content validity(Diamantopolous, 2001; Hair et al, 2014). In view of this, the variables of this study are operationalized below taking into consideration the dependent, independent and mediating variables of the study.

##### **4.4.1 Dependent Variable**

###### **4.4.1.1 E-banking Adoption**

Adoption refers to signing of contract to use e-banking. It is a decision to fully accept and use information technology like e-banking (Erikson *et al.* 2005; Rogers, 1975). In this study, e-banking adoption is operationalized as the signing of contract with banking institution to use e-banking channels for various banking transactions and it is measured unidimensionally following Ho and Ko, (2008), Juwaheer *et al.* 2012 and Zhou (2013). For successful and continuous adoption of any new system, behaviour and acceptance of users are essential and must be taken into consideration(Succi & Walter, 1999; Venkatesh & Davis, 2000). Continuous usage of a system can only bring tremendous benefits to the organizations as otherwise makes the efforts to be worthless (Ho & Ko, 2008). When the

users of new information system are ready to adopt and use the information system, they will be willing to change their attitude, effort and time towards continuous usage (Succi & Walter, 1999). Success of a system is therefore subjectively measured when it can meet the needs of the users as previous researchers have equated actual usage of a system to adoption (Davis, 1989; Pikkarainen *et al.*, 2006). Essentially therefore, full usage of a system indicates that the system has been adopted (Zhou, 2013) but the adoption rate needs to be measured and validated (Adesina & Ayo, 2010) as extant authors have used different antecedents to measure adoption (Chong *et al.*, 2010; Pikkarainen *et al.*, 2004; Yap *et al.*, 2010)

Furthermore, a system would either be regarded as good or bad depending on the feelings of the users. If users feel that the system is easier to use, useful to achieve their objectives, secured and aware about the benefits of usage they will likely adopt the system than a system that is perceived to be useless in all ramifications (Chandio *et al.* 2013; Chong *et al.* 2010). System success therefore is not necessarily measured through technical quality but through other variables that are users' oriented (Ives *et al.* 1983). Therefore it is highly essential to find out why people adopt or use a system as the knowledge gathered there in would help system designers, marketers and others who are interested in the system (Mathieson, 1991)

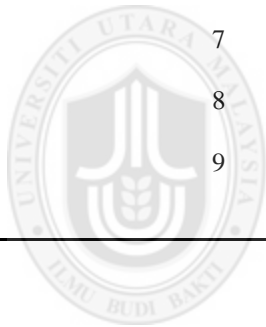
Based on the above discussion, Table 4.3 below clearly shows the 9 items adapted from previous studies to measure adoption of e-banking. The items are adapted because the previous studies have established their reliability and validity in various contexts. Aside, the items were adapted from 3 scholars in order to complement and strengthen one as

done by other studies. To measure the items however, 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree shall be used.

Table 4.3

*E-banking adoption measurement*

<b>Variable</b>		<b>Item</b>	<b>Source</b>
<b>E-banking adoption</b>	1	I save a lot of time using e-banking because I don't have to visit the bank personally.	Ho & Ko, 2008; Juwaheer et al. 2012; Zhou, 2013
	2	E-banking is helping me to perform my banking in privacy.	
	3	E-banking is useful in managing my financial activities.	
	4	I feel that having access speed is essential for the usage of e-banking.	
	5	Using e-banking provides me with feelings of personal achievement.	
	6	Generally, e-banking tasks are within my capacity.	
	7	I use e-banking because it is available 24 hours.	
	8	With e-banking I don't carry large amount of cash around.	
	9	I will continue to use e-banking instead branch services.	



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#### 4.4.2 Independent Variables

##### 4.4.2.1 Measures of Perceived Usefulness

Perceived usefulness is defined as “the potential user’s subjective probability that using a particular system will enhance job performance in an organizational context” (Davis, 1989). However, in the context of e-banking and from customers’ perspective, a system is perceived to be useful when it can help them to achieve their daily financial transaction objectives. Several authors have measured system usage using perceived usefulness as one of the key constructs of technology acceptance model and found it to be significant in adoption (Chong *et al.* 2010; Juwaheer *et al.* 2012; Wessels & Drennan, 2010). In

determining perceived usefulness of a system however, different antecedents and measures such as quality of output, result demonstrability, image, job relevance and subjective have been used (Venkatesh & Bala, 2008).

In measuring perceived usefulness therefore, this study adapted ten items from Juwaheer *et al.* (2012) and Pikkarainen *et al.* (2004) using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree. The reliability and validity of the items chosen have been initially established by the referred studies. Below is table 4.5 that captures ten measurement items that used to measure the impact of perceived usefulness on e-banking adoption.



Table 4.4

*Perceived Usefulness measurement*

<b>Variable</b>	<b>Item</b>	<b>Source</b>
<b>Perceived Usefulness</b>	1	I believe that e-banking is helping me to a achieve my daily
	2	E-banking generally helps to improve quality of my banking transactions
	3	E-banking helps me to monitor my financial transactions and other online transactions
	4	I believe that using e-banking has saved my time when compared with branch banking
	5	I feel that my productivity at work has improved using e-banking
	6	I believe that e-banking has more uses than branch banking
	7	I feel that my general activities have improved because I am using e-banking
	8	I believe that e-banking benefits are greater than that of branch banking
	9	I feel that my financial transactions would have been difficult without e-banking platform
	10	Overall, an e-banking is useful for me to utilize banking services

**4.4.2.2 Measures of Perceived Ease of Use**

Perceived Ease of Use (PEOU) is the 'degree to which a person believes that using particular system would be free from effort (Davis, 1989). For this study, perceived ease of use is defined as the easiness that is associated with e-banking usage with regards to mental and physical that may detract the users of e-banking from using it. Other authors have however equally regard perceived ease of use as the perception which users of online banking hold that using e-banking requires little physical and mental effort (Alhudaithy & Kitchen, 2009; Püschel, *et al.* 2010). Accordingly, (Rogers, 2003), and Davis (1989, 1993) believe that when a system is complex and not easily used, it will deter wider usage and acceptance. Over decades, several authors have delved on the relationship between perceived ease of use and adoption of technology and found significant relationship (Juwaheer *et al.* 2012; Salhieh *et al.* 2011; Tan, *et al.* 2010; Teoh,

*et al.* 2013). Importantly therefore, the e-banking system must be configured in such a way that it will be easy to learn and easy to use.

In measuring perceived ease of use therefore, this study adapted 10 items from Pikkarainen et al. (2004) and Deb and Lomo-David, (2014) as the reliability and validity of the items have been established initially by the previous studies. The items of the construct were adapted from 2 scholars in order to complement each another in order to suit the context of the study. Using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree therefore, below is table 4.6 that captures 10 measurement items used to measure the impact of perceived ease of use on e-banking adoption:

Table 4.5  
*Perceived ease of use measurement*

<b>Variable</b>		<b>Item</b>	<b>Source</b>
Perceived ease of use	<b>1</b>	I believe the use of e-banking is very not difficult	Deb & Lomo-David, 2014; Pikkarainen et al. 2004)
	<b>2</b>	I believe that learning how use and operate e-banking is easier	
	<b>3</b>	E-banking interfaces are very interactive	
	<b>4</b>	I believe that the processes of e-banking are very easy to remember	
	<b>5</b>	I believe the interface with e-banking is user friendly	
	<b>6</b>	It is easy for me to become skillful at using e-banking	
	<b>7</b>	I don't have to request for outside help while using e-banking platform	
	<b>8</b>	Instructions of e-banking are very clear and do not require extra mental or physical effort	
	<b>9</b>	I believe it is very easy for me to recover from errors and mistakes while using e-banking	
	<b>10</b>	I can easily remember my password and other codes while operating on the e-banking platform	

#### 4.4.2.3 Measures of Perceived Security

Perceived security is defined as the perception which users of e-banking hold with respect to the protection of their transactions against threats or intrusions while transacting over the web (Yousafzai *et al.* 2009). For this study, perceived security is operationalized as the feeling of presence or absence of security in online banking platform. Importance of security in online transaction has therefore been emphasized by various studies as fear of insufficient security forms major impediment to the adoption of e-channels transaction since cases of frauds have continued to intimidate users (Adesina & Ayo, 2010; Chiou & Shen, 2012; Tan *et al.* 2010). Consequently, security has become an important variable that determines whether services rendered will be fully adopted or otherwise as different authors have found relationship between perceived security and e-banking continuous adoption (Pikkarainen *et al.* 2004).

In measuring perceived security therefore, this study adapted 10 items from Deb and Lomo-David, (2014), Mann and Shani (2013) and Juwaheer *et al.* (2012) as the reliability and validity of the items have been established by previous studies. reliability and validity of the items have been established initially by the previous studies. The items of the construct were also adapted from 3 different studies in order to complement one another and to suit the context of the study. Using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree, below is table 4.7 that captures 10 measurement items that used to measure the impact of perceived security on e-banking adoption:



Table 4. 6

*Perceived Security measurement*

Variable	Item	source
<b>Perceived Security</b>	1 I feel safe providing personal information over the e-banking website	Deb & Lomo-David2014;Juwaheer et al.2012; Mann & Sahni, 2013.
	2 I am not worried to use e-banking as I know my transactions will be secured and safe.	
	3 I believe that the bank will not expose my personal information to the third party .	
	4 I have no fear that e-banking websites may wrongly process my transactions.	
	5 In case that my e- bank account has been hacked into and money stolen, I am confident that the bank will help me to recover my money.	
	6 I am confident that my bank offers the latest technology to stop unauthorized intrusion.	
	7 I believe that the law is effective to protect any loss that may occur through e-fraud.	
	8 I believe that the level of risk that is involved in e-banking is low.	
	9 My bank provides enough security information about how to protect account from fraudsters.	
	10 Overall, I believe that e-banking is secured.	

**4.4.2.4 Measures of Facilitating Conditions**

Facilitating condition is defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support the system use (Venkateshet *al.* 2012). This study however operationalized facilitating conditions as the extent to which required support and conditions that will make e-banking to be beneficial are available. For e-banking usage to be encouraged, essential facilities such as superb user interface, easy accessibility of internet, easy navigation of web and searching, government support against theft and fraud, online support from service provider should be made available (Chong *et al.*, 2010; Ndubisi & Sinti, 2006). Extant authors have found significant relationship between e-banking adoption and facilitating conditions (Tan, *et al.* 2013).

In measuring facilitating condition therefore, this study adapted 10 items from Yu (2011) and Deb & Lomo-David, (2014) since their reliability and validity have been established by the previous studies. The items of the construct were also adapted from 3 different studies in order to complement and strengthen one another and to suit the context of the study. Using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree, below is table 4.8 that captures 10 measurement items that used to measure the impact of facilitating conditions on e-banking adoption.

Table 4.7:

*Facilitating condition measurement*

Variable	Item	Sources	
<b>Facilitating conditions</b>	1	The internet infrastructure and facilities such as bandwidth and electricity are sufficient for e-banking.	(Chemingui & Lallouna, 2013; Deb & Lomo-David;2014& Yu 2011)
	2	The government is driving the development of e-banking.	
	3	The government has good regulations and laws for e-banking.	
	4	Help is available when I get problem in using e-banking.	
	5	My living environment supports me to use e-banking.	
	6	I have every required skill to perform e—banking transaction	
	7	I have required knowledge to handle e-banking transactions problem .	
	8	My Bank’s website is always up and effective.	
	9	My bank provides initial general training on how to use e-banking	
	10	The network error/down time is very minimal while using e-banking services.	

#### 4.4.2.5 Measures of Awareness

Importance of information and awareness cannot be over emphasized in information system continuous usage. For this study, awareness refers to the amount of information that is available about the benefits, uses and other risks that are associated with e-

banking. In fact, Rogers and Shoemaker (1971) stressed that while consumers are trying to adopt certain system, they pass through process of knowledge acquisition, belief and decision making and confirmation before they can adopt a service or product. This similar position has been echoed by various authors when they emphasized that degree of adoption of online banking will be determined by the magnitude of information which a customer has about the advantages and benefits of usage (Pikkarainen *et al.* 2004). Importantly, low level of information has been found to be major impediments to acceptance in some in some instances (Sathye 1999). Therefore, awareness is an important element that needs to be considered before adopting any innovative products (Juwaheer *et al.* 2012).

In measuring awareness therefore, this study adapted 8 items from Zhou (2013) and Pikkarainen *et al.* (2004) since the reliability and validity of the items have been established earlier. The items of the construct were also adapted from 2 studies in order to complement and strengthen one another and to suit the context of the study. Using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree, below is table 4.9 that captures eight measurement items used to measure the impact of awareness on e-banking continuous adoption:

Table 4.8:

*Awareness measurement*

<b>Variable</b>		<b>Item</b>	<b>Source</b>
<b>Awareness</b>	1	I have generally received enough information about e-banking generally.	(T. Pikkarainen et al. 2004; Zhou, 2013)
	2	I have received enough information about the benefits of using e- banking.	
	3	The website of my bank provides me with information relevant to my needs.	
	4	I have full knowledge of the benefits of using e-banking.	
	5	I am aware of the risks that are involved in using e-banking.	
	6	My bank provides me with current information about policy guiding e-banking.	
	7	I don't share my information with third party.	
	8	Overall, I feel that awareness has made e-banking operations not to be difficult.	

### 4.4.3 Mediating Variables

#### 4.4.3.1 Measures of e-Satisfaction

E-satisfaction reflects the aggregate of feelings which are developed overtime when interacting with online banking sites (Liu *et al.* 2011). It is essential in an online than offline environment especially that the customers do not interact directly with the officials of the bank (Anderson & Srinivisan, 2003; Eid, 2011; Shankar, Smith & Rangaswamy, 2003). In this study, e-Satisfaction is defined as the fulfillment of the purpose why e-banking contract is signed and when such purpose is achieved, there will be a continuous usage of the banking services. When perceived performance of a system meets or exceeds users' expectation, the users will be satisfied and this may lead to continuance usage of the system. Numerous studies have identified the effect of

satisfaction on continuance behavior (Kumar & Ravindran, 2012; Zhou, 2013) and have used different antecedents to measure e-satisfaction especially in online transactions.

In measuring e-satisfaction therefore, this study adapted 10 items from Zhou (2013), George and Kumar, (2013) and Kumar and Ravindran (2012) as the reliability and validity of the items have been established initially by the previous studies. The adaption of items of the construct from 3 studies was done for the purpose of complementing and strengthen one another. Using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree, below is table 4.10 that captures 10 measurement items that used to measure the impact of e-satisfaction on e-banking adoption.

Table 4.9  
*E-satisfaction measurement*

Variable		Items	Source
<b>E-satisfaction</b>	1	My bank has always being responsive to my e-banking needs.	(George & Kumar, 2013; Kumar & Ravindran, 2012; Zhou, 2013)
	2	My expectation has always been met by e-banking services.	
	3	My experiences with e-banking have always been good.	
	4	I am happy transacting online than using branch banking	
	5	I feel delighted using this e-banking site.	
	6	My feelings are relaxed using e-banking.	
	7	Services offered by e-banking are the best.	
	8	The procedures of e-banking are comfortable.	
	9	I am not facing any difficulty using e-banking.	
	10	Overall, I feel satisfied with using this e-banking site.	

#### 4.4.3.2 Measures of e-Trust

*E-Trust* refers to the belief that a customer holds that the promise of service provider can be relied upon and that, in any circumstances, the service provider will not act in such a

way that it will jeopardize the interest of the customer (Yusafzai *et al.* 2009). It is regarded as the degree of confidence which customers have in online exchange channels or services especially that the failure of e-banking is attributed to lack of trust (Ghane, Fatihan & Gbolamian, 2011; Reichheld & Scheffer, 2000). This study however defined e-trust as the level of confidence which e-banking users have that the banker is reliable and would take their advantage while operating on the e-banking platforms. In an online environment, trust is very essential as it has been established as one of the major determinants of product or service adoption (Chemingui & Lallouna, 2013). In measuring e-trust therefore, this study adapted 6 items which have been established to reliable and valid from Juwaheer *et al.*, (2012). Using a 7 point Likert-type scales anchored by 1=strongly disagree and 7=strongly agree, below is the table 5.1 that captures six measurement items that used to measure the impact of e-trust on e-banking adoption.

Table 4.10

*E-trust measurement*

<b>Variable</b>	<b>Item</b>	<b>Source</b>
<b>E-trust</b>	1 My banking institution provides reliable websites for e-banking services	Juwaheer <i>et al</i> (2012)
	2 e-banking channels keep its promises and commitments in Nigeria	
	3 Other people will not be aware of my banking transactions	
	4 I would feel secure sending sensitive information like my account number, pincodes etc. over the internet.	
	5 I trust my bank's technology in providing e-banking services.	
	6 Overall, I trust my bank .	

#### 4.4. 3.4 Measure of Hedonic Motivation

This is defined as the extent to which an individual believes that usage of e-banking services is interesting and that a lot of fun is derived from the usage. Previous studies have established relationship between motivation and e-banking adoption (Pikkarenein *et al.* 2004; Suki, 2010). This study therefore operationalized hedonic motivation as the degree of enjoyment or happiness which the users of e-banking derive while using the alternative channels. In measuring hedonic motivation therefore, this study adapted 7 items which have been established to be reliable and valid from Moon & Kim (2001) and Pikkarainen *et al.*, (2004). The adaption of items of the construct from 3 studies was done for the purpose of complementing one another and to suit the context of the study. Using 7 point Likert-type scales anchored by 1=strongly disagree 7=strongly agree, below is table 4.12 that captures six measurement items that shall be used to measure the impact of hedonic motivation on e-banking adoption.

Table 4.11

#### *Hedonic Motivation Measurement*

Variable	S/N	Items	Source
<b>Hedonic Motivation</b>	1	E-banking website often stimulate my curiosity.	Moon & Kim 2001; Pikkarainen et al 2004; Venkatesh et al 2012.
	2	I derive a lot of fun while using e-banking channels.	
	3	The features of e-banking website are entertaining.	
	4	My imagination is always aroused while using e-banking.	
	5	The features of e-banking keep me happy always.	
	6.	I am always pleased with the usage of e-banking.	
	7	Overall, I enjoy using e-banking.	

## **4.5 Data collection procedure**

There are various methods through which survey data can be collected. However, in this study, and for the purpose of statistical analysis, the researcher collected data through self-administered questionnaire among e-banking users in Nigeria. In doing this, the researcher collected letter of introduction to all affected banks in order to get appropriate attention and support from the heads of operations of all the selected banks.

### **4.5.1 Questionnaire Design**

In any research, designing of questionnaire is very essential and unique for the purpose of data collection. Importantly, there are two objectives of questionnaire design: It avails the researchers opportunity of capturing numbers of required respondents as well as helping in reducing and avoiding likely measurement error since questions are logically arranged in such a way that it facilitate easy understanding of the targeted respondents (Clark, 1989).

### **4.5.2 Type of Questionnaire**

Questionnaire has been defined as a set of questions which are itemized for the purpose of providing data on certain variables of interest and the questions there in are meant to elicit response from respondents based on their feelings. Importantly, the researcher has choice of making the questions either as open ended or close ended. This research made use of close ended questions as the targeted respondents were restricted to some questions which are meant to measure the effects of antecedents on e-banking adoption. In order to do this effectively, the researcher standardized and structured all the questions that were involved. This effort is very necessary because the expected responses are



important to the achievement of a reliable statistical analysis in the final results (Hair *et al.*, 2006).

#### **4.5.4 Procedure for distribution of questionnaire**

Since this study totally relies on questionnaires for data collection, mapping out a good and well structured procedure is very vital for the success of the study. In order to get required responses therefore, researcher used systematic random distribution technique to distribute the questionnaire through head of operations of each bank selected for the study. The researcher followed up with all the head of operations to ensure smooth return of the questionnaires that were distributed.

#### **4.5.5 Pilot Study**

A pilot study is a mini scale preliminary examination that is carried out with the purpose of evaluating practicability, time and cost so as to predict an appropriate and accurate sample size for the actual study. It is also done for the design of the study to be improved on before actual conduct is conducted on a full-scale (Hulley, 2007). A pilot study helps in discovering any weaknesses that may be inherent in the procedure or design of an intended survey so that such shortcomings can be addressed before the researcher commits resources on a larger scale (Doug *et al.* 2006). Specifically, researchers normally conduct the pilot study for a number of reasons: (1) to ascertain the validity and reliability of questionnaire items; (2) to evaluate the adequacy or otherwise of the wordings, phrases and questions for the purpose of accuracy and comprehension; (3) to assess that the questions are properly framed in such a way that it would elicit better and desired response; and (4) to ascertain that the respondents would be able to provide the

required data for the study. Most importantly, questionnaire validity refers to the degree in which the questionnaire actually measures what it supposed to and not something else, while reliability on the other hand refers to the degree to which the questionnaire is free from errors and that the results that would be obtained will be stable and consistent over time and contexts (Sekaran & Bougie, 2010).

Before the pilot study, the researcher tested face or content validity of the instrument. Babbie (2004) defines content validity as the degree to which the intending instrument conveys the meaning embedded in particular concepts (Babbie, 2004). As part of the procedure to establish content validity, the researcher is required to consult a small number of intended respondents or a group of professionals who will give their opinions about the items, phrases and wordings that are contained in the instruments (Sekaran & Bougie, 2010). In line with this, the draft of the questionnaire for the research was distributed to two academic experts at the Universiti Utara Malaysia who are familiar with the constructs. In addition to this, the researcher also consulted with two professional bankers, and five actual users of e-banking who are Nigerians on UUM campus but who maintain bank accounts with different banks in Nigeria.

Having scrutinized the instruments as indicated above, and coupled with the fact that the proposed instruments have been tested in different contexts and times, the instruments were then considered to be appropriate for the pilot study. In conducting the pilot study, 45 questionnaires were distributed among Nigerians who use e-banking and have their bank accounts domicile in different banks in Nigeria, only 30 were usable out 39 that were returned. The 30 questionnaires used for the pilot are appropriate and is line with the

recommendation of (Malothra, 2008) who asserts that 15-30 sample size is adequate for a pilot study.

Consequently, the pilot study was carried out in the month of January, 2011 for a period of two weeks. Generally, there are different tests to be conducted to ascertain reliability; however, the researchers commonly carry out “the internal consistency reliability test” (Litwin, 1995). This would help to determine the degree to which items of a particular construct converge and are independent in measuring the same construct while the items are also correlated with each other at the same time. This study employed Cronbach’s alpha coefficient to test the internal consistency reliability of the instruments (Sekaran & Bougie, 2010). As shown in Table 4.13, the results revealed that all measures attained reliability coefficient that range from .623 to .896. Importantly, research scholars assert that a reliability coefficient of .60 is on the average while that of .70 and above is regarded to be very high (Hair *et al.*, 2006; Nunnally, 1967; Sekaran & Bougie, 2010). Pallant (2011) is of the view that Cronbach’s alpha of a scale is sensitive to number of items as smaller items can generate smaller Cronbach’s Alpha.

Table 4.12

*Pilot Study*

<b>Variable</b>	<b>Cronbach Alpha (Pilot Study N=30)</b>	<b>Number of Item</b>
E-Banking Adoption	.623	9
Perceived Usefulness	.847	10
Perceived Ease of Use	.620	10
Perceived Security	.794	10
Facilitating Condition	.664	10
E-Satisfaction	.896	10
E-Trust	.785	06
Hedonic Motivation	.827	07

## **4.6 Strategy for Data Analysis**

Having completed the data collection, the researcher used both descriptive and inferential statistics to analyze the data of this study. Most importantly, PLS SEM was used to analyze the data by employing PLS SEM SmartPLS 2.0 software (Ringle *et al.* 2005).

### **4.6.1 Descriptive Analysis**

Researchers often used descriptive analysis to describe phenomena of interest (Sekaran & Bougie, 2010) with regards to frequency of certain phenomenon, the central tendency or average score (i.e., mean) and the degree of variability (i.e., standard deviation). This study used descriptive analysis to describe the features of the sample and all the variables used in this study.

### **4.6.2 Partial Least Squares (PLS) Technique**

PLS SEM is one of the emerging second generation techniques (Hair *et al.* 2014; Wold, 1982). It is a tool that works effectively with structural equation models that have several latent variables and a string of cause and effect relationships (Gustafsson & Johnson, 2004). It is a flexible approach that is used for statistical model building and prediction (Ringle, Wende, & Will, 2010). Specifically, this study used the PLS technique due to the following reasons. Firstly, it has been established that structural equations models are superior in performing estimations than regressions and for assessing mediation (Brown, 1997; Iacobucci, Saldanha, & Deng, 2007; Mattanah, Hancock, & Brand 2004; Preacher & Hayes, 2004). It also helps in accounting for measurement error as well as provides very accurate estimates for mediating effects (Chin, 1998).

Secondly, application of PLS path modeling for real world events is attracting the attention of researchers due to its capacity of handling complex model like that of this study (Fornell & Bookstein, 1982; Hulland, 1999). Basically, the PLS technique has some soft assumptions which gives it an edge to estimate large complex models (Akter *et al.* 2011). Therefore, this study examined relationships among nine variables (i.e. Perceived usefulness, Perceived ease of use, Perceived security; Awareness, Facilitating condition, E-Satisfaction, E-Trust, Hedonic motivation and E-banking Adoption) within the structural model and hence employing the use of PLS SEM techniques was appropriate for better prediction.

Thirdly, normality problem is always associated with most data in social science (Osborne, 2010) but in using PLS path modeling, data do not necessarily to be normal (Chin, 1998a, Reinartz, Haenlein, & Henseler, 2009; Wetzels, Odekerken-Schroder, & Van Oppen, 2009). Succinctly, PLS has the capacity or inbuilt technique to treat data that is not normal very well. In essence, this study used PLS path modeling in order to avoid any normality problem that may be encountered in the course of data analysis. This therefore connotes that PLS is free from many assumptions such as sample size, normality, multicollinearity and which in essence indicates that tests for skewness, kurtosis, Kolmogrov-Smirnov and so on are not required while running PLS (Hussain, 2013). Fourthly, PLS SEM offers valid and meaningful results when compared with other methods like SPSS (SPSS) since results of the latter are often not too clear and would require several separate analyses (Bollen, 1989). Additionally, Tabachnick and Fidel (2007) state that SEM is one of the most powerful statistical tools in social and behavioural sciences that have the ability of testing several relationships simultaneously.

This study therefore used SmartPLS path modelling to establish measurement and structural models. The measurement model explained or assessed the reliability and validity of the constructs of this study while the structural model helped in conducting multivariate correlation analysis in order to establish correlations, and relationship effects among constructs under investigation. Additionally, using the PLS mechanisms of algorithm and bootstrapping, the mediating effects of e-satisfaction, e-trust and hedonic motivation (mediator) on the relationship between perceived usefulness, perceived ease of use, facilitation conditions, perceived security and e-banking adoption were analysed

#### **4.7 Chapter Summary**

This chapter discusses the methodology that was used in this study. It describes research designs, study's population, unit of analysis, sampling size and determination, variables measurement and operationalization of constructs, procedure of data collection and strategy for data analysis. This study used cross sectional research design for the purpose data collection. The data of the study was analyzed and interpreted with PLS SEM. Importantly; the unit of analysis of the study was individual electronic banking customers of four major banks that are located in Lagos State of Nigeria.

## CHAPTER FIVE

### RESULTS

#### 5.1 Introduction

This chapter presents the results of the study. In doing so, it first discusses response rate by considering number of questionnaires that were returned and used, data screening and test for non-response bias. Secondly, this chapter analyzes results of factor analysis of the constructs of the study including perceived usefulness, perceived ease of use, awareness, perceived security, facilitating conditions, satisfaction, e-trust, hedonic motivation and e-banking adoption. Using the PLS approach, the chapter analyzes the measurement model or goodness of measures through construct validity and reliability analysis of measures used. Additionally, based on the data gathered from the questionnaire survey, this chapter analyzes the structural model – relationships between five exogenous constructs and four endogenous constructs.

#### 5.2 Response rate

With respect to the response rate, 382 questionnaires were systematically distributed to customers of four banks in Lagos State, Nigeria through branch head of operations of each selected bank. These Banks include First Bank of Nigeria Plc, Wema Bank, Stanbic IBTC and Skye Bank Plc. As can be seen from Table 5.1, 291 questionnaires were returned out of which 266 were eventually used for this analysis. Specifically, after the questionnaires were returned, a total number of 25 questionnaires were exempted because the respondents did not fill them very well or for incompleteness. Exclusion of such

number of data or questionnaires is required as they are not representative of the sample (Hair *et al.* 1998; Meyers *et al.* 2006).

Table 5.1

*Questionnaire Distribution and Decision making*

Item	Frequency	Percentage%
Number questionnaires Distributed	382	100
Number of questionnaires Returned	291	76
Number of questionnaires Rejected	25	6.5
Number of questionnaires Retained	266	70

As can be seen from Table 5.1 above, 266 questionnaires representing 70% response rate of the total sample was achieved for this study. This rate is considered excellent based on the recommendation of Sekaran and Bougi (2010) who argue that 30% response rate is acceptable for surveys. Aside, this rate is also considered adequate based on the suggestion of some scholars who assert that the sample size of a study should be 5 or 10 times bigger than the variables of the study (Bartlett, Kotrlik, & Higgins, 2001; Hair *et al.* 2010). Since the number of variables of this study is 9; a sample of 90 would have been deemed fit for analysis. In addition, PLS that is used for this study has the strength to accommodate minimum of 30 responses (Chin, 1998). It can therefore be concluded that total number of 266 responses are more than adequate. Most importantly, this rate is far above the common response rate of 40-50% in social science study in Nigeria (Linus, 2001).



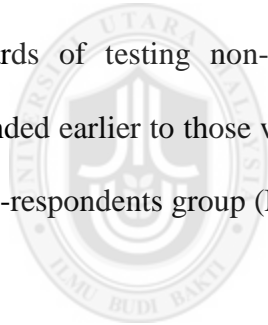
### **5.3 Data Screening**

In order to conduct proper analysis, this study carried out data screening for missing data only. First, screening for missing values is necessary because the available tools and techniques in SEM analysis cannot function if the data set contains any missing values (Schumacker & Lomax, 2004). In addition, it has been emphasized that for good result to be achieved in data analysis the data must be well organized as this will help in smooth conversion of data into a form that is appropriate for the analysis (Kristensen & Eskildsen, 2010) and this can only be achieved if the data are correctly entered without any set missing. According to Sekaran and Bougie, (2010), there are various reasons for missing data such as inability of respondents to understand certain questions or lack of willingness to respond. Missing value can also occur as a result of omission on the part of the researcher while entering the data (Pallant, 2011). Since missing value is a common phenomenon in data analysis, different techniques of treatment are available. This research used 'drop the case method' as suggested by (Tabachnick & Fidell, 2007). As discussed earlier, the researcher had earlier dropped 25 cases of questionnaires that were not properly filled while necessary cautions were taken to ensure that other data sets were appropriately entered for further analysis. Despite this, six missing values by variables were equally noticed (ID 86 and 101) and were replaced with meansince they were very small (Hair *et al.* 2010).

### **5.4 Test for Non-response Bias**

Non-Response Bias is defined as the error researcher makes while estimating the population features based on a sample of survey data in which, as a result of non-

response, parts of surveyed respondents are not fully-represented (Berg, 2002). Accordingly, it has been established in literature that there is no minimum threshold-response rate below which is biased or response rate above which is un-biased (Singer, 2006). However, certain authors are of the strong opinion that every atom of non-response should be investigated because such could cause a bias in the process of research (Pearl & Fairley, 1985; Sheikh, 1981). In view of this, this research conducts non-response bias-analysis to ascertain the level of bias that may distort the research process. In view of this, Table 5.2 segregates respondents in to two independent groups of earlier and late respondents with respect to their responses to survey questionnaires in line with the nine variables of this research. This study thereby used one of the best standards of testing non-response bias by comparing the responses of those who responded earlier to those who responded late. In essence, the late responders are likened to non-respondents group (Miller & Smith, 1983; Oppenheim, 1966).



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Table 5.2

*Descriptive Statistics for Early and Late Respondents*

	<b>RESPONSE TIME</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
<b>E-Banking Adoption</b>	Early Response	141	6.321	0.481	0.041
	Late response	125	6.288	0.426	0.038
<b>Perceived Usefulness</b>	Early Response	141	6.018	0.555	0.047
	Late response	125	6.092	0.529	0.047
<b>Perceived ease of Use</b>	Early Response	141	6.173	0.521	0.044
	Late response	125	6.141	0.510	0.046
<b>Perceived Security</b>	Early Response	141	5.656	0.716	0.060
	Late response	125	5.605	0.804	0.072
<b>Facilitating Condition</b>	Early Response	141	5.662	0.752	0.063
	Late response	125	5.543	0.789	0.071
<b>Awareness</b>	Early Response	141	6.190	0.695	0.058
	Late response	125	6.123	0.734	0.066
<b>E -Satisfaction</b>	Early Response	141	6.111	0.677	0.057
	Late response	125	6.033	0.605	0.054
<b>E- Trust</b>	Early Response	141	5.910	0.758	0.064
	Late response	125	5.892	0.820	0.073
<b>Hedonic Motivation</b>	Early Response	141	6.013	0.704	0.059
	Late response	125	5.955	0.753	0.067

Having conducted independent samples t-test for equality of means, Table 5.3 shows that the mean and standard deviation differences for the two groups are obviously meager. As revealed in Table 5.3, the results of t-test clearly specify that the difference between early responses and late responses is not significant. The table depicts the results as E-banking Adoption ( $t= 0.584$ ,  $p< 0.560$ ); Perceived Usefulness ( $t= -1.103$ ,  $p< 0.271$ ); Perceived

Ease of use ( $t=0.509$ ,  $p < 0.611$ ); Perceived Security ( $t=-0.550$ ,  $p < 0.583$ ); Facilitating condition ( $t=1.254$ ,  $p < 0.211$ ); Awareness ( $t=0.771$ ,  $p < 0.441$ ); E-Satisfaction ( $t= 0.984$ ,  $p < 0.326$ ); E-trust ( $t=0.188$ ,  $p < 0.851$ ); Hedonic Motivation ( $t=0.646$ ,  $p < 0.519$ ) variables respectively. Thus, the results indicate that while these items are statistically different, the differences are quite small and not significant to affect the overall results.

Table 5.3  
*Independent Sample t-test for equality of means*

Variables	Levene's Test for Equality of Variances		T-test for Equality of Means		
	F-Value	Significance	T-Value	df	Significance
E-Banking Adoption	<b>3.256</b>	<b>0.072</b>	<b>0.584</b>	264	<b>0.560</b>
Perceived Usefulness	<b>0.234</b>	<b>0.629</b>	<b>-1.103</b>	264	<b>0.271</b>
Perceived Ease of Use	<b>0.009</b>	<b>0.923</b>	<b>0.509</b>	264	<b>0.611</b>
Perceived Security	<b>1.881</b>	<b>0.171</b>	<b>0.550</b>	264	<b>0.583</b>
Facilitating Conditions	<b>0.128</b>	<b>0.721</b>	<b>1.254</b>	264	<b>0.211</b>
Awareness	<b>0.618</b>	<b>0.432</b>	<b>0.771</b>	264	<b>0.441</b>
E-Satisfaction	<b>0.739</b>	<b>0.391</b>	<b>0.984</b>	264	<b>0.326</b>
E-Trust	<b>1.562</b>	<b>0.212</b>	<b>0.188</b>	264	<b>0.851</b>
Hedonic Motivation	<b>0.052</b>	<b>0.819</b>	<b>0.646</b>	264	<b>0.519</b>

### 5.5 Common Method Bias

Common method bias (CMB) which is otherwise known as mono-method bias, refers to “variance that is attributable to the measurement method rather than to the construct of interest” (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 879). Generally, researchers have reached a consensus that common method bias is a major issue that is associated with self-report surveys (Lindell & Whitney, 2001; Podsakoff et al. 2003; Spector, 2006)

as such bias could inflate the value of relationship that exists among the measured variables (Conway & Lance, 2010). This has been stated earlier by Organ and Ryan (1995) in a meta-analytic review of 55 studies on attitudinal and dispositional predictors of OCB, that the result of any study that is conducted using self-report surveys may be prejudiced with spurious high correlations as a result of common method bias.

In view of the above, this study used some procedural remedies to reduce the influences of CMB (Podsakoff, MacKenzie, & Podsakoff, 2012; Viswanathan & Kayande, 2012). First, to minimize apprehension among the participants while responding to the survey, the researcher has initially assured them that their responses would be treated confidentially while there is no right or wrong answer to the items in the questionnaire. Secondly, in order to reduce method bias, the researcher has equally ensured that vague concepts are avoided in the questionnaire as all the questions were written in a specific, precise and simple language.

Apart from the procedural remedies discussed above, this study equally adopted Harman's single factor test which was proposed by Podsakoff and Organ (1986) to assess the likely presence of common method bias. This requires the researcher to subject all the latent variables of the study to a factor analysis and the output of the promax and non-rotated factor solution are then assessed to determine the number of factors that account for the variance of the constructs (Podsakoff & Organ, 1986). Importantly, the result of the factor will show a single factor which must not explain beyond 50% of the total variances of the variables of the study. In this study, the result of the factor analysis shows that 23.48% of the total variances of the variables were explained by a single factor and which indicates that common method bias is not a problem in this study.

## **5.6 Description of the Sample of Study**

As shown in Table 5.4, this section describes the features of those who participated in the study at individual level. Since the unit of analysis of this study is individual customers of different banks in Nigeria, users of e-banking in Lagos State, Nigeria participated in the study. The features that are examined in this section include Gender, Marital Status, Age, Educational qualification, Ethnic Group, Year of banking experience and Type of bank account held. The individual characteristics have been measured on nominal and ordinal scales.



Table 5.4

*Description of Sample Characteristics*

<b>Variable</b>	<b>Category</b>	<b>Number ofCases</b>	<b>Percentage%</b>
<b>Gender</b>	Male	75	21.8
	Female	191	71.8
<b>Age</b>	Between 18 and 25	24	9.02
	Between 26 and 35	104	39.09
	Between 36 and 45	90	33.83
	Between 46 and 55	41	15.41
	Above 55	2	0.75
Marital Status	Single	67	25.2
	Married	173	65.0
	Divorced	19	7.1
	Widow	4	1.5
	Separated	3	1.1
<b>Qualification</b>	Primary School Certificate	5	1.9
	Secondary School Certificate	20	7.5
	Bachelor Degree/HND	53	19.9
	Master Degree	112	42.1
	Doctorate Degree	67	25.2
Ethnic Group	Hausa	9	3.4
	Fulani	47	17.7
	Yoruba	21	7.9
	Igbo	147	55.3
	Others	49	18.4
Year of <b>Experience</b>	Less than 1	2	8
	1—5	5	1.9
	6-10	81	30.5
	11-20	124	46.6
	Over 20 years	52	19.5
Type of Bank <b>Account</b>	Savings	4	1.5
	Current	121	45.5
	Deposit	139	52.3
	Domiciliary	3	1.1

Table 5.4 shows that majority of the respondents were Females. This is surprising since the structure of population of Nigeria has generally shown that 60 percent are males while 40 percent are females. However, evidence has shown that females in Lagos State are literate, and engage in both corporate functions and other merchandise activities than their female counterparts elsewhere in the country (UNICEF, 2007). This fact might have informed their high rate of banking patronage than their Male counterparts. This is also in line with the findings of studies of where female customers patronize mobile financial

services than male customers (Chemingui & Lallouna 2013; Kashier & Alexandria, 2009).

Concerning the respondents' age, Table 5.4 also shows that majority of the respondents fall within the age bracket of 26-35 and which constitutes 39.8% of sample of the study. The next category are those groups whose age falls in the range of 36-45 (33.83%), 46-55 (15.41%), 18-25 (9.02%) and 55 and above (0.75%). The implication of this is that those young generations who are technology-savvy embrace e-banking and can favorably give their perceptions than other users. Similarly, Table 5.4 reveals that majority of the sample population have had quite long year banking experience. Finally, the descriptive statistics shows that majority of the respondents have had their first degree and post graduate degree. Hence, the data used in this study were provided by respondents from diverse educational backgrounds. Additionally, the respondents operate majorly savings and current accounts. This implies that most of the users operate these accounts through electronic banking.

### **5.7 Descriptive Analysis of Constructs**

The general statistical description of the constructs used in this study is examined by using the descriptive analysis. Statistical values of means, standard deviation, minimum, and maximum were calculated for both the independent, mediating and dependent constructs. The results of these statistical values are displayed in Table 5.5. All the constructs have been measured on a seven point scale.



Table 5.5

*Descriptive Analysis of Constructs*

	N	Minimum	Maximum	Mean	Std. Deviation
E-banking Adoption	266	1	7	6.31	.455
Perceived Usefulness	266	1	7	6.05	.543
Perceived ease of use	266	1	7	6.16	.515
Perceived Security	266	1	7	5.63	.758
Facilitating Conditions	266	1	7	5.61	.770
Awareness	266	1	7	6.16	.713
E-Satisfaction	266	1	7	6.07	.644
E-Trust	266	1	7	5.90	.786
Hedonic Motivation	266	1	7	5.99	.727

### 5.8 The Measurement Model

This study used PLS structural equation modelling (SEM) to estimate its theoretical model using the software application SmartPLS 2.0 M3 (Ringle, Wende, & Will, 2005). PLS SEM lies on two important multivariate techniques including factor analysis, and multiple regressions (Hair *et al.* 2010). PLS tool is used throughout analysis of the main and mediating results for this study.

The first step in PLS analysis is assessment of the measurement model that is otherwise known as the outer model. The purpose of Measurement model is to determine the goodness of measures. Basically, there are two main criteria that are used in PLS analysis for the assessment of the measurement model and these include validity and reliability (Ramayah, Lee, & In, 2011). The purpose of reliability test is to determine whether the measuring instrument consistently measures what it supposed to measure while validity test tries to find out the extent or degree which certain instrument measures a particular concept it is designed to measure (Sekaran & Bougie, 2010). In an elaborate form, researchers assessed outer model with individual item reliability, construct internal

consistency and construct validity. The reliability, convergent and discriminant validity of the instruments used in this study are evaluated using the approaches developed for a PLS context by Fornell and Larcker (1981). Importantly, the predictive power of a particular model in PLS analysis is obtained by the R squared ( $R^2$ ) values of the latent constructs or endogenous variables and path coefficient for each relationship from exogenous variables to endogenous variables. In PLS analysis, the interpretations of values of  $R^2$  is similar to those obtained from multiple regression analysis. Importantly, the  $R^2$  values indicate the amount of variance in the construct that is explained by the model (Barclay *et al.* 1995; Chin, 1998).

In PLS procedure for estimating parameters, certain assumption such as distributional normality of the observations is not followed, hence the traditional parametric-based techniques for test of significance are not appropriate for PLS (Chin, 2010). In place of the traditional parametric-based techniques, statistical significance in PLS analysis is assessed with the help of bootstrap and the jack-knife techniques (Hair *et al.* 2014). The jack-knife technique is an algorithm-based technique built into PLS and it is used to generate path coefficients for testing significance of hypotheses. One of the advantages of jack-knife technique that is it is used to save resources and reduce execution time for large data sets (Chin, 2010).

On the other hand, bootstrapping represents a more exact calculation of measures and this study uses this technique for the purpose of testing the significance of all the path coefficients (Chin, 2010, Mooney, 1996). As stated earlier, the purpose of bootstrapping in PLS analysis is to evaluate the significance of model's path coefficients as well as estimate the standard error (Chin, 1998). In PLS analysis, bootstrapping which is a non-

parametric technique is used to randomly generate large number of subsamples from original sample with replacement (Efron & Tibshirani, 1993). The bootstrapping is regarded as a superior re-sampling technique that attempts to estimate the sampling distribution of an estimator by re-sampling with replacement from the original sample (Good, 2000). Even though the role of bootstrapping has been recognized by large number of researchers; controversy still remains about the standard for generating subsamples using the technique as recent evidence has shown that contemporary researchers often decide the number of bootstrap retrials to undertake based on the peculiarity of their situations (Martins, Oliveira, & Popovic, 2014). However, it has been argued that inadequate number of retrials may lead to incorrect estimation of standard error, t-values, confidence intervals or conclusions in the test of hypotheses (Bontis *et al.* 2007). Important guidelines for the selection of the number of re-sampling are still being explored (Andrews & Buchinsky, 2002). For the present study, the recommendation of Chin (2010) was followed as a total of 500 retrials were chosen in order to determine the significance of model's path coefficients and standard error.

### **5.8 Constructs' Validity**

The purpose of construct validity is to ascertain the degree in which the results that is obtained from the use of a measure match the theories upon which the test is primarily designed (Sekaran, & Bougie, 2010). In a specific term, construct validity is concerned with answering the question: does the adapted instrument measure what it supposed to measure as theorized? In order to achieve the validity analysis, the researcher subjected the measurement scales into three rigorous validity tests and these include content validity, convergent validity, and discriminant validity (Sekaran & Bougie, 2010).

Content validity measures the extent to which the indicators or scale items represent the domain of the concepts under study. For the content validity to be established, an extensive review of literature was embarked on after which the items were adapted from previous studies as doing this will help to reduce issue of measurement error. As a further attempt however, two experts including an Associate Professor and a Senior lecturer from Universiti Utara Malaysia (UUM) were consulted to further examine the instrument and all agreed that the items represent the constructs under study. In addition, two professional bankers and five various users of e-banking were contacted within the university campus for the purpose of reviewing the clarity and suitability of the instruments. Thus, the general procedures for selection of measurement and content validity as recommended by previous scholars were followed (Cronbach, 1951; Straub, 1989).

Convergent validity is the measure of constructs that should be theoretically related while discriminant validity is the measure of constructs that should not be related theoretically. Both convergent validity and discriminant validity are subtypes of construct validity because they work interdependently as one alone is not enough to establish construct validity (Chin 1998, Dyba, 2005). As suggested by Hair *et al.* (2010), factor loadings, composite reliability and average variance extracted (AVE) are the three key assessors of convergence validity.

In order to establish convergence validity, the convention requires that the factor loadings and cross loadings must be assessed first as this will help to detect any problems that may be associated with any particular items. In this view, Table 5.6 presents the factor

loadings and cross loadings of all items for their respective constructs. According to Hair *et al.*, (2010) researcher can simply conclude that a measurement scale is valid when items/indicators load highly (i.e.,  $> 0.5$ ) on their related constructs. In addition, no item loads must be high on another construct than the one it intends to measure (Barclay *et al.*, 1995). For this study, four three items (43) comply and loaded highly on their respective constructs and have equally exceeded the recommended threshold value of 0.5 (Hair *et al.*, 2010). This therefore implies that 37 items were removed in the course of running the measurement model of the study. Importantly, these items were deleted because their loadings were not up to the threshold suggested. Since all the constructs are measured reflectively, the removal of some of their items will not necessarily hamper the content validity as it rather improves composite reliability and AVE of the model (Diamantopolous 2001; Hair *et al.*, 2014). Other recent studies have equally removed items that did not load properly in order to achieve a good measurement model (Abushanab *et al.*, 2010; Bambale, 2013; Kura, 2014) following the arguments of Diamantopolous and Winklöhoffer (2001) who assert that the removal of reflective items (as in the case of this study) cannot change the nature of the underlying constructs since the items are essentially interchangeable.

Further, Hayduk and Litavy (2012) assert that smaller indicators help in achieving sound theoretical models as several indicators hamper theory by unnecessarily restricting the number of modeled latents. In this view, they recommend usage of few best indicators.

In view of the above, 10 items were adapted Ho and Ko, (2008), Juwaheer *et al.* (2012) and Zhou (2013) for complementary purpose and only one item from Ho and Ko was deleted. Items for perceived usefulness which were also adapted from Pikkarainen *et*

*al.*(2004) and Deb and Lomo-David (2012) were reduced to four as 6 items were deleted (3 from Pikkarainen *et al.* and Deb and Lomo-David 2012 respectively). This is equally applicable to perceived ease of use as 10 items were also adapted from Deb and Lomo-David, 2014; Pikkarainen *et al.* 2004 while 6 items were also deleted (3 from Pikkarainen and 3 from Lomo-David, 2014). In addition, 10 items for perceived security were adapted from Deb and Lomo-David, 2014; Juwaheer *et al.*, 2012 and Mann and Shanni (2013) with five items deleted (1 from Juwaheer, 2 from Deb & Lomo-David, 2014; and Mann and Shanni 2013 respectively).

In addition, 10 items for facilitating conditions were also adapted from Chemingui & Lallouna, 2013; Deb & Lomo-David; 2014 and Yu 2011. Four items were also retained from these as other six were deleted (2 items from each source). Furthermore, eight items for awareness were adapted from Pikkarainen *et al.*, 2004; Zhou, 2013 while 3 items were deleted (2 from Zhou, 2013 and 1 from Pikkarainen *et al.* 2004). Also, 8 items were adapted for awareness from Pikkarainen *et al.* and Zhou with 2 items deleted from Zhou only. Similarly, 10 items for e-satisfaction were adapted from George and Kumar, 2013; Kumar and Ravindran, 2012; Zhou, 2013 with only three retained (four were deleted from George & Kumar, two from Zhou, and one from Kumar & Ravindran). This also affects E-trust as it six items were adapted from Juwaheer *et al.* but two items were deleted. In the last lap, 7 items for hedonic motivation were also adapted from Moon and Kim 2001; Pikkarainen *et al.* 2004; Venkatesh *et al.* 2012 while 2 were deleted from (Venkatesh *et al.*, and Pikkarainen *et al.*). As can be seen in Table 5.6, all the indicators loaded on their respective constructs from a lower bound of 0.720 to an upper bound of

0.863. In addition, all the items loaded more highly on their respective constructs than on any other construct.

Table 5.6  
*Factor loadings and Crossloading*

	AW	EA	ES	ET	EU	FC	HM	PS	PU
AW1	<b>0.780</b>	0.523	0.317	0.580	0.445	0.504	0.495	0.459	0.281
AW2	<b>0.792</b>	0.384	0.255	0.564	0.447	0.535	0.514	0.519	0.294
AW3	<b>0.681</b>	0.296	0.218	0.418	0.327	0.503	0.419	0.341	0.220
AW4	<b>0.728</b>	0.309	0.290	0.422	0.409	0.478	0.384	0.327	0.264
AW6	<b>0.730</b>	0.394	0.248	0.450	0.329	0.356	0.448	0.309	0.246
AW8	<b>0.777</b>	0.456	0.340	0.478	0.480	0.401	0.374	0.373	0.356
EA1	0.513	<b>0.761</b>	0.348	0.482	0.383	0.334	0.470	0.309	0.283
EA2	0.494	<b>0.761</b>	0.293	0.470	0.329	0.309	0.468	0.296	0.240
EA3	0.373	<b>0.767</b>	0.398	0.436	0.391	0.238	0.441	0.285	0.318
EA5	0.314	<b>0.732</b>	0.298	0.368	0.227	0.212	0.370	0.196	0.206
EA6	0.402	<b>0.751</b>	0.368	0.453	0.355	0.247	0.490	0.310	0.297
EA7	0.353	<b>0.671</b>	0.328	0.325	0.317	0.163	0.377	0.266	0.189
EA8	0.376	<b>0.708</b>	0.308	0.387	0.295	0.249	0.382	0.238	0.254
EA9	0.344	<b>0.742</b>	0.318	0.385	0.354	0.240	0.359	0.261	0.284
ES3	0.176	0.317	<b>0.697</b>	0.170	0.355	0.127	0.177	0.322	0.288
ES6	0.332	0.361	<b>0.778</b>	0.260	0.522	0.259	0.286	0.380	0.366
ES9	0.305	0.310	<b>0.709</b>	0.202	0.308	0.175	0.233	0.290	0.412
ET2	0.458	0.462	0.151	<b>0.699</b>	0.276	0.404	0.404	0.332	0.171
ET4	0.353	0.220	0.176	<b>0.687</b>	0.282	0.461	0.393	0.456	0.256
ET5	0.569	0.493	0.242	<b>0.829</b>	0.365	0.551	0.499	0.418	0.342
ET6	0.610	0.527	0.315	<b>0.860</b>	0.398	0.500	0.510	0.460	0.298
EU10	0.433	0.386	0.525	0.316	<b>0.776</b>	0.283	0.342	0.395	0.344
EU6	0.392	0.371	0.394	0.280	<b>0.707</b>	0.218	0.336	0.343	0.292
EU8	0.360	0.315	0.347	0.322	<b>0.753</b>	0.311	0.298	0.399	0.217
EU9	0.440	0.263	0.350	0.371	<b>0.733</b>	0.432	0.337	0.497	0.251
FC10	0.479	0.296	0.186	0.394	0.263	<b>0.694</b>	0.342	0.297	0.264
FC4	0.448	0.245	0.241	0.482	0.333	<b>0.778</b>	0.412	0.460	0.288
FC8	0.429	0.277	0.151	0.457	0.264	<b>0.730</b>	0.269	0.366	0.275
FC9	0.471	0.214	0.199	0.514	0.366	<b>0.778</b>	0.434	0.448	0.378
HM3	0.503	0.401	0.251	0.401	0.386	0.428	<b>0.795</b>	0.364	0.327
HM4	0.543	0.490	0.290	0.500	0.429	0.444	<b>0.846</b>	0.414	0.355
HM5	0.497	0.490	0.259	0.530	0.337	0.453	<b>0.854</b>	0.424	0.366
HM6	0.453	0.472	0.222	0.516	0.338	0.325	<b>0.786</b>	0.315	0.228
HM7	0.373	0.474	0.281	0.433	0.298	0.337	<b>0.766</b>	0.306	0.252
PS1	0.363	0.197	0.337	0.364	0.484	0.440	0.311	<b>0.737</b>	0.288
PS10	0.459	0.319	0.411	0.421	0.406	0.455	0.373	<b>0.818</b>	0.344
PS2	0.368	0.252	0.351	0.369	0.348	0.332	0.283	<b>0.710</b>	0.231
PS7	0.299	0.231	0.292	0.371	0.412	0.368	0.290	<b>0.735</b>	0.214
PS9	0.464	0.367	0.332	0.482	0.429	0.411	0.431	<b>0.780</b>	0.289
PU10	0.302	0.291	0.382	0.290	0.332	0.374	0.267	0.285	<b>0.696</b>
PU6	0.174	0.271	0.294	0.213	0.252	0.234	0.246	0.191	<b>0.762</b>
PU7	0.353	0.287	0.425	0.312	0.310	0.286	0.324	0.343	<b>0.821</b>
PU8	0.311	0.256	0.401	0.263	0.274	0.363	0.339	0.297	<b>0.834</b>

In addition, the convergent validity was also assessed with average variance extracted (AVE) as shown in Table 5.7. AVE refers to the average variance that a construct and its measures share. The general rule is that the value of AVE should be 0.5 and above (Barclay, *et al.* 1995).





Table 5.7

*Convergent and Reliability Analysis*

<b>Construct</b>	<b>Items</b>	<b>Loadings</b>	<b>Composite Reliability</b>	<b>Cronbach Alpha</b>	<b>AVE</b>
<b>Perceived Usefulness</b>	PU10	<b>0.696</b>	0.861	0.784	0.609
	PU6	<b>0.762</b>			
	PU7	<b>0.821</b>			
	PU8	<b>0.834</b>			
<b>Perceived Ease of Use</b>	EU10	<b>0.776</b>	0.831	0.729	0.551
	EU6	<b>0.707</b>			
	EU8	<b>0.753</b>			
	EU9	<b>0.733</b>			
<b>Awareness</b>	AW1	<b>0.780</b>	0.880	0.845	0.561
	AW2	<b>0.792</b>			
	AW3	<b>0.681</b>			
	AW4	<b>0.728</b>			
	AW6	<b>0.730</b>			
	AW8	<b>0.777</b>			
<b>Perceived Security</b>	PS1	<b>0.737</b>	0.867	0.814	0.573
	PS10	<b>0.818</b>			
	PS2	<b>0.710</b>			
	PS7	<b>0.735</b>			
	PS9	<b>0.780</b>			
<b>Facilitating Condition</b>	FC10	<b>0.694</b>	0.834	0.734	0.557
	FC4	<b>0.778</b>			
	FC8	<b>0.730</b>			
	FC9	<b>0.778</b>			
<b>E-Satisfaction</b>	ES3	<b>0.697</b>	0.771	0.561	0.532
	ES6	<b>0.778</b>			
	ES9	<b>0.709</b>			
<b>Hedonic Motivation</b>	HM3	<b>0.795</b>	0.905	0.868	0.656
	HM4	<b>0.846</b>			
	HM5	<b>0.854</b>			
	HM6	<b>0.786</b>			
	HM7	<b>0.766</b>			
<b>E-Trust</b>	ET2	<b>0.699</b>	0.854	0.770	0.597
	ET4	<b>0.687</b>			
	ET5	<b>0.829</b>			
	ET6	<b>0.860</b>			
<b>E-Banking Adoption</b>	EA1	<b>0.761</b>	0.905	0.880	0.544
	EA2	<b>0.761</b>			
	EA3	<b>0.767</b>			
	EA5	<b>0.732</b>			
	EA6	<b>0.751</b>			
	EA7	<b>0.671</b>			
	EA8	<b>0.708</b>			
	EA9	<b>0.742</b>			

Table 5.7 shows the results of AVE with coefficients that range from 0.54 to 0.61. This in essence indicates establishment of convergence validity for all the constructs. In addition, the table also shows composite reliability with values that range between 0.77 and 0.90. Composite reliability is commonly used by contemporary researchers instead of cronbach's alpha that makes equality assumption among all the indicators because it is sensitive to number of items in the scale and therefore underestimates the internal consistency reliability (Hair *et al.* 2014). However, Table 5.7 equally shows cronbach's alpha with the least value of 0.56 and highest value of 0.88 (Devellis, 2003; Peterson, 1994,). Given the establishment of convergence validity which demonstrates item loadings that meet satisfactory criteria, satisfactory AVE and composite reliability, it can then be concluded that the items represent their respective constructs, hence establishing their convergence validity.

Discriminant validity on the other hand aims at confirming the construct validity of the outer model. In essence, it tends to ensure that those measures that supposed not to be related are not related theoretically having conducted the analysis. Succinctly, discriminant validity ensures that all the measures are related to their own respective constructs and not other constructs (Hair *et al.*, 2014). In order to obtain discriminant validity, the square roots of average variance extracted (AVE) is calculated and compared with the correlations of other constructs of the study (Chin 2010; Fornell & Larcker 1981). As a rule, the squared root of AVE should be higher than the squared correlation estimates as this indicates credible discriminant validity (Hair *et al.* 2006). In a specific term, the diagonal elements or coefficients must be higher than the off-diagonal elements or coefficients or elements in the corresponding rows and columns before adequate

discriminate validity can be established. As calculated, the results of discriminant validity are displayed in Table 5.8. On the diagonal of the table, square roots of AVE for all the items are displayed and this reveals higher square roots of AVE for Hedonic Motivation (HM) (0.810) and lower case for E-satisfaction (EU) (0.729).

Table 5.8  
*Discriminant Validity*

	EA	ES	ET	EU	FC	HM	PS	PU
<b>AW</b>								
<b>EA</b>	<b>0.749</b>							
<b>ES</b>	0.543	<b>0.737</b>						
<b>ET</b>	0.377	0.453	<b>0.729</b>					
<b>EU</b>	0.657	0.566	0.293	<b>0.773</b>				
<b>FC</b>	0.548	0.454	0.552	0.433	<b>0.743</b>			
<b>HM</b>	0.611	0.342	0.263	0.621	0.415	<b>0.746</b>		
<b>PS</b>	0.588	0.575	0.322	0.589	0.443	0.494	<b>0.810</b>	
<b>PU</b>	0.524	0.370	0.457	0.536	0.547	0.532	0.454	<b>0.757</b>
	0.374	0.354	0.487	0.350	0.377	0.407	0.381	0.365
								<b>0.780</b>

Generally, the results of factor loading and cross loading, convergent and reliability analysis and discriminant validity as shown in Tables 5.6, 5.7 and 5.8 respectively reveal valid measures for all the nine constructs of this study based on their parameter estimates and statistical significance (Chow & Chan, 2008).

### 5.9 Effect Size

The essence of  $R^2$  value of endogenous constructs is that it helps to show the strength of the model. However, a change in the  $R^2$  value as a result of omitting certain exogenous construct in the model can also be used to assess the contribution of the omitted construct on the endogenous constructs (Hair *et al.* 2014). This measure is regarded as the effect size ( $f^2$ ) and can be calculated as:

$$f^2 = \frac{R^2 \text{ included} - R^2 \text{ excluded}}{1 - R^2 \text{ included}}$$

The effect size is calculated using the above formula by excluding an exogenous variable once from the model (generating  $R^2$  excluded) and include the exogenous construct once again in the model (generating  $R^2$  included). According to Cohen (1998),  $F^2$  values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects of the exogenous latent variable respectively (Hair *et al.*, 2014).

Table 5.9

*Effect Size of Exogenous on E-Satisfaction (Endogenous Construct)*

Exogenous Construct	R <sup>2</sup> -Incl	R <sup>2</sup> -Excl	R <sup>2</sup> incl-R2excl	1-R <sup>2</sup> incl	Total Effect
Perceived Usefulness	0.423	0.345	0.078	0.577	0.135
Perceived Ease of Use	0.423	0.333	0.09	0.577	0.156
Perceived Security	0.423	0.399	0.024	0.577	0.042
Facilitating Condition	0.423	0.412	0.011	0.577	0.019

Table 5.10

*Effect Size of Exogenous on Hedonic Motivation (Endogenous Construct)*

Exogenous Construct	R <sup>2</sup> -Incl	R <sup>2</sup> -Excl	R <sup>2</sup> incl-R2excl	1-R <sup>2</sup> incl	Total Effect
Perceived Usefulness	0.344	0.328	0.016	0.656	0.024
Perceived Ease of Use	0.344	0.32	0.024	0.656	0.037
Perceived Security	0.344	0.331	0.013	0.656	0.020
Facilitating Condition	0.344	0.293	0.051	0.656	0.078

Table 5.11

*Effect Size of Exogenous on E-Trust (Endogenous Construct)*

Exogenous Construct	R <sup>2</sup> -Incl	R <sup>2</sup> -Excl	R <sup>2</sup> incl-R2excl	1-R <sup>2</sup> incl	Total Effect
Perceived Usefulness	0.456	0.454	0.002	0.544	0.004
Perceived Ease of Use	0.456	0.449	0.007	0.544	0.013
Perceived Security	0.456	0.426	0.03	0.544	0.055
Facilitating Condition	0.456	0.332	0.124	0.544	0.228

Table 5.12

*Effect Size of Exogenous on E-banking Adoption (Endogenous Construct)*

<b>Exogenous Construct</b>	<b>R<sup>2</sup>-Incl</b>	<b>R<sup>2</sup>-Excl</b>	<b>R<sup>2</sup>incl-R2excl</b>	<b>1-R<sup>2</sup>incl</b>	<b>Total Effect</b>
<b>Perceived Usefulness</b>	0.500	0.500	0.000	0.500	0.000
<b>Perceived Ease of Use</b>	0.500	0.497	0.003	0.500	0.006
<b>Perceived Security</b>	0.500	0.496	0.004	0.500	0.008
<b>Facilitating Condition</b>	0.500	0.488	0.012	0.500	0.024
<b>Awareness</b>	0.500	0.488	0.012	0.500	0.024
<b>E-satisfaction</b>	0.483	0.424	0.059	0.517	0.114
<b>E-trust</b>	0.483	0.413	0.07	0.517	0.135
<b>Hedonic Motivation</b>	0.483	0.427	0.056	0.517	0.108

It can be seen from Table 5.9 that endogenous construct of e-satisfaction is explained by four exogenous constructs as the value of  $f^2$  range from 0.019 and 0.156. In addition, Table 5.10 also shows that hedonic motivation endogenous construct is also explained by four exogenous variables with their  $f^2$  value that ranges from 0.070 to 0.078. Further, Table 5.11 reveals that four exogenous constructs explain E-trust endogenous construct with lowest  $f^2$  value that ranges from 0.004 to 0.228 while Table 5.12 shows that E-banking Adoption endogenous construct is explained by 8 exogenous constructs with  $f^2$  value that ranges from 0.006 to 0.0135. In all, the exogenous constructs of this study exhibit small to medium effect sizes on their respective endogenous constructs. Aside, the four endogenous constructs of the model exhibit  $R^2$  values of e-satisfaction (0.423), Hedonic motivation (0.344), e-trust (0.456) and e-banking adoption (0.500) and which can be said to be reasonably high (Falk & Miller, 1992). Falk and Miller argued that 10%  $R^2$  value is reasonable enough.

## 5.10 Predictive Relevance of the model

In addition to effect size, researchers also conduct the predictive relevance of the model ( $Q^2$ ) (Geisser, 1974; Stone, 1974). This can be assessed by cross-validated redundancy measure that is obtained through PLS blindfolding technique for all the endogenous constructs. As a rule the value of cross-validated redundancy should be greater than zero (Fornell & Cha 1994) as obtained in this study and as shown in Table 5.13.

Table 5.13

### *Predictive Relevance of the model*

<b>Construct</b>	<b>R2</b>	<b>Cross Validated Redundancy</b>
<b>E--Satisfaction</b>	0.420	0.211
<b>Hedonic Motivation</b>	0.340	0.185
<b>E-Trust</b>	0.460	0.241
<b>E-Banking Adoption</b>	0.500	0.219

Having conducted blindfolding exercise in SmartPLS, Table 5.13 reveals the predictive quality power of the model under study. The Table shows that the cross-validated redundancies for the endogenous constructs are 0.211, 0.185, and 0.241 and 0.219. Since these values are higher than zero as suggested by Fornell & Cha (1994) and Hair *et al.* (2014), it can be said that the model has good predictive capability.

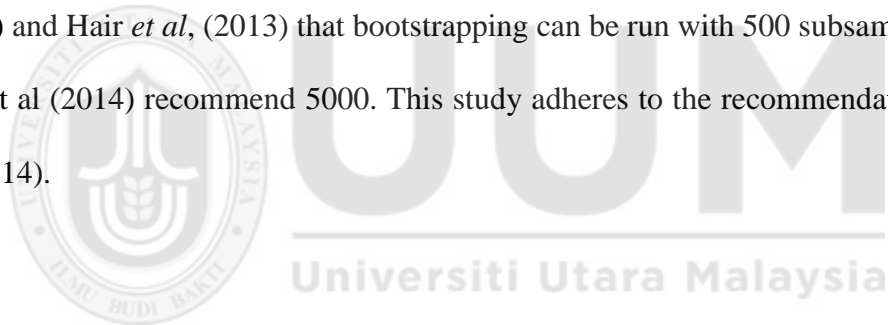
## 5.11 Structural Model (Inner Model) and Hypothesis Testing

Having discussed the measurement model of this study in the preceding sections, the next step is to consider the structural model otherwise called inner model. This step allows the researcher to inspect the standardized path coefficients in order to test the hypotheses of this study. In a specific term, the main and mediating hypotheses are tested in this

section. This therefore implies that PLS path coefficient approach is executed in order to test direct effects while bootstrapping was conducted to calculate the mediating effects.

### **5.11.1 Hypotheses Testing for Direct Relationships**

In order to test hypotheses for direct relationship, the first step that is required is to run PLS algorithm. This step enabled the researcher to generate path coefficients that were used to determine the relationships between exogenous and endogenous constructs of this study (fig. 5.1). The second step that is required is bootstrapping which is meant to generate the t-value that is meant to test the significance of the relationship (fig 5.2). There are various suggestions about how bootstrapping can be run. For instance, Chin (2010) and Hair *et al*, (2013) that bootstrapping can be run with 500 subsample size while Hair et al (2014) recommend 5000. This study adheres to the recommendation of Hair et al, (2014).



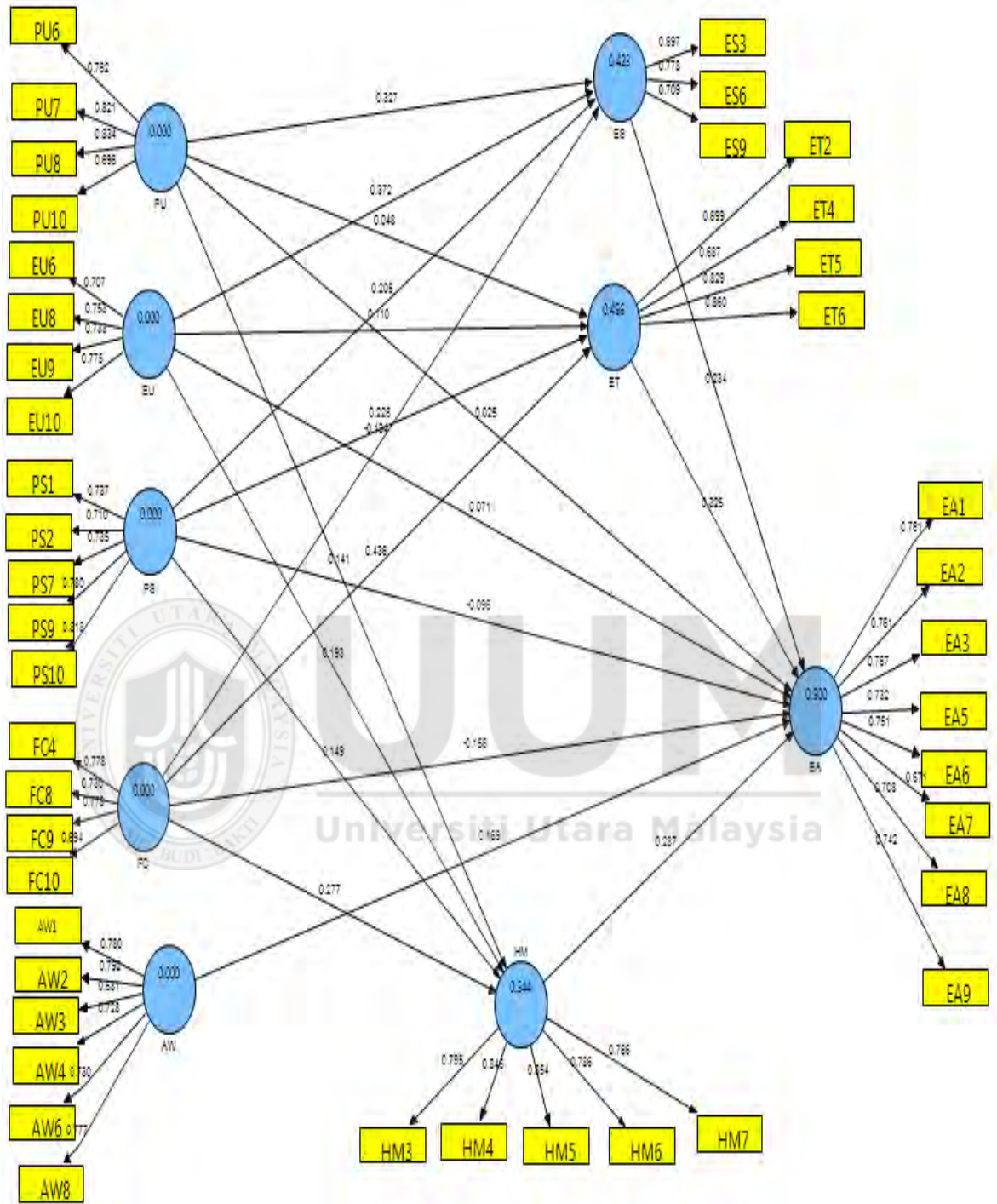


Fig 5.1.PLS Algorithms ( $\beta$ -values) for Direct Relationships



Figure 5.1 above shows the results of PLS algorithm that is used to generate the path coefficients ( $\beta$ -values) while figure 5.2 shows the results of bootstrapping for calculating t-values and p-values for all the direct and mediating relationships. The results of bootstrapping were used to determine the significance and the acceptance of all the hypotheses.



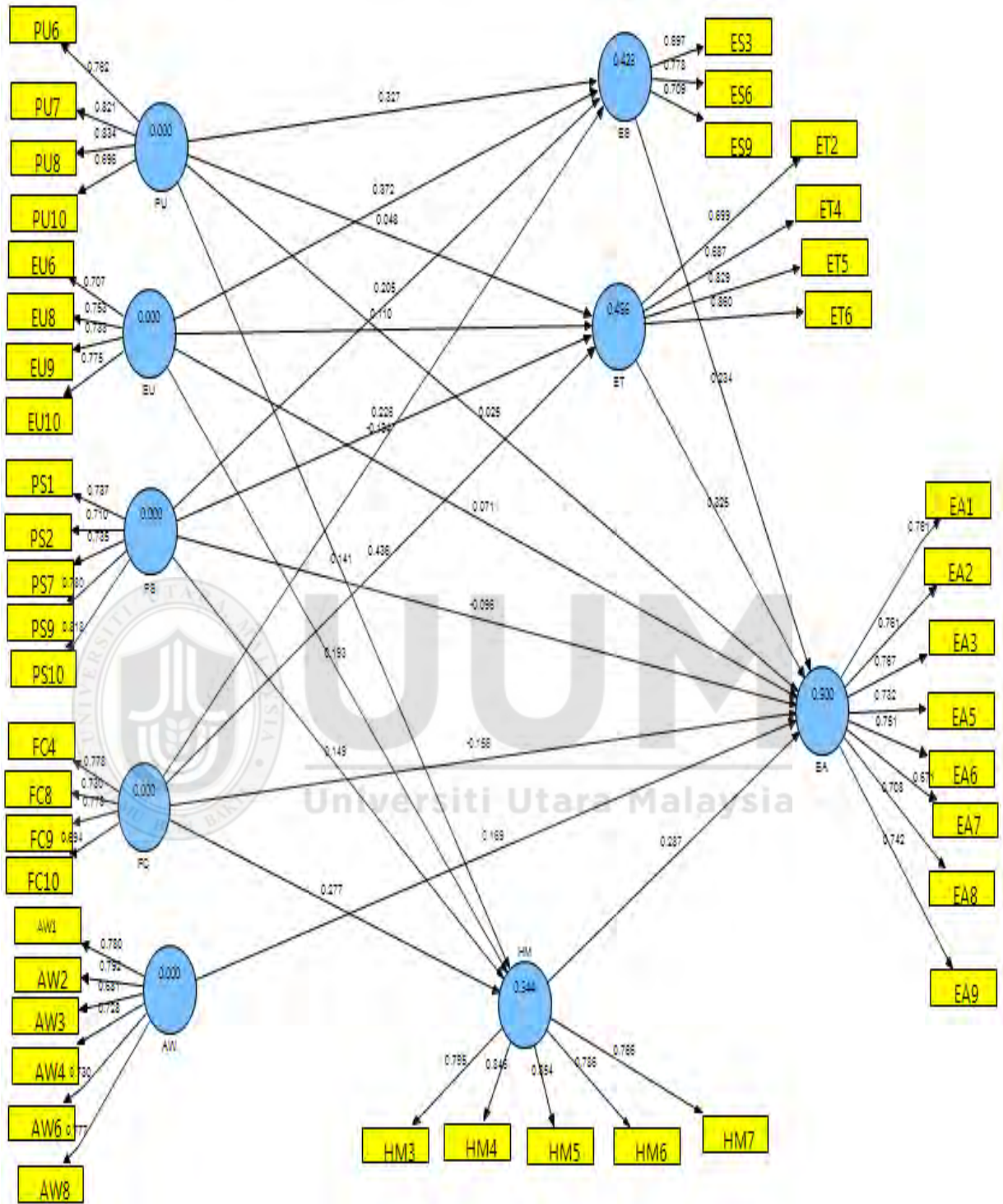


Fig 5.2. PLS Bootstrapping (t-values) for Direct Relationships

Based on the PLS algorithm (Figure 1) and PLS bootstrapping (Figure 5.2) as shown above, the following Table 5.14 shows the final results of direct relationships of the structural model.

Table 5.14  
*The Results of Inner Model*

Hypotheses	Paths	$\beta$	SE	T Value	P Values	Remarks
H1a	PU -> ES	0.3267	0.0609	5.3627	0.000***	Supported
H1b	PU -> ET	0.0485	0.064	0.757	0.225	Not Supported
H1c	PU -> HM	0.1413	0.0665	2.1249	0.017**	Supported
H1d	PU -> EA	0.0254	0.0615	0.4135	0.340	Not Supported
H2a	EU -> ES	0.3719	0.062	5.9985	0.000***	Supported
H2b	EU -> ET	0.1098	0.0772	1.4218	0.078*	Supported
H2c	EU -> HM	0.1928	0.0764	2.5245	0.006***	Supported
H2d	EU -> EA	0.0715	0.0812	0.8796	0.190	Not Supported
H3a	PS -> ES	0.2052	0.0732	2.8029	0.003***	Supported
H3b	PS -> ET	0.2261	0.0793	2.8501	0.002***	Supported
H3c	PS -> HM	0.1491	0.0777	1.9182	0.028**	Supported
H3d	PS -> EA	-0.096	0.0731	1.3128	0.095*	Supported
H4a	FC -> ES	-0.1336	0.0592	2.2578	0.012**	Supported
H4b	FC -> ET	0.4359	0.1143	3.813	0.000***	Supported
H4c	FC -> HM	0.2773	0.1117	2.4812	0.007***	Supported
H4d	FC -> EA	-0.156	0.0709	2.2019	0.014**	Supported
H5	AW -> EA	0.1693	0.0809	2.0915	0.019**	Supported
H6a	ES -> EA	0.2339	0.0619	3.781	0.000***	Supported
H7a	ET -> EA	0.3254	0.0883	3.6865	0.000***	Supported

\*\*\*:p< 0.01; \*\*:p< 0.05; \*:p< 0.1

As shown in the table, hypothesis H1a states a significant-positive relationship between Perceived usefulness and E-Satisfaction and supported at 0.01 level of significance ( $\beta=0.327$ ,  $t=5.363$ ,  $p<0.01$ ). In addition, Hypotheses H1c was supported with respect to the relationships between perceived usefulness and hedonic motivation ( $\beta=0.141$ ,  $t=2.125$ ,  $p<0.05$ ) and relationship between perceived usefulness and e-banking adoption ( $\beta=0.283$ ,  $t=4.133$ ,  $p<0.01$ ). Furthermore, Hypothesis H2a which states a positive relationship between perceived ease of use and e-satisfaction was supported ( $\beta=0.372$ ,

t=5.999, p<0.01), Hypothesis H2b that states positive relationship between perceived ease of use and e-trust was supported( $\beta=0.109$ , t=1.422, p<0.10), Hypothesis H2c that states a positive relationship between perceived ease of use and hedonic motivation was supported ( $\beta=0.193$ , t=2.525, p<0.01)

Moreover, hypothesis 3a that states positive relationship between perceived security and e-satisfaction ( $\beta=0.205$ , t=2.803, p<0.01), hypothesis 3b that states positive relationship between perceived security and e-trust ( $\beta=0.226$ , t=2.850, p<0.01), hypothesis H3c that states positive relationship between perceived security and hedonic motivation ( $\beta=0.149$ , t=1.918, p<0.05) and hypothesis H3d that states negative relationship between perceived security and e-banking adoption ( $\beta=-0.096$ , t=1.312, p<0.10) were all supported. In addition, hypothesis H4a that states negative relationship between facilitating conditions and e-satisfaction ( $\beta=-0.149$ , t=2.258, p<0.05) hypotheses, H4b that states positive relationship between facilitating condition and e-trust ( $\beta=0.436$ , t=3.813, p<0.01), hypothesis H4c that states a positive relationship between facilitating condition and hedonic motivation ( $\beta=0.277$ , t=2.481, p<0.01) and H4d that states a negative relationship between facilitating conditions and e-banking adoption ( $\beta=-0.156$ , t=2.202, p<0.05) were supported respectively. Further, Hypothesis H5 which states a positive relationship between awareness and e-banking adoption ( $\beta=0.169$ , t=2.092, p<0.05) hypothesis H6a that states a positive relationship between e-satisfaction and e-banking adoption ( $\beta=0.234$ , t=3.781, p<0.01), Hypothesis H7a which states a positive relationship between E-Trust and e-banking adoption ( $\beta=0.325$ , t=3.687, p<0.01) and Hypothesis H8a which states a positive relationship between Hedonic Motivation and e-banking adoption ( $\beta=0.288$ , t=4.444, p<0.01) were all supported.

Summarily, whilst hypotheses H1a, H1c, H2a, H2b H2c, H3a, H3b, H3c, H3d, H4b, H4c, H4d, H5, H6a, H7a and H8a are supported while hypotheses H1b, H1d, and H2d are not supported for all the direct relationships.

### **5.11.2 Testing Mediation Effects**

The purpose of mediation test is to ascertain whether a mediator construct can significantly carry the impact of an exogenous construct to an endogenous construct (Ramayah *et al.*, 2011). In a specific term, the mediation test does assess the indirect impact of exogenous variable on endogenous variable through a mediator construct. There are different ways of conducting mediation in multivariate analysis as noted by Hayes and Preacher (2010). Some of these techniques include: (1) Baron and Kenny (1986) causal steps approach or the Sobel test (Sobel, 1982); (2) contemporary approaches with fewer unrealistic statistical assumptions and these include re-sampling approach known as PLS bootstrapping (Bollen & Stine, 1990; MacKinnon Lockwood, & Williams, 2004; Preacher & Hayes, 2004) and the distribution of the product method (MacKinnon, *et al.*, 2004).

Significantly, this study employs the PLS structural equation modeling approach to conduct its mediating analysis (Wold, 1985). The PLS SEM approach is gaining ground among the contemporary researchers because of its efficacy and thoroughness (Kim, 2012; Howell & Avolio, 1993) and because it is capable of testing complex multivariate relationships as in the case of this study. In the previous direct relationships, bootstrapping was used to evaluate the statistical significance of relevant path coefficients since it represents a more precise calculation of measures (Chin, 2010).

Therefore bootstrapping technique is also used to determine the mediation effect in line with formulated hypotheses of this study (Hair *et al.*, 2013). In specific term, mediation is determined through multiplication of the average of paths “*a*” and “*b*” after which the value that is obtained is divided by the standard error of the paths (Kock, 2013) as stated in this formula:  $T = a \times b / S(a \times b)$ . Thus, this formula was used to determine the mediating effects of all the mediating variables on the relationships between exogenous and endogenous variables.

In the formula, “*a*” represents the direct path between exogenous variables (perceived usefulness, perceived ease of use, perceived security and facilitating condition); and “*b*” represents the path between mediating variables (e-satisfaction, Hedonic motivation and e-trust) and endogenous variable (E-banking adoption). Both paths *a* and *b* must be obtained from the PLS bootstrapping to ascertain the significance of their coefficients and standard error (Hair *et al.*, 2013; Kock, 2013). “*S*” in the formula stands for the standard deviation both paths (i.e., paths *a* and *b*). For calculation of mediation in the PLS bootstrap, “*T*” represents the significance coefficient. As a rule, mediation is observed if the t-value is  $\geq 1.96$  at the significance level of 0.05 using two tail test, or 1.64 at the significance level of 0.05 if it is one-tail test (Hair *et al.*, 2010).

In general, the mediation tests for this research were conducted to find: (1) if e-satisfaction mediates the relationship between four out of five exogenous variables (PU, EU, PS, and FC) and e-banking adoption as an endogenous variable; (2) if hedonic motivation mediates the relationship between four out of five exogenous variables (PU, EU, PS, and FC) and e-banking adoption; (3) if e-trust mediates the relationship between

four out of five exogenous variables (PU, EU, PS, and FC) and e-banking adoption (EA). Accordingly, results of the twelve proposed mediation are presented in the next section as shown in Table 5.15

Table 5.15  
*The Results of Mediating Hypotheses*

Hypotheses	Paths	a*b Coefficient	Std Dev	Tvalue	Pvalue	Remark
H6b	PU>ES>EA	0.077	0.026	2.892	0.004***	Supported
H6c	EU>ES>EA	0.087	0.028	3.081	0.002***	Supported
H6d	PS>ES>EA	0.048	0.022	2.213	0.028**	Supported
H7b	FC>ES>EA	-0.031	0.017	-1.793	0.074*	Supported
H7c	PU>HM>EA	0.040	0.021	1.942	0.053**	Supported
H7d	EU>HM>EA	0.055	0.026	2.105	0.036**	Supported
H8b	PS>HM>EA	0.043	0.024	1.781	0.076**	Supported
H8c	FC>HM>EA	0.079	0.040	1.997	0.047*	Supported
H8d	PU>ET>EA	0.016	0.019	0.817	0.415	Not Supported
H9b	EU>ET>EA	0.036	0.025	1.436	0.076*	Supported
H9c	PS>ET>EA	0.073	0.028	2.667	0.008***	Supported
H9d	FC>ET>EA	0.014	0.064	2.229	0.027*	Supported

\*\*\*: p=0.01; \*\*: p=0.05; \*: p=0.1

As can be seen from Table 5.15, only one out of twelve mediating hypothesized relationships was not supported because of its statistical significance. This therefore indicates that: (1) e-satisfaction (ES) positively mediates the relationship between perceived usefulness (PU) and e-banking adoption (EA), (2) e-satisfaction (ES) positively mediates the relationship between perceived ease of use (EU) and e-banking adoption (EA), and (3) e-satisfaction (ES) negatively mediates between facilitating conditions (FC) and e-banking adoption (EA). In addition, (4) hedonic motivation (HM) positively mediates the relationship between perceived usefulness (PU) and e-banking adoption, (5) hedonic motivation (HM) positively mediates the relationship between perceived ease of use (EU) and e-banking adoption (EA), (6) hedonic motivation (HM) positively mediates the

relationship between perceived security and e-banking adoption (EA) and (7) hedonic motivation (HM) positively mediates the relationship between facilitating conditions. Further, (8) e-trust (ET) positively mediates the relationship between perceived ease of use (EU) and e-banking adoption (EA), (9) e-trust positively mediates the relationship between perceived security and e-banking adoption (EA) and (10) e-trust positively mediates the relationship between perceived security and e-banking adoption (EA).

Firstly, concerning hypothesis H6b with respect to the mediating effect of e-satisfaction (ES) between perceived usefulness (PU) and e-banking adoption (EA), result indicates statistical evidence ( $\beta = 0.077$ ;  $t = 2.892$ ,  $p < 0.01$ ). Secondly, concerning hypothesis H6c with respect to the mediating effect of e-satisfaction (ES) between perceived ease of use (EU) and e-banking adoption (EA), result indicates statistical evidence ( $\beta = 0.087$ ;  $t = 3.081$ ,  $p < 0.01$ ). This is equally applicable to H6d concerning the mediating effect of e-satisfaction (ES) between perceived security (PS) and e-banking adoption (EA), with statistical evidence ( $\beta = 0.048$ ;  $t = 2.213$ ,  $p < 0.05$ ); H7b with respect to mediating effect of e-satisfaction (ES) between facilitating conditions (FC) and e-banking adoption (EA) ( $\beta = -0.031$ ;  $t = -1.793$ ,  $p < 0.01$ ); H7c concerning the mediating effect of hedonic motivation between perceived usefulness (PU) and e-banking adoption (EA) ( $\beta = 0.040$ ;  $t = 1.942$ ,  $p < 0.05$ ); H7d concerning the mediating effect of hedonic motivation between perceived ease of use (EU) and e-banking adoption (EA) ( $\beta = 0.055$ ;  $t = 2.105$ ,  $p < 0.05$ ); H8b concerning the mediating effect of hedonic motivation between perceived security (PS) and e-banking adoption (EA) ( $\beta = 0.043$ ;  $t = 1.781$ ,  $p < 0.05$ ); H8c with respect to the mediating effect of hedonic motivation between facilitating conditions (FC) and e-banking adoption (EA) ( $\beta = 0.079$ ;  $t = 1.997$ ,  $p < 0.10$ ). Further, H9b with respect to the



mediating effect of e-trust (ET) between perceived ease of use (EU) and e-banking adoption (EA) ( $\beta = 0.036$ ;  $t = 1.436$ ,  $p < 0.1$ ); H9c in respect of the mediating effect of e-trust (ET) between perceived security (PS) and e-banking adoption (EA) ( $\beta = 0.073$ ;  $t = 1.436$ ,  $p < 0.01$ ) and H9d the mediating effect of e-trust (ET) between perceived facilitating condition (FC) and e-banking adoption (EA) ( $\beta = 0.014$ ;  $t = 2.229$ ,  $p < 0.05$ ). However, Hypotheses H8b, was not supported for mediating effect.

### **5.12 Summary of hypotheses**

The summary of hypotheses results of this study has been presented in Table 5.16. It can be seen in the Table 5.16 that hypotheses H1a, H1c, H2a, H2b, H2c, H3a-H3d, H4a-H4d, H5, H6a-H6d, H7a-H7d, H8a-H8c and H9a-H9c were supported. On the other hand, hypotheses H1b, H1d, H2d, and H8d, were found not to be supported.

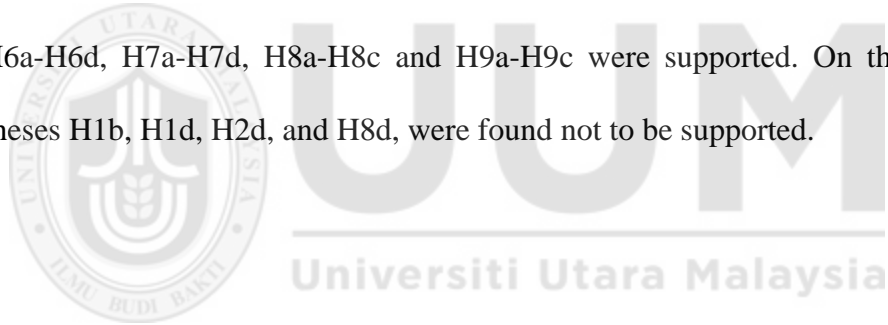


Table 5.16

*Summary of hypotheses*

<b>Hypothesis</b>	<b>Statement</b>	<b>Decision</b>
<b>H1a</b>	Perceived Usefulness positively relates to e-Satisfaction	Supported
<b>H1b</b>	Perceived usefulness positively relates to e-trust	Not Supported
<b>H1c</b>	Perceived Usefulness positively relates to hedonic motivation	Supported
<b>H1d</b>	Perceived Usefulness positively relates to e-banking adoption	Not Supported
<b>H2a</b>	Perceived ease of use positively relates to e-satisfaction	Supported
<b>H2b</b>	Perceived ease of use positively relates to e-trust	Supported
<b>H2c</b>	Perceived ease of use positively relates to hedonic motivation	Supported
<b>H2d</b>	Perceived ease of use positively relates to e-banking adoption	Not Supported
<b>H3a</b>	Perceived security positively relates to e-satisfaction	Supported
<b>H3b</b>	Perceived security positively relates to e-trust	Supported
<b>H3c</b>	Perceived security positively relates to hedonic motivation	Supported
<b>H3d</b>	Perceived security negatively relates to e-banking adoption	Supported
<b>H4a</b>	Facilitating conditions negatively relates to e-satisfaction	Supported
<b>H4b</b>	Facilitating conditions positively relate to e-trust	Supported
<b>H4c</b>	Facilitating conditions positively relates to hedonic motivation	Supported
<b>H4d</b>	Facilitating conditions negatively relates to e-banking adoption	Supported
<b>H5</b>	Awareness positively relates to e-banking adoption	Supported
<b>H6a</b>	E-satisfaction positively relates to e-banking adoption	Supported
<b>H7a</b>	E-trust positively relates e-banking adoption	Supported
<b>H8a</b>	Hedonic motivation positively relates to e-banking adoption	Supported
	Mediating Effect	
<b>H6b</b>	E-satisfaction positively mediates between perceived usefulness and e-banking adoption.	Supported
<b>H6c</b>	E-satisfaction positively mediates between perceived ease of use and e-banking adoption.	Supported
<b>H6d</b>	E-satisfaction positively mediates between perceived security and e-banking adoption.	Supported
<b>H7b</b>	E-satisfaction positively mediates between facilitating condition and e-banking adoption.	Supported
<b>H7c</b>	Hedonic motivation positively mediates between perceived usefulness and e-banking adoption	Supported
<b>H7d</b>	Hedonic motivation positively mediates between perceived ease of use and e-banking adoption	Supported
<b>H8b</b>	Hedonic motivation positively mediates between perceived security and e-banking adoption	Supported
<b>H8c</b>	Hedonic motivation positively mediates between facilitating conditions and e-banking adoption	Supported
<b>H8d</b>	e-trust positively mediates between perceived usefulness and e-banking adoption	Not Supported
<b>H9b</b>	e-trust positively mediates between perceived ease of use and e-banking adoption	Supported
<b>H9c</b>	e-trust positively mediates between perceived security and e-banking adoption	Supported
<b>H9d</b>	e-trust positively mediates between facilitating conditions and e-banking adoption	Supported

### **5.13 Discussion of Findings**

This empirical study was carried out in order to test the relationships among the variables as contained in the model of the study. Importantly, this study has nine variables and the whole essence revolves round predicting those factors that can facilitate the adoption of e-banking in Nigeria. As it were, the variables include perceived usefulness, perceived ease of use, awareness, perceived security, and facilitating conditions as exogenous constructs. In addition, e-satisfaction, hedonic motivation and e-trust constructs are the mediating variables while e-banking adoption is the only dependent/endogenous variable of the study. In order to get information that was used to test the hypotheses of the study, respondents from four banks participated in the study and this has helped in the achievement of the research objectives which emerged from the research problem statement and to answer research questions. Indeed, the model of the study was subjected to different rigorous statistical procedure with the objective of having a model that can predict as desired and for hypothesis to be tested. Consequently, the sections that follow discuss the result in line with the hypotheses and the research objectives of the study.

#### **5.13.1 Direct Paths**

The first set of hypotheses in this study tested the direct relationship between the independent variables (Perceived usefulness, perceived ease of use, perceived security and facilitating conditions) and the endogenous variables of e-satisfaction, e-trust and hedonic motivation in the banking sector of Nigeria. Hence the first objective was meant to determine the relationship between perceived usefulness, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in the banking sector of Nigeria. In order to

achieve this objective, four set of hypotheses (H1a-Hd) were formulated and tested. The following paragraphs discuss the hypotheses accordingly.

#### **5.13.1.1 Relationship between perceived usefulness and e-satisfaction with regards to e-banking adoption in the banking sector of Nigeria**

The first objective of this study is to examine the influence of perceived usefulness on e-satisfaction with respect to e-banking adoption in the banking sector of Nigeria. Invariably, Hypothesis H1a which was based on a positive relationship between perceived usefulness and e-satisfaction was accepted since the output of PLS indicated a positive and significant relationship between the exogenous variable (perceived usefulness) and endogenous variable (e-satisfaction). This finding is in line the results of previous studies (Al-hawari & Mouaket, 2010; Amin *et al.* 2014; Lee & Jun, 2007; Wang *et al.* 2012) and this implies that the customers of e-banking are satisfied with the services rendered to them because they perceived e-banking to be useful for the achievement of their objectives. Therefore, in order for banks to continue to enhance customer online satisfaction they must make sure that their customers are more aware of the advantages of using e-banking when compared with 'brick and mortar' banking. Furthermore, managers should ensure that e-banking websites make work and life easier for the users by allowing the customers to easily obtain the information they need as this will generally make the users to perceive e-banking to be useful. This is essence indicates that usefulness of e-banking service determines online customer satisfaction. For instance, when customers can make standing order online, request for draft online, place stop cheque order, make withdrawal, transfer and deposit cash, and pass other instructions without necessarily visit the branch physically, they will perceive e-banking to be useful and thereby become

satisfied. It therefore points to the fact that the banks have to ensure that all their internal marketing and other banking activities including positioning strategy are channeled toward ensuring that all customers who use e-banking regard those channels as a consistent source of good value.

#### **5.13.1.2 Relationship between perceived usefulness and e-trust with regards to e-banking adoption in the banking sector of Nigeria**

The next objective is to examine the influence of perceived usefulness on e-trust with respect to e-banking adoption in the banking sector of Nigeria. Hypothesis H1b that was invariably based on a positive relationship between perceived usefulness and e-trust was not supported as the output of PLS was insignificant and contrary to the hypothesized relationship. This finding is contrary to the results of previous studies (e.g, Colesca, 2014; Yu, Balaji & Khong, 2015) and therefore implies that perceived usefulness in this context does not determine trust in the e-banking channel. This argument trails after the position of Eriksson *et al.* (2005) where the authors assert that consumers generally believe that internet technology is a source of commotion as it aids chaos and control, autonomy and enslavement, outmoded and new practice, decrease and increase in the perception of competence, fluctuation in efficiency, accomplishment and formation of needs, hindrance and promotion of social interaction, and commitment and disentanglement. These ambiguities make internet technology difficult for consumers to understand in terms of perceived usefulness and perhaps make them believe that perceived usefulness of the channel is not a motivation to make them develop trust for the channel. This argument is also in line with that of Akhlaq and Ahmed (2013) where perceived usefulness was not regarded as antecedent of trust. As noted by Akhlaq and

Ahmed, in a very complex society and developing country, worldly acceptable standards are not adhered to as the rate of crime and high level of corruption pervade and prevail. In this type of society, and considering e-banking channels, perceived usefulness as an antecedent of trust will be tantamount to 'putting cart before the horse'.

### **5.13.1.3 Relationship between perceived usefulness and hedonic motivation with regards to e-banking adoption in the banking sector of Nigeria**

Another objective of this study is to examine the influence of perceived usefulness on hedonic motivation with respect to e-banking adoption in the banking sector of Nigeria. Hypothesis H1c which was based on a positive relationship between perceived usefulness and hedonic motivation was therefore supported and accepted since the output of PLS is in line with the hypothesized relationship. This outcome is in tandem with the findings of Chtourou& Souiden (2010) and Pagani (2004). This therefore indicates that perceived usefulness of e-banking services generates motivation in terms of fun for the users and hence brings about the rate of adoption that is required. For instance, most of the users want e-banking channel that is robust and fast and if otherwise, the users may be annoyed and get irritated. Significantly, this indicates that most e-banking users perceived e-banking to be useful to achieve their daily financial transaction objectives since such usefulness makes them to have fun towards the usage of e-banking. This result further confirms the robustness of TAM variable as antecedent of fun and which indicates that emotional motivations of users are also important in the adoption process. It is therefore essential for bankers to provide e-banking interfaces that are useful as this will make it enjoyable and attractive by providing useful attributes that can make the customers to sustain their rate of usage. For instance, certain free services and other rewards on sign ups all these will surely help to increase the rate of usage while customers enjoy fun.

#### **5.13.1.4 Relationship between perceived usefulness and e-banking adoption in the banking sector of Nigeria**

Another objective of is to investigate the influence of perceived usefulness on e-banking adoption in the banking sector of Nigeria. In achieving this, objective, hypothesis H1d was also based on a positive relationship between perceived usefulness and e-banking adoption while it was not supported since the output of PLS does not match the hypothesized relationship. This finding contradicts the results of previous studies (e.g, Aldas-Manzano, *et al.* 2009; Al-Majali & Mat, 2011; Chong *et al.* 2010; Pikkarainen *et al.*, 2004; Wei *et al.*, 2009) where it was found that when customers perceived e-banking to be useful in terms of its advantages and benefits, they are inclined to adopt and use the channels more. This therefore implies that perceived usefulness ceased to be an antecedent or precursor of e-banking adoption. The reason for this is not farfetched and in line with the arguments of Bajaj and Nidumoulu (1998), recently advocated by Ramayah and Ignatius (2005) and re-echoed by Aboelmaged and Gebba (2013) who challenged the school of thoughts which states that individual customers are more motivated by the usefulness of a product or service like e-banking. This is apparent as it is the belief of this study that this result is reliant on the type of on line service being enjoyed. E-banking as a matter of fact is believed to be common among some selected users, while majority of other users of e-banking still prefer traditional banking. This fact emerges as many customers still believe that online interaction has lower quality uncertainty, while the brick and mortar banking avail them of personal interaction with the service providers.

Having discussed the first objective and its related hypotheses, the second of objective was set to determine the relationship between perceived ease of use, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria. To achieve this objective, four hypotheses (H2a-H2d) were also formulated, tested and are discussed as follows in the following paragraphs.

#### **5.13.1.5 Relationship between perceived ease of use and e-satisfaction with regards to e-banking adoption in the banking sector of Nigeria**

The first objective in this category is to investigate the influence of perceived ease of use on e-satisfaction. Hypothesis H2a which invariably states a positive relationship between perceived ease of use and e-satisfaction was supported because of its significance as obtained in the output of PLS (Amin *et al.* 2014; George & Kumar, 2013; Hsieh & Wang 2007; Rejikumar & Sudharani 2012). This is essence indicates that users of e-banking develop satisfaction while operating e-banking channel since they expend less physical and mental effort in achieving their financial activities objectives. It further indicates that by bringing more clarity into the contents of bank websites as well making it easy to become skilful in the usage of e-banking, people tend to develop satisfaction. An average user likes to be regarded as an expert; he wants to navigate e-banking website without any itch and have high degree of freedom while operating the channel without necessarily refer to the branch for enquiries almost all the time. Achieving all these makes the customers to perceive e-banking to be easily used and which therefore boosts his level of satisfaction with the e-banking. Therefore, it is essential for the banks to have this in mind by incorporating such attributes into the e-banking platforms especially with the



recent happening of counterfeit bank websites and the resulting disincentive influences on demand.

#### **5.13.1.6 Relationship between perceived ease of use and e-trust with regards to e-banking adoption in the banking sector of Nigeria**

Another objective in this category is to examine the influence of perceived ease of use on e-trust with respect to e-banking adoption in the banking sector of Nigeria. Hypothesis H2b in this respect states a positive relationship between perceived ease of use and e-trust and was supported because its PLS output is significant. This result is in line with the result of other studies that found that perceived ease of use is a determinant of trust among users of mobile financial services (Akhlq & Amhed, 2013; Amin *et al.* 2014). This can be seen from a perspective that users of e-banking in Nigeria perceived e-banking channels to be easily used and which of course influenced their rate of adoption as discussed in the result of hypothesis of H2c. It therefore beholds that when the interfaces of e-banking are friendly, users will continue to trust the channels while the rate of patronage will increase when compared with branch services. Since perceived ease of use indicates ease of searching for information, ease of navigating, and ease of obtaining services through e-banking channels, it can therefore be assumed that the users are not facing any difficulty regarding all these and which therefore made them to develop some level of trust concerning the banks and the services which the banks are offering.

#### **5.13.1.7 Relationship between perceived ease of use and hedonic motivation with regards to e-banking adoption in the banking sector of Nigeria**

Another objective is to examine the influence of perceived ease of use on hedonic motivation with respect to e-banking adoption in the banking sector of Nigeria. Hypothesis

H2c which therefore states a positive relationship between perceived ease of use and hedonic motivation was supported because of its significance as obtained in the output of PLS (Bruner & Kumar, 2005; Chtourou & Souiden, 2010). This result indicates that users of e-banking perceived the system to be easily used and therefore derived some motivations in the course of usage. The antonym of it is that a system that is difficult or which requires users to expend extra mental and physical efforts is regarded to be cumbersome and frustrating. However, as the system becomes easier to use, the users tend to develop some level of mastery which eventually gives them sense of enjoyment and fun. Therefore, as perceived ease of use of e-banking permits the users to easily navigate, search for necessary information and obtain required banking services with little itch or stress, they tend to derive some motivations which make them to continue to use e-banking.

#### **5.13.1.8 Relationship between perceived ease of use and e-banking in the banking sector of Nigeria**

The last objective in this category is to examine the influence of perceived ease of use and e-banking adoption in the banking sector of Nigeria. Hypothesis H2d in this respect states a positive relationship between perceived ease of use and e-banking adoption and was not supported based on its significance level as obtained in the output of PLS and it is contrary to the findings of previous researchers (e.g., Bruner & Kumar, 2005; Juwaheer *et al.*, 2012; Pikkarainen *et al.* 2004; Sathye, 1999; Tan *et al.* 2010). The findings of these previous studies hinged on the fact that when the users of e-banking believe that e-banking channels are not difficult to operate, and very friendly in terms of interaction, they will continue to use the channel. However, as found in this study, perceived ease of

use in the context of this study does not lead to adoption. Previous studies such as Chong *et al.* (2010) also found that perceived ease of use does not cause more usage of e-banking as most users in the contemporary are getting used to technology operations and perception of “difficulty” about the usage of those platforms may not constitute a barrier to their adoption. This same position was also corroborated by the study of Wessels and Drennan (2010) where customers’ familiarity and dexterity with mobile devices make perceived ease of use with mobile banking to be less relevant in adoption.

Having discussed the second objective and its related hypotheses, the third objective is to determine the relationship between perceived security, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria. To achieve this objective, four hypotheses (H3a-H3d) were also formulated, tested and are discussed as follows.

#### **5.13.1.9 Relationship between perceived security and e-satisfaction with regards to e-banking adoption in the banking sector of Nigeria**

In this category, the first is to examine the influence of perceived security on e-satisfaction with respect to e-banking adoption in the banking sector of Nigeria. Therefore, Hypothesis H3a which states a positive relationship between perceived security and e-satisfaction was supported because of its significance as obtained in the output of PLS. This result aligns with that of Chang & Chen, (2009) which found that when customers perceived electronic channels to be secured they will be satisfied. This result in essence implies that higher level of perceived security with regards to the quality of interface of e-banking channels which signifies protection could make e-banking customers to be satisfied and therefore increase the probability that the customers will continue to use e-banking channels. This therefore implies that perceived security does

determine level of satisfaction among e-banking users and which in essence implies that when all necessary security measures are put in place the customers may become satisfied since their expectation of security may have been met. This argument has equally been advanced more than a decade ago when Szymanski and Hise (2000) and Wolfingbarger and Gilly (2003) found that perception financial security in the context of online trading and privacy/security in online retailing are serious determinants of e-satisfaction. Those findings still hold valid in the contemporary online environment like e-banking.

#### **5.13.1.10 Relationship between perceived security and e-trust with regards to e-banking adoption in the banking sector of Nigeria**

Another objective in this category is to examine the influence of perceived security on e-trust with respect to e-banking adoption in the banking sector of Nigeria. Hypothesis H3b in this view states a positive relationship between perceived security and e-trust and was supported because of its significance as obtained in the output of PLS. This result is line with the findings of other studies (Eid, 2011; Vatanasombut, Igbaria, Stylianou & Rodgers, 2008; Yousafzai, *et al*, 2009) and which seem to indicate that users of e-banking develop trust in the platforms of e-banking when they perceived that the channels are secured. Perceived security in the practical sense of it indicates that users' information has not been exposed to third party, their transactions have not been wrongly processed, they are confident that whenever their accounts are hacked the bank will help them to recover their money and so on. Development of trust with all these security measures will obviously give some level of assurance to customers especially that there is

no direct and personal interactions between the customers and service provider (Yapet *al.* 2009).

#### **5.13.1.11 Relationship between perceived security and hedonic motivation with regards to e-banking adoption in the banking sector of Nigeria**

Another objective in this category is to examine the influence of perceived security on hedonic motivation with respect to e-banking adoption in the banking sector of Nigeria. Hypothesis H3c states a positive relationship between perceived security and hedonic motivation in this respect and was supported because of its significance as obtained in the output of PLS. This result is in line with the findings of other studies which report that when customers feel secured with the provision of certain product they could be motivated to adopt it (Weniger & Loebbecke, 2011). In essence, the users of e-banking feel motivated because e-banking channels are protected with latest security technology measures such as encryption, password protection, VeriSign, PKI, Padlock symbol, and Virtual keyboard. Even though, e-banking involves business of money withdrawal and other similar transactions, embedding such technology measures makes customers to feel relax cognitively and regard the interface to be interactive while they derive some fun from the channel.

#### **5.13.1.12 Relationship between perceived security and e-banking adoption in the banking sector of Nigeria**

The last objective in this category is to examine the influence of perceived security on e-banking adoption in the banking sector of Nigeria. Hypothesis H3d therefore states a negative relationship between perceived security and e-banking adoption. This was supported as it is also in line with the previous studies' results (Munusamy, Annamalah

& Chelliah, 2012). Even though other scholars (e.g., Juwaheer *et al.* 2012, Li & Worthington, 2004; Sathye, 1999) do argue that the feeling of presence of security in online environment could trigger some level of confidence among the customers since they will be confident that e-banking channels are protected from intruders, fraudsters and hackers, other scholars such as (Munusamy, *et al.* 2012) however argued seriously that perceived security/risk is a major factor that is deterring the customers from adopting online banking. This fact is coming to light as most customers do associate perception of risk with system failure and lack of reliable of the channels. In fact the major concern of customers that adopt e-banking is transaction risk and inability of their service providers to remedy the situation through rapid and swift responses (Yousafzai *et al.* 2005). Therefore, any form of security violation would bring about destruction in the system of operations of the bank and consequently lead to leakage of private information of customers (Min & Galle, 1999). This fact has been supported by Salimon, Yousoff and Mokthar (2016) that news of related fraudulent activities that dominate the headlines have continued to intimidate users of e-banking from continuous usage as unconvinced customers with the level bank's security systems would rescind their decisions to continue to adopt online banking (Black *et al.* 2001).

Having discussed the third objective and its related hypotheses, the fourth objective is to determine the relationship between facilitating conditions, e-satisfaction, e-trust, hedonic motivation and e-banking adoption in Nigeria. To achieve this objective, four hypotheses (H4a-H4d) were also formulated, tested and are discussed as follows.

#### **5.13.1.13 Relationship between facilitating condition and e-satisfaction with regards to e-banking adoption in the banking sector of Nigeria**

The first objective in this category is to investigate the effect of facilitating conditions on e-satisfaction with regards to e-banking adoption in the banking sector of Nigeria. Hypothesis 4a which therefore states negative relationship between facilitating condition and e-satisfaction was supported. The result of this study is contrary to the finding of (Chan *et al*, 2010) who found that facilitating condition is a positive and key predictor of satisfaction with respect to e-government. The position of *Chon et al.* is that when facilitating condition such as online support, adequate facilities, required training and necessary skills are available; they could serve as impetus to develop satisfaction among users. However as found in this study and in line with dissonance theory (Festinger, 1957) facilitating conditions could become an inhibitor that makes customers to adjust their behavior negatively in line with the erratic supply or availability of such facilitation. Hence the customers in this content cease to see facilitating conditions as hypothesized in this study as a factor that can trigger them to adopt e-banking.

#### **5.13.1.14 Relationship between facilitating conditions and e-trust with regards to e-banking adoption in the banking sector of Nigeria**

Another objective in this category is to investigate the effect of facilitating conditions on e-trust with regards to e-banking adoption in the banking sector of Nigeria. Hence, hypothesis H4b which states a positive relationship between facilitating conditions and e-trust was supported in line with the previous studies' results (Yu & Land, 2005). In essence, facilitating condition in this study is regarded as the extent and type of support provided to e-banking customers to use the technology. It also indicates that skills and other resources that are necessary to operate e-banking are available. This hypothesis is

supported and signifies that e-banking users develop trust as necessary support such as provision of good regulations and laws, online support, effective e-banking website and so on are available. It further indicates that users of e-banking have the skills have access to users' initial training that is helping them to operate e-banking channels for the purpose of actualizing their initial objectives of opening online banking and of course which made them to develop trust in their service based on the believe that their service providers are committing enough resources to ensure smooth operations of the channel.

#### **5.13.1.15 Relationship between facilitating conditions and hedonic motivation with regards to e-banking adoption in the banking sector of Nigeria**

Another objective in this group is to examine the effect of facilitating conditions on hedonic motivation with regards to e-banking adoption in the banking sector of Nigeria. Hypothesis H4c which hence states a positive relationship between facilitating condition and hedonic motivation was supported based on the result of PLS. This result which is in line with the findings of other studies (Maldonado, Kha, Moon, & Rho, 2011) in essence indicates that when necessary support and facilities such as adequate power supply, effective laws and regulations and others are available the customers are motivated or derive fun to use information technology product/service such as e-banking. For instance, government support which is one of the facilitating conditions is a prerequisite to motivate e-banking customers to continue usage (Goh, 1995, Teo & Pok, 2003) and it further suggests that bank customers look onto government for further direction on the worthwhile of e-banking. The results further reveal that customers derive fun and courage to use e-banking as banks in Nigeria have spent millions of naira to upgrade their internet facilities which has led to the improvement in the services.



### **5.13.1.16 Relationship between facilitating condition and e- banking adoption in the banking sector of Nigeria**

Another objective in this group is to examine the effect of facilitating conditions on e-banking adoption in the banking sector of Nigeria. Hypothesis 4d which states a negative relationship between facilitating condition and e-banking adoption in this regard was supported. Even though this relationship is positive as anticipated, the relationship was not supported in line with the findings of other studies (e.g., Venkatesh *et al.* 2003, Pikkarainen *et al.* 2004). Thus, from the hypothesized relationship some of the factors with respect to facilitating condition are not regarded as key prerequisites to adopting e-banking. For instance, the issue of quality of internet connection was found to be insignificant by Pikkarainen *et al.* (2004) and this seems to be applicable in Nigeria as penetration of internet in Nigeria is very high or has become a common place and seems not be an important factor to adopting e-banking among customers of banks in Nigeria. Furthermore, Al-Majali (2012) found technology support (a form of facilitating condition) to be insignificant with the possible explanation that technologies that are required to conduct e-banking transactions are already in place for users who operate from their different places. Hence, Nigeria customers seem to take for granted availability of internet and other facilities as necessary factors that encourage them to adopt e-banking.

Having discussed the fourth objective and its related hypotheses, the fifth objective is to determine the relationship between awareness and e-banking adoption in Nigeria. To achieve this objective, one hypothesis (H5) was also formulated, tested and discussed as follows.

#### **5.13.1.17 Relationship between awareness and e-banking adoption in the banking sector of Nigeria**

The objective here is to examine the influence of awareness on e-banking adoption in the banking sector of Nigeria. Hypothesis H5 which therefore states a positive relationship between awareness and e-banking adoption was supported. The result of this study is in line with the findings of Al-Majali & Mat, (2011) and Juwaheer *et al.* (2012) who found that awareness is a key predictor of e-banking adoption. The plausible justification for this may be attributed to the fact that the selected users of e-banking that are used for this study believe that when the banks intensify their efforts in spreading the news about the benefits, risks and other uses of e-banking, the rate of e-banking adoption will increase. This is also in line with other studies that have indicated that greater promotional efforts must also be targeted at none users with the purpose of generating more awareness (Aliyu *et al.* 2012; Juwaheer *et al.*, 2012). The finding also coincides with that Pikkarainen *et al.* (2004) where it was affirmed that amount of information that is available to customers and non customers would determine the degree of adoption of e-banking.

In line with objective other objectives that have been discussed, objective six is set to determine the relationship between satisfaction, e-trust, hedonic motivation and e-banking adoption. In achieving the sixth objective, three hypotheses (H6a, 7a and 8a) were formulated, tested and discussed as follows.

#### **5.13.1.18 Relationship between e-satisfaction and e-banking adoption in the banking sector of Nigeria**

The first objective in this group is to examine the influence of e-satisfaction on e-banking adoption in the banking sector of Nigeria. Hypothesis H6a therefore states a positive

relationship between e-satisfaction and e-banking adoption and was supported. The finding of this study is line with the results of other studies (Liu *et al.* 2011; Zhou, 2013) and which in essence indicates that when users' expectation are met, continuous adoption is guaranteed. In this case, decision to continue to use e-banking is majorly influenced by the level of satisfaction that is derived from use e-banking since the users regard e-banking to be useful in achieving their daily financial transactions objectives. Aside, most users in this instance also viewed e-banking to be easily used as it requires less physical and mental effort, that necessary facilities to operate e-banking are in place while they perceived the level of insecurity to be very low and all these cumulatively affected their level of satisfaction with the e-banking continuous adoption. This summarily boils than to the fact e-banking users are always happy, feel delighted and their experiences have always been good.

#### **5.13.1.19 Relationship between e-trust with regards and e-banking adoption in the banking sector of Nigeria**

The next objective in this group is to examine the influence of e-trust on e-banking adoption in the banking sector of Nigeria. Hypothesis H7a which therefore states a positive relationship between e-trust and e-banking adoption was supported. This finding tallies with the outcomes of several other studies (Al-Majali & Mat, 2011; Chandra *et al.* 2010; Shorabi, *et al.* 2013). In essence, it does indicate that trust in an online environment is a prerequisite to adoption since rate of adoption tends to increase in circumstances where customers trust the banks or channels through which the services are rendered and which therefore indicates that banks should intensify their efforts to put necessary facilities that will help to boost the level of confidence. Further, Yousafzai & Yani-de-

Soriano, (2012) have equally affirmed that the bank must increase the level of customers' confidence by inspiring trust through which the customers can feel protected by keeping them informed about the banks' policy with respect to security, uses of e-banking and other benefits.

#### **5.13.1.20 Relationship between hedonic motivation and e-banking adoption in the banking sector of Nigeria**

The last objective in this group is to examine the influence of hedonic motivation on e-banking adoption in the banking sector of Nigeria. Hence, hypothesis H8a that states a positive relationship between hedonic motivation and e-banking adoption was supported. The finding of this study is in line with the results of other studies (e.g., Chemingui & Lallouna, 2013; Hanundin *et al.* 2012; Venkatesh *et al.* 2012) where hedonic motivation (called perceived fun, perceived enjoyment) was found to influence the adoption of different types of technology. As noted by Hanundin *et al.* the decision to continue to use mobile banking is majorly influenced by the level of fun as mobile phone is seen as a gadget of entertainment that could trigger the motivation to expand the usage of mobile banking. Chemingui and Lallouhana also assert that financial institutions like banking should give much consideration to hedonic features by laying priorities on those banking applications that could trigger emotions of the users while they are operating the platforms. This can be achieved by incorporating animations, background music, and other forms of entertainment on the website and other channels of e-banking. In fact recent experience has shown that Information Technology companies are developing applications (including the internet) which allow users to play or interact with technology and thereby inspire their positive emotions to stay on the web and even repeat patronage.

It therefore holds that since fun and entertainment features are becoming paramount in banking transaction process, it should be emphasized with other utilitarian characteristics of banking applications as this will improve the experience of bank's customers.

The last objective is to determine whether e-satisfaction, e-trust and hedonic motivation mediate between perceived usefulness, perceived ease of use, perceived security, facilitating conditions and e-banking adoption. In order to determine the mediating relationships, 12 hypotheses (H6b, H6c, H6d, H7b, H7c, H7d, H8b, H8c, H8d, H9b, H9c and H9b) were formulated. It is important to note that only one hypothesis (H6d) out of the 12 hypotheses was not supported.

Since the outcomes of with respect to the mediating effects represent major contribution of this study, the questions of how and why mediation of e-satisfaction, e-trust and hedonic motivation took place can be justified by elucidating this relationship with underpinning theories and past studies. In this sense, social exchange theory (Blau, 1964) and UTAUT (Venkatesh *et al.*, 2012) provided theoretical basis for the new findings as supported by other studies.

#### **5.14.1 Testing Mediation Effects**

##### **5.14.1.1 Mediating effect of e-satisfaction on the relationship between perceived usefulness, perceived of use and e-banking adoption in the banking sector of Nigeria**

In the first instance, hypothesis H6b that states a positive mediating effect of e-satisfaction between perceived usefulness and e-banking adoption is supported while the Hypothesis, H6c that states a positive mediating effect of e-satisfaction between perceived ease of use and e-banking adoption is also supported. These obtained

significant mediation effects are supported by SET (Blau, 1964) as it implies that e-banking users feel that their banks provide services that are useful to achieve their daily financial transactional objectives while they exert little physical and mental efforts while operating the channels. This has therefore made them to be satisfied while they reciprocate by continue to use e-banking services. Since banker customer relationship is all about mutual exchange, the proposition of SET is based on the fact that both parties are involved in a relationship with the purpose of gaining certain benefits. In this instance, the banks commit some resources to ensure the worthwhile of the services they render while the customers reciprocate through continuous adoption that is facilitated by satisfaction. This finding is in line with the study of Zhou (2013) who found that satisfaction positively intervened in the relationship between system quality and continuous usage of mobile site. This in essence indicates that when customers perceived e-banking to be easily used and useful to achieve their objectives in terms of access speed, navigation and appeal they will be satisfied and decide to continue to patronize their service providers since they will feel that their bankers have invested a lot resources to making the alternative channels to work perfectly. This finding is also in line with previous researches that noted the influence of system quality with regards to perceived usefulness and ease of use on user satisfaction as it concerns warehousing software (Wixcom & Todd, 2005), e-government (Teo *et al.* 2009), mobile healthcare (Chatterjee *et al.*, 2009) and e-learning (Al-hawari & Mouakket, 2010).

#### **5.14.1.2 Mediating effect of e-satisfaction on the relationship between perceived security e and e-banking adoption in the banking sector of Nigeria**

In the first instance, Hypothesis H6d states a positive mediating effect of e-satisfaction between perceived security and e-banking adoption. This hypothesis is supported and the result is in tandem with the position of previous scholars (e.g, Chan & Chen, 2009; Eid, 2011) who empirically established that customers' satisfaction in an online environment positively mediates between perceived security and continuous usage of services. This therefore indicates that perceived security is very essential in generating satisfaction and provides extrinsic cues that can generate and trigger customers' affective responses towards adoption. This in essence for instance, indicates that when customers feel secured about sending their personal and sensitive information through e-banking platform, they will feel satisfied for taking a decision to patronize the banks of their choice and which will make them to continue to adopt the services. It therefore connotes that the banks should intensify their efforts of increasing the security features that will make the expectations of the customers to be met.

#### **5.14.1.3 Mediating effect of e-satisfaction on the relationship between facilitating condition and e-banking adoption in the banking sector of Nigeria**

Secondly, Hypothesis 7b that states a positive mediating effect of e-satisfaction between facilitating condition and e-banking adoption was supported. This result aligns with the study of Zhou (2013), who found that facilitating condition in the form of system quality has a low but a significant positive effect on satisfaction while satisfaction influenced continuous usage. As found in this study therefore, facilitating conditions such as access speed, clear interface, navigation and reliable connections are the prerequisites to generate satisfaction towards adoption of e-banking. The lack of mediating effect of

satisfaction between facilitating condition and e-banking adoption indicates that the vital issue in e-banking adoption is to provide essential and required service to the customers effectively and perhaps has made the customers to behave indifferently to adoption.

#### **5.14.1.4 Mediating effect of hedonic motivation on the relationship between perceived usefulness and e-banking adoption in the banking sector of Nigeria**

Thirdly, Hypothesis 7c was supported as it states a positive mediating effect of hedonic motivation between perceived usefulness and e-banking adoption. This finding aligns with the hypothesized relationship in the model since it indicates a positive mediating effect of hedonic motivation between the perceived usefulness and e-banking adoption. Previous studies like that of Pagani (2004), and Chtourou and Soudein (2010) found positive mediating relationships of hedonic motivation in different contexts of usage. This therefore indicates that when users perceived e-banking platform to be useful, they could derive fun to continue to use the services. The presence of direct and mediating effect of fun on the relationship between perceived usefulness and e-banking adoption implies that the respondents in this study equally lay more emphasis on intrinsic features of e-banking which make them to stay motivated. This therefore indicates that the main issue in adoption is not just to ensure that the customers are given certain benefits or usefulness that will make them to accept e-banking holistically; such usefulness or benefits would not have desired effect on the final adoption if they do not perceive online banking application to be fun and enjoyable.



#### **5.14.1.5 Mediating effect of hedonic motivation on the relationship between perceived ease of use and e-banking adoption in the banking sector of Nigeria**

Fourthly, Hypothesis 7d states a positive mediating effect of hedonic motivation between perceived ease of use and e-banking adoption. This hypothesis is supported and aligns with the findings of previous studies (Bruner & Kumer, 2005; Chtourou & Soudein 2010; Pagani 2004) who found positive mediating relationships of hedonic motivation in different contexts of usage. The finding of this study necessarily indicates that adoption of e-banking is motivated by perceived ease of use through perceived fun. It therefore asserts that perceived ease of use with respect to easiness that is associated with the performance e-banking task does stimulate joy among users of e-banking. In fact extant studies confirm the importance of perceived fun in the prediction information technology adoption (e.g., Venkatesh 1999), and especially that of hedonic system (Van der Heijden 2004). Considering the nature of e-banking services that can be operated at a go, and which of course can be used to elicit hedonic desire, the findings of this study therefore confirm that of Venkatesh *et al.* (2012). Since enjoyment and pleasure have become part of human endeavors, divorcing these features from banking may rather constitute a barrier rather than enhancer towards the adoption experiences. These findings therefore beacon that comprehending, creating, and sustaining the perceptions of fun involved in using of e-banking will be important to the success of banking operators.

#### **5.14.1.6 Mediating effect of hedonic motivation on the relationship between perceived security and e-banking adoption in the banking sector of Nigeria**

Fifthly, Hypothesis H8b also proposed that hedonic motivation positively mediates between perceived security and e-banking adoption. This hypothesis was also supported because of its significant statistical evidence and in line with the study of Weniger and

Loebecke (2011). Following Agrawal and Karachna (2000), Weniger and Loebecke incorporated features such as system quality, content quality and security that make usage of technology to be more or less prone to cognitive absorption which eventually leads to fun and continuous usage of the system. The mediating influence of hedonic motivation on the relationship between perceived security and e-banking adoption might stem from the fact that the respondents in this study are motivated by the security measures that are put in place by their service providers perhaps they feel that the measures are adequate. This therefore implies that with the security measures, the users are cognitively absorbed and which therefore triggers their motivation to continue to use e-banking.

#### **5.14.1.7 Mediating effect of hedonic motivation on the relationship between facilitating conditions and e-banking adoption in the banking sector of Nigeria**

Further, Hypothesis H8c which proposes that hedonic motivation positively mediates between facilitating conditions and e-banking adoption was also supported as its result is in line with the hypothesized relationship, and the findings of previous study (Yang & Forney, 2013) who found that hedonic performance expectancy mediate the relationship between facilitating conditions and users' intention in the context of mobile shopping. For this study, the plausible justification for mediating effect of hedonic motivation on the relationship between facilitating condition and e-banking adoption may be due to the fact that users of e-banking in Nigeria absolutely believe that facilitating conditions such as availability of internet, online support, government support and other conditions could trigger their joy or fun towards the adoption of e-banking. In line with the findings of Yang and Forney also, the influence of hedonic features on the relationship between facilitating conditions and e-banking adoption reinforces the advantages of using mobile

platforms of banking to enhance the adoption of banking service generally and that of e-banking in particular. This therefore suggests that online banking designers and banking marketers must develop hedonic aspects of banking services such as emoticons for multi-dimensional service views, visual and emotional appeals, and series of other services or products presentation which multisensory cues support. Further, though technology-mediated mobile banking may be designed to provide utilitarian benefits to facilitate the banking process for customers on the move, it is important to emphasize that hedonic features are more apparent in enhancing consumers' experience of adopting e-banking services.

#### **5.14.1.8 Mediating effect of e-trust on the relationship between perceived usefulness and e-banking adoption in the banking sector of Nigeria**

In addition to the above, Hypothesis H8d was not supported as it states that e-trust positively mediates between perceived usefulness and e-banking adoption. This result is contrary with the findings of previous studies such as (Kim, Han & Lee, 2013) who found that perceived usefulness is a key prerequisite that influences adoption through trust in online mall shopping. It is however in tandem with the findings of previous studies (Kim et al, 2009; Pavlou, 2001; Teo et al., 2013). In line with the position of Kim et al, (2013) when customers perceived e-banking platform to be useful in achieving their daily objectives they tend to develop trust and which eventually leads to continuous usage of e-banking services. But for this study, the findings seem to suggest that the selected users for this study do not regard trust as another important factor that make them to use online banking. This result, perhaps was obtained since this study was based on general users of e-banking without taking into consideration categories as light and

heavy users. According to Kleijner et al (2004), heavy users of a product, service or system like e-banking must have acquired the knowledge or ability to predict outcomes/attributes for a closely related product/service/ system. This is also in line with the argument of Moutinho and Smith (2000) who emphasised that human and technology based delivery channels were greatly linked with the customers' perceptions of how these bank services were delivered to them and pointed out that these perceptual outcomes which may be inform of trust in the virtual environment may determine continuity of usage.

#### **5.14.1.9 Mediating effect of e-trust on the relationship between perceived ease of use and e-banking adoption in the banking sector of Nigeria**

Additionally, Hypothesis H9b was supported as it states that e-trust positively mediates between perceived ease of use and e-banking adoption. This result aligns with the findings of previous studies such as (Liebanas-Cabanillas et al., 2013) who found that perceived ease of use essentially influences adoption through trust. This in essence indicates that a user-friendly electronic banking platform is perceived to be more reliable and generates trust in the user towards greater usage of the e-banking services. Also in line with the findings of Ahkmaq and Ahmed (2013), the outcome of the study points to the fact that more emphasis should be placed on perceived ease of use factors in order for the clients of e-banking to develop trust that will make implementation of e-banking to be a successful project. Importantly, when tasks of e-banking get easier, users will trust the platform and in turn the number of users will escalate. Providing easy interfaces for e-banking in terms of its process of operations, being less cumbersome, and by exercising less physical and mental rigor while operating the channels will make the users to believe

that their banking institutions are committing more resources to keep their relationship thereby reciprocate by developing some level of trust that will eventually lead to increase in rate of usage.

#### **5.14.1.10 Mediating effect of e-trust on the relationship between perceived security and e-banking adoption in the banking sector of Nigeria**

Furthermore, Hypothesis H9c which states that e-trust positively mediates between perceived security and e-banking adoption was also supported. In essence, the finding signifies that presence of security does stimulate trust among users of e-banking, hence, enhances adoption. This result is in line with the findings of previous studies (Eid, 2011; Vatanasombut *et al.* 2008) as one would also expect that the customers would reciprocate by developing some level of trust for the services the banks render and which may be in tandem with what Blau (1964) proposed in SET. As found by Akhlaq and Ahmed (2013) in Pakistan and which also applicable in Nigeria, people tend not believe in some security measures that the government puts in place perhaps because of their experience. For instance, in a society, like Nigeria where extremely difficult situations exist for businesses, globally acceptable rules do not hold valid. For example, there are factors such as high crime rate, and corruption, which of course create extreme hurdles in developing an environment of trust. Therefore when high level of security is incorporated into e-banking platform against the occurrences in other platforms, the customers tend to develop some trust since they will have the believe that their transactions and secured and safe and thereby continue to adopt e-banking.

#### **5.14.1.11 Mediating effect of e-trust on the relationship between facilitating conditions and e-banking adoption in the banking sector of Nigeria**

Lastly, Hypothesis H9d which states that e-trust positively mediates between facilitating conditions and e-banking adoption was supported and in line with the finding of Yu and Land (2005). This result therefore demonstrates that provision of necessary facilitating condition is a prerequisite to developing trust that will eventually lead to usage of e-banking. This mediating influence of e-trust on the relationship between facilitating condition and adoption of e-banking was obtained perhaps because respondents of this study are motivated by the type of facilities which the bank management provides and which eventually led to lack of trust towards adoption of e-banking. This is in essence indicates that the kind of facilitating support in respect of quality of internet facilities, government support, online support and so forth, could generate some level of trust that eventually lead to adoption.

In sum, consistent with TAM (Davis, 1989), social exchange theory (Blau, 1964), UTAUT (Venkateshet *al.* 2012), and host of other authors, the present study has found that some of the predictors significantly influence e-banking adoption directly and indirectly through all the mediating variables. However, the only mediating variable that is not supported is e-trust which mediates the relationship between perceived usefulness, and e-banking adoption.

## CHAPTER SIX

### RECOMMENDATIONS AND CONCLUSION

#### 6.1 Recapitulations of the Study

This quantitative study investigated the mediating effects of e-satisfaction, e-trust, and hedonic motivation on the relationship between e-banking adoption and its determinants in Nigeria. The conceptual framework of this study was underpinned mainly by Technology Acceptance Model (TAM), supported with Social Exchange Theory (SET) and Unified Theory of Acceptance and Usage of Technology (UTAUT). Having adapted valid scale items from previous studies through extensive review of related literature, a questionnaire survey was developed based on a seven interval scale for the purpose of collecting relevant data from the respondents. The questionnaire survey items were validated through several procedures of content validity by seeking the opinions of experts and actual users, and through a pilot study. After then the main data of this study were collected from customers of different banks in Lagos, Nigeria. The data were later screened, and subjected to factor loading, convergent validity and discriminant validity as a requirement to establish suitability of the measurement model of the study using SmartPLS 2.0 SEM software. Having established all these statistical measures, the researcher calculated effect size and predictive relevance of the model which of course led to the achievement of structural model (inner model) which formed the basis for testing hypotheses of the study. In line with the recommendation of some authors, this study achieves above the threshold of 10% as its  $R^{2s}$  are 42.9% for e-satisfaction, 49.6% for e-trust, 34.4% for hedonic motivation and 50% for e-banking adoption.

For this study, direct and mediating hypotheses were tested through PLS algorithm and bootstrapping. The PLS algorithms were meant to generate paths coefficients while bootstrapping was used to generate t-value and which of course helped in generating p-value for decision making with respect to the statistical significance of the paths.

### **6.1.1 Main Findings**

Having tested the hypotheses of this study and presented the results comprehensively in the last chapter, the following is the summary of the main findings.

Perceived usefulness which is regarded as the perception that e-banking is capable of helping users to achieve their daily financial tasks was positively related to e-satisfaction. This in essence seems to indicate that users of e-banking in Nigeria derive a lot of satisfaction from using e-banking services as the services are meeting their online financial transactions expectations. In addition, perceived usefulness even positively related to e-trust was not supported. This outcome is line with the findings of other studies and it implies that perceived usefulness of a system in terms of benefits that can be derived from the channels is not capable of generating trust among e-banking users. This is quite obvious as noted by Akhlaq and Ahmed (2013) that in developing economy where there is high rate of crime, corruption and power shortage, it is very difficult for people to develop trust. Even though laws to control the so called crime are in existence, the execution of such laws is too cumbersome and slow. In this kind of situation therefore, acceptability of PU as an instrument of trust may be lacking or too low. Furthermore, perceived usefulness was supported as it positively relates to hedonic motivation and which indicates that perceived usefulness is an instrument that can be



used to generate fun. In all, perceived usefulness was seen to be positively related to e-banking adoption but was not supported and which indicates that the perception of usefulness of e-banking which has been advocated by many scholars as precursor of adoption does not hold valid in this context. The reason for this is not farfetched as it can be inferred that majority of customers who registered for e-banking still prefer to patronize the traditional branch since they do believe that they can have access to personal interaction which cannot be gotten from online environment.

Furthermore, perceived ease of use was positively related to e-satisfaction. This simply connotes that customers of e-banking regard the alternative channels of banking services to be easily used as they can easily remember their password and other codes, they expend little physical and mental efforts, do not require outside help and so forth while operating the channels and this has brought about their satisfaction. Moreover, perceived ease of use also positively related to e-trust and supported. Similar result was also obtained for perceived usefulness and thus implies that trust in online context can be obtained by perceived ease of use attributes. Additionally, perceived ease of use positively related to hedonic motivation and comes with the assertion that e-banking users derive a lot of fun from using e-banking with ease and hence they are motivated to continuous usage. Lastly in this category is the relationship between perceived ease of use and e-banking that is positive but was not supported. This comes with interpretation that perceived ease of use is not an antecedent of continuous adoption of e-banking. This result is obtained perhaps because majority of the respondents in this study are savvy in terms of technology usage and do not regard easiness as an impetus towards adoption. It can therefore be inferred that these set of users who by coincident are relatively young

can learn the usage of e-banking with little or no stress, and thereby do not regard perceived ease of use as a motivator to adopting e-banking.

Moreover, in another category, perceived security positively relates to e-satisfaction and was supported and in essence points to the fact it is a prerequisite to generating online satisfaction among users of e-banking in Nigeria. This therefore indicates that the feeling presence of security in an online environment can make customers to be satisfied with respect to the execution of their transactions and sending of their personal information through the bank website. Additionally, perceived security positively relates to e-trust and coming with an interpretation which indicates that with protection of online banking transaction using latest technology such as encryption, password protection, VeriSign and so forth, the customers feel secured and develop trust for e-banking. This result is not surprising as the foundation of banking is built on trust and can only be earned in an environment that is protected. Furthermore, perceived security positively relates to hedonic motivation, and in essence implies that in a secured e-banking environment, the users get motivated and derive some fun while using e-banking. The present trend in online environment that is almost dominated with frustration generally requires banking practitioners to incorporate security gadgets that will not only make the users to feel secured but to also draw some fun or enjoyment in the course of usage. Lastly, perceived security negatively relates to e-banking adoption which confirms the hypothesis of this study as this strictly dictates that when e-banking users feel unsecured, they will significantly drop the usage e-banking. This therefore asserts that importance of security cannot be overemphasized especially with some unpalatable incidents and high rate of fraud that have dominated online transactions like e-banking.

Facilitating conditions which refer to the availability of certain resources that will help users of e-banking to continue usage is negatively related to e-satisfaction but was supported because of its significance. This is in line with the position of dissonance theory (Festinger, 1957) that asserts that in circumstances where a facilitating condition becomes an inhibitor, individuals may therefore negatively adjust their attitude in line with the situation. This result seems to confirm the position of dissonance theory since the nature of a facilitating condition (quality of internet, and other support) has become epileptic; the concerned customers have therefore ceased to be satisfied and do not see it as a motivating factor by adjusting their attitude accordingly. In addition, a facilitating condition was found to influence e-trust and in essence indicates that where necessary facilities to aid e-banking operations are in place, the users will develop some levels of trust in the service provider and which further connotes that a facilitating condition is a prerequisite for satisfaction. In this category also, a facilitating condition is seen as an instrument that can be used to generate motivation and which simply signifies that users are motivated or enjoyed using e-banking with the necessary facilitating conditions in place. Lastly, the relationship between facilitating conditions and e-banking adoption is supported. This signifies that even though a facilitating condition is negatively related to adoption, it was supported and which implies there is a weak relationship and that the variable is not an exclusive factor that can generate behavior as other factors must be taken into consideration.

Moreover in another category, relationship between awareness and adoption was found to be significant and supported. The reason for this is not farfetched as previous studies have equally emphasized availability of information about the benefits and challenges of

e-banking could motivate users to increase the level of their adoption. Further, the relationship between e-satisfaction and e-banking adoption was found to be significant and supported and which signifies that when the banks perform their duties as expected the customers will be satisfied and reciprocate by adopting e-banking continuously. Furthermore, e-trust was found to be significant in its relationship with e-banking adoption. The finding which supports previous studies establishes that trust is the cornerstone of banking and all efforts should be put in place to ensure that the tempo is maintained since banking involves money matters. Lastly in this group is the relationship between hedonic motivation and adoption and which was supported. This therefore indicates banking institutions should give much consideration to hedonic features by placing more priorities on those banking applications that could trigger emotions of the users while they are operating the platforms. This can be achieved by incorporating animations, background music, and other forms of entertainment on the website and other channels of e-banking.

For mediating effects, only one out of twelve mediating hypotheses was not supported. In the first category, e-satisfaction as hypothesized positively mediates between perceived usefulness and perceived ease of use. This mediation denotes that users of e-banking generally felt that they exerted little efforts in operating the e-banking while the channels also helped them in achieving their financial transactional objectives. E-satisfaction also mediates between perceived security and facilitating condition with the implication that the two variables are capable of influencing adoption of e-banking through online satisfaction.

Furthermore, e-trust in another category does mediate between perceived ease of use and e-banking adoption. This denotes that for bank to gain trust among users of e-banking, they must go extra mile to improve on the content, design, navigations and other usability elements of the e-banking channels as this will help the users to develop trust for the channels and which will further improve the rate adoption. Further, e-trust mediates between perceived security and e-banking adoption. As noted earlier, issue of trust being generated by presence of perceived security in online environment is very germane in developing country generally and Nigeria in particular. This is very obvious as business of banking is generally anchored on trust and this can only be generated or earned when the online environment of banking is secured and safe. In addition, e-trust also mediates between facilitating condition and e-banking adoption. This points to the fact facilitating condition for instance, in terms of online support and others, bank can gain trust among users of e-banking and which may eventually lead to continuous adoption.

The last category states that hedonic motivation positively mediates between perceived usefulness, perceived ease of use, perceived security, facilitating conditions and e-banking adoption. This hypothesized relationship was also supported and denotes that e-banking adoption is equally anchored on hedonistic outcome as obtained in the direct impact. Thus banks should therefore maximize the hedonistic content of their e-banking platform as hedonism has become one of the important factors that can drive adoption of e-banking. Since customers of the contemporary are attaching greater importance to the hedonic features along utilitarian features, it is important for banks to also put a good strategy in place for the purpose of enhancing adoption through heavy investment in the two features.

## **6.2 Implications and Future Research Directions**

A lot of implications can be drawn from the findings of this study with respect to (1) Theoretical; (2) Practice or organizational management; and (3) Methodology implications. These implications are discussed in the following paragraphs.

### **6.2.1 Theoretical contributions**

This empirical research has contributed to the body of knowledge by extending TAM to include external variables such as perceived security, facilitating conditions, awareness and the mediating effect of e-satisfaction, e-trust and hedonic motivation for the prediction of e-banking adoption. This extension is in line with the arguments of various authors (Abassi *et al.* 2011; Chandio, *et al.* 2013) who argued that core constructs of TAM (perceived usefulness and perceived ease of use) do not suffice to explain users of new system like e-banking since factors that influence the acceptance of new information system may be different with target users, technology, and contexts. While other studies may have used these variables in different context, to the limited knowledge of the researcher, this is the first study that has holistically introduced these variables in one model particularly in the study of e-banking adoption. This study has therefore demonstrated that by extending TAM, other external variables can be incorporated to predict adoption of online services in diverse cultures such as Nigeria in line with the callings of previous researchers (Moon & Kim, 2001). In particular, the mediating relationship of fun between perceived security and e-banking adoption is an important contribution that has opened further doors of research and in line with the position of

(Wenniger & Loebbecke, 2011) who assert that security which is one of items of quality can lead to cognitive absorption which triggers fun while fun has been found to relate adoption. Even though previous studies in the context of developed countries and lately in developing nations have examined the impact of core variables of TAM and as well as included other external variables in order to enhance the predictive power of the model, limited attempts have been made to assess the influence of hedonic elements on eliciting adoption of e-banking platforms. In this regard, the present study offers an interesting theoretical proposition by exploring the mediating role of hedonic elements on the relationships between original TAM constructs, other external variables and e-banking adoption. This offers particular theoretical implications for both developed and developing economies researchers who have largely ignored the mediating role of hedonic motivations and for commercial banks wherein off-late have identified technology as the key to customer engagement initiatives.

Moreover, the inclusion of mediating role of e-satisfaction and e-trust is an important theoretical contribution premised on the fact that the platform of online banking is significantly different from that of traditional banking since development of satisfaction and trust is rather website based in the former than in the latter (Amin, 2016; Anderson & Srinivasan, 2003; Szymanski & Hernald, 2001). Importantly, most previous studies have largely jettisoned the roles of these two variables in the content of e-banking adoption as they have majorly treated them either as independent or dependent variable (George & Kumar, 2013; Liebana-Cabanillas et al., 2013). This study therefore seems to be one of the pioneer studies that critically considered the mediating roles of these two variables concomitantly thereby answering the clarion calls of previous scholars. The theoretical

implication of this is that this study has originally contributed to the body knowledge through the analysis of several factors that impact on customer satisfaction and trust within the e-banking sector. Therefore, this research contributes immensely to the services marketing discipline by determining the role of those factors that can be used to enhance the perception of customer satisfaction and trust towards increasing the rate of adoption of online banking.

Furthermore, very few studies have been conducted in the context of developing countries (Agwu, 2012; Chong et al. 2010), and by the development of this model that is more encompassing and robust; an important contribution to the body of knowledge has also been made since this model can be used to make further prediction especially with some of its results that are significant/consistent with previous studies and can improve the predictive power of TAM. However, other results of this study that are insignificant and inconsistent with previous studies create or open rooms for further studies. Additionally, the findings of this study through its extended model have equally helped in deep understanding of those factors that can help to predict e-banking than using the original TAM.

In variance to other studies that studied intention, this study has answered the clarion calls of scholars such as (Ho & Ko, 2008) by analyzing users' behavior. This is in line with the arguments that intention which is customer acquisition oriented does not translate to behavior in most cases. By studying actual behavior of e-banking customers, this study has therefore contributed to the body of literature that will not help the banks to only acquire customers but to also retain them over a long period of time.



### **6.2.2 Managerial contributions**

In today's highly competitive banking landscape market, it is very important that banks put more effort to develop their electronic banking capabilities by identifying strategies to increase adoption, access and usage of this low-cost channel in Nigeria. This is because the use of the internet as a medium for shopping is still emerging in the context of developing country, like Nigeria. The results that are presented here will give more opportunities for banking practitioners to further understand the perceptions of their customers better since they will be able to predict the acceptance of e-banking by their customers, and why its adoption is still in the infancy stage.

As internet technology has therefore reshaped the outlook of business activities in the recent time and with its strong influence on banking businesses, banks have also adopted this mantra to serve their numerous customers. Since this study focused on actual users of e-banking in Nigeria; its findings will help the bankers to draw strategies and policies that can be used to retain existing customers while further efforts would be made to attract new ones. This is in line with the position of Kotler and Amstrong (2008) who assert that pursuant of new customers is quite expensive than retaining the old ones. This can be achieved by ensuring that the present users for instance are availed with the actual benefits of e-banking such as placing standing order online, save a lot of time by not unnecessarily queue up in the branches, making online banking platforms procedure to be less cumbersome, avail necessary facilitating support and let the customers feel relax while using the channels.

In essence therefore, the findings of this study have become important instrument through which all of the above can be achieved in practical term as it affords the designers of e-banking services and banking practitioners to design channels that are interactive, easily used, useful, secured and embedded with the required facilitating supports. This is important as previous studies have shown that most users of e-banking are often feel frustrated while using the channels for lack of good interface and lack of required supports. Based on the findings of this study, it becomes very significant for designers of the channels to embed those features that will help customers to easily navigate the channels and have funwhile using e-banking for the purpose of achieving their daily objectives.

In addition, this current research has also shown that perceived usefulness and other variables can be used to generate fun towards usage of electronic banking. Thus, the designers and marketers of e-banking should take into considerations the hedonic motivations when designing and marketing e-banking services. This result is also consistent with the latest findings of Hong, *et al.* (2008) and Verkasalo (2008) and with practical implications that challenge product designers to develop interfaces and products that can satisfy both the utilitarian and fun needs of consumers. This is in line with the fact that many manufacturers and service providers in the contemporary such as Sony and Apple, have lunched new devices with touch control and attractive design indicates the importance of the fun variable in affecting consumers' adoption of new products. In fact recent happenings have shown that organizations that embed fun/emotions triggers into online platforms will rule the next generation of online businesses and it is the only organization that can act fast that will reap this benefit.

Moreover, since insecurity has almost become the order of the day in online environment, the findings of this study also go a long way to guide the practitioners to build e-banking channels that are secured by incorporating those security features such as Padlock symbol, VeriSign, Virtual Keyboard, SMS alert, Automatic lockout on multiple entry of password, Sign on password expiry, Automatic timeout for inactiveness over certain period, address bar turning green, mandatory use of special characters in password and a host others in order to protect the users. As noted by KPMG (2013), e-banking remains the goldmine of the banking sector in Nigeria; insecurity is however crippling its growth and it is only the service provider that can crack this conundrum that will reap the full benefits of the goldmine. The findings of this study when implemented will help the vendors in surmounting this challenge.

In the light of the findings of this study therefore, a light has also beacon for government to come up with policies that will encourage customers at home and abroad to develop confidence and trust in e-banking services. This is important as recent events have revealed that Nigeria electronic funds cards are being used by fraudsters in foreign countries. This particular scenario has led to the ban of usage of those cards in China and USA. To stop this trend, the findings of this study serve as a direction for policy makers to follow in coming up with good policies that will help them to design e-banking channels that are secure and safe.

### **6.2.3 Methodological Implications**

This study also contributed methodologically through its method of data collection. Most previous customers' behavior studies in banking often collected their data through mall intercept or convenient sampling which are subjected to many weaknesses of bias.

However, this study has gone extra mile to liaise with the head of operations of each target bank to collect the data of the study systematically. Since systematic sampling is a form random sampling, this method has helped the researcher to reach out to target users of e-banking and reduce the level of bias that may be associated with mall intercept and convenient sampling that are been used by previous researchers.

This study through this method of data collection has therefore broken the likely barrier that may be associated with data collection while dealing with consumers of the banks. In view of this, the method that is adopted by this research can be replicated in another studies since systematic sampling through a form of liaising with the head of operations can pave way for efficient and effective data collection in the banking sector.

### **6.3 Limitations and Future Research Directions**

There are several limitations in this research study. Firstly, this research adopts a cross-sectional design which gives no room for causal inferences to be drawn. Therefore, a call has been made to future researcher to embark on a longitudinal design that will allow causal differences to be made since data will be collected over different time and this will allow the findings of present study to be confirmed further.

Secondly, the population analyzed for this study was users of e-banking. This therefore indicates non users were excluded in the study. Therefore, necessary cautions must be taken when generalizing the findings of this study as future researchers should take into considerations the voice of non users. This can be done by conducting a study that compares users and non users of e-banking in order to know those factors that can be

used to predict e-banking adoption holistically. As indicated by Sarel and Marmorstein (2003) behavioral differences may arise between light and heavy users or more significantly between users and non-users, thus making it important to evaluate the model from across different groups.

Thirdly, this research studied the behavior of Nigerians with respect to e-banking and which implies that its results may differ from that of other countries. As suggested by Wei, Yang and Hsiao (2008), and recently echoed by Tan *et al.* (2010) further studies may be conducted for multi-country comparison in order to test the influence of moderating variables such as the national culture. Culture has been validated by previous researchers as an important factor that can impact adoption but its moderating effect can be tested further. In addition, since this study concentrated on users, it will be appropriate if future researchers can test the influence of users (Subjective Norm) on non users of e-banking in Nigeria as this will help to further validate factors that can be used to predict intention to adoption of e-banking.

Fourthly, the model of this study only explains 50% of the behavior of the respondents of this study. Even though this does not affect generalizability of the result of this study, this however shows that other factors are accountable for the users' behavior that is not explained by the model. Hence, other variables such as convenience, price, accessibility, marketing strategies and promotional issues may be considered as predictors of e-banking adoption in developing countries as suggested by other scholars (Tan *et al.* 2010; Yap *et al.* 2009). In addition, the relationship between perceived usefulness and e-trust, perceived usefulness and e-banking adoption and perceived ease of use and e-banking

adoption that are not significant and inconsistent with other studies should be investigated by future researchers in other contexts with the purpose of discovering other reasons that may account for the result.

### **6.3.1 Conclusion**

This study has added to the body of knowledge by providing additional evidence with respect to the mediating influence of e-satisfaction, hedonic motivation and e-trust on the relationship between e-banking adoption and its determinants (Perceived usefulness, perceived ease of use, awareness, perceived security and facilitating condition). The empirical results from this study have lent credence to the key theoretical propositions. Particularly, this study has been able to answer all its research questions and objectives even though the results are mixed and in the presence of some limitations. While there have been many studies that examined the factors that can be used to predict e-banking adoption, the present study addressed the theoretical gap by incorporating the mediating role of e-satisfaction, e-trust and hedonic motivation.

In addition to the theoretical contributions, the results from this study provide some important practical implications to organizations and managers. Furthermore, on limitations of the current study, several future research directions were drawn. In essence, the present study has added valuable theoretical, practical, and methodological ramifications to the growing body of knowledge in the field of consumer behavior and information technology.

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## Appendices

### Appendix A: Research Questionnaire

#### QUESTIONNAIRE ON THE INFLUENCE OF E-SATISFACTION, E-TRUST AND HEDONIC MOTIVATION ON THE RELATIONSHIP BETWEEN E-BANKING ADOPTION AND ITS DETERMINANTS IN NIGERIA



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Dear Respondent,

#### ACADEMIC RESEARCH QUESTIONNAIRE

I am a postgraduate student of Universiti Utara Malaysia, and currently conducting a survey on adoption of electronic banking in Nigeria as part of the requirements for the award of PhD degree. Kindly complete this questionnaire as accurately as possible. Please note that your responses will be treated with utmost confidentiality and used purely for academic purposes. I highly appreciate your co-operation.

Thanking you in anticipation of your response.

Yours sincerely,

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**PART A: Demographic information**

Please tick  as appropriate in the boxes provided below concerning the demographic information that fit you

1. Gender:

- Female  Male

2. Age:

- 25 years  
 26 – 35 years  
 36 – 45 years  
 46 – 55 years  
 Above 55 years

3. Marital Status:

- Single  
 Married  
 Divorced  
 Widowed  
 Separated  
 Others (please specify) .....

4. Highest educational qualification obtained

- Primary school leaving certificate  
 Secondary school certificate  
 Diploma  
 Bachelors Degree/HND  
 Masters Degree  
 Doctorate Degree  
 Others (please specify) .....

5. Which of the following represents your ethnic group?

- Hausa  
 Fulani  
 Yoruba  
 Igbo  
 Others (please specify) .....

6. For how long have you been a customer of the banks?

- Less than 1 year  
 Between 1 and 5 years  
 Between 6 and 10 years  
 Between 11 and 20 years  
 More than 20 years

7. Which of the following accounts do you operate?

- Savings account
- Current account
- Deposit account
- Domiciliary account
- Others (please specify) .....

**PART B: Electronic Banking Adoption**

Please indicate as honestly and objectively the extent to which you agree or disagree with each statement using the scale below

1= Strongly Disagree, 2=moderately dsiagree, 3= slightly disagree, 4=Neutral, 5=Slightly Agree, 6=Moderately Agree, 7=Strongly Agree

EA1	I save a lot of time using the bank because I don't have to visit the branch personally.	1	2	3	4	5	6	7
EA2	E-banking is helping me to perform my banking in privacy.	1	2	3	4	5	6	7
EA3	E-banking is useful in managing my financial activities.	1	2	3	4	5	6	7
EA4	I feel that having access speed is essential for the usage of e-banking.	1	2	3	4	5	6	7
EA5	Using e-banking provides me with feelings of personal achievement.	1	2	3	4	5	6	7
EA6	Generally, e-banking activities are within my capacity.	1	2	3	4	5	6	7
EA7	I use e-banking because it is available 24 hours.	1	2	3	4	5	6	7
EA8	With e-banking I don't have carry large amount of cash around.	1	2	3	4	5	6	7
EA9	I will continue to use e-banking instead of branch services.	1	2	3	4	5	6	7

### PART C: Perceived Usefulness

Please indicate as honestly and objectively the extent to which you agree or disagree with each statement using the scale below.

PU1	I believe that e-banking is helping me to achieve my daily task.	1	2	3	4	5	6	7
PU2	E-banking generally helps me to improve quality of my banking transactions.	1	2	3	4	5	6	7
PU3	E-banking helps me to monitor my financial transactions and other online transactions.	1	2	3	4	5	6	7
PU4	I believe that using e-banking saves my time when compared with branch banking.	1	2	3	4	5	6	7
PU5	I feel that my productivity at work has improved using e-banking.	1	2	3	4	5	6	7
PU6	I believe that e-banking has more uses than branch banking.	1	2	3	4	5	6	7
PU7	I feel my productivity generally has improved because I am using e-banking.	1	2	3	4	5	6	7
PU8	I believe that e-banking benefits are greater than that of branch banking.	1	2	3	4	5	6	7
PU9	My financial transactions would have been difficult without e-banking platform.	1	2	3	4	5	6	7
PU10	Overall, I believe that e-banking is useful for me to utilize banking services.	1	2	3	4	5	6	7

### PART D: Perceived ease of Use

Please indicate as honestly and objectively the extent to which you agree or disagree with each statement using the scale below.

EU1	I believe that the use of e-banking is not very difficult.	1	2	3	4	5	6	7
EU2	I believe that learning how to use and operate e-banking is easier.	1	2	3	4	5	6	7
EU3	E-banking interfaces are very interactive.	1	2	3	4	5	6	7
EU4	I believe that the processes of e-banking are very easy to remember.	1	2	3	4	5	6	7
EU5	I believe that the interface of e-banking is user friendly.	1	2	3	4	5	6	7
EU6	It is easy for me to become skilful at using an e-banking.	1	2	3	4	5	6	7
EU7	I don't have to request for outside help while using e-banking platform.	1	2	3	4	5	6	7
EU8	Instructions of e-banking are very clear and do not require extra mental or physical effort.	1	2	3	4	5	6	7
EU9	I believe it is very easy for me to recover from errors and mistakes while using e-banking.	1	2	3	4	5	6	7
PU10	I can easily remember my password and other codes while operating on e- banking platform.	1	2	3	4	5	6	7

### **PART E: Perceived Security**

Please indicate the extent to which you agree or disagree with each statement using the scale below

PS1	I feel safe providing personal information over e-banking website.	1	2	3	4	5	6	7
PS2	I am not worried to use e-banking as I believe that my transactions are secured and safe.	1	2	3	4	5	6	7
PS3	I believe that the bank will not expose my personal information to third party.	1	2	3	4	5	6	7
PS4	I don't feel that e-banking websites will wrongly process my transactions.	1	2	3	4	5	6	7
PS5	In case my e-bank account has been hacked into and my money stolen, I am confident that my bank will help me to recover my money.	1	2	3	4	5	6	7
PS6	I am confident that my bank offers the latest technology to stop unauthorized intrusion.	1	2	3	4	5	6	7
PS7	I believe that the law is effective to protect any loss that may occur through e-fraud.	1	2	3	4	5	6	7
PS8	I believe that the level of risk that is involved in e-banking is low.	1	2	3	4	5	6	7
PS9	My bank provides enough security information on how to protect my account from fraudsters.	1	2	3	4	5	6	7
PU10	Overall, I believe that e-banking is secured.	1	2	3	4	5	6	7

### **PART F: Facilitating conditions**

Please indicate the extent to which you agree or disagree with each statement using the scale below

FC1	The internet infrastructure and other facilities such as bandwidth and electricity are sufficient for e-banking.	1	2	3	4	5	6	7
FC2	The government is driving the development of e-banking.	1	2	3	4	5	6	7
FC3	The government has good regulations and laws for e-banking.	1	2	3	4	5	6	7
FC4	Help is available when I get problem in using online banking	1	2	3	4	5	6	7
FC5	My living environment supports me to use e-banking.	1	2	3	4	5	6	7
FC6	I have every required skill to perform e-banking transactions	1	2	3	4	5	6	7

FC7	I have required knowledge to handle e-banking transactions from my home.	1	2	3	4	5	6	7
FC8	My bank's website is always up and effective.	1	2	3	4	5	6	7
FC9	My bank provides initial general training on how to use e-banking.	1	2	3	4	5	6	7
FC10	The network down time is very minimal while using e-banking services.	1	2	3	4	5	6	7

### **PART G: Awareness**

Please indicate the extent to which you agree or disagree with each statement using the scale below

AW1	I have generally received enough information about e-banking	1	2	3	4	5	6	7
AW2	I have received enough information about the benefits of using online banking	1	2	3	4	5	6	7
AW3	The website of bank provides me with information relevant to my needs	1	2	3	4	5	6	7
AW4	I have full knowledge of the benefits of using online banking	1	2	3	4	5	6	7
AW5	I am aware of the risks that are involved in using e-banking	1	2	3	4	5	6	7
AW6	My bank provides me with current information about policy guiding e-banking	1	2	3	4	5	6	7
AW7	I don't share my information with third party	1	2	3	4	5	6	7
AW8	Overall, I feel that awareness has made e-banking operations not to be difficult	1	2	3	4	5	6	7

### **PART H: e-banking Satisfaction**

Please indicate the extent to which you agree or disagree with each statement using the scale below

ES1	My bank has always be responsive to my e-banking needs.	1	2	3	4	5	6	7
ES2	My expectation has always been met by e-banking services.	1	2	3	4	5	6	7
ES3	My experiences with e-banking have been good.	1	2	3	4	5	6	7
ES4	I am happy transacting e-banking than using branch banking.	1	2	3	4	5	6	7
ES5	I feel satisfied with using this e-banking site.	1	2	3	4	5	6	7
ES6	My feelings are relaxed using e-banking.	1	2	3	4	5	6	7

ES7	Services offered by e-banking are the best.	1	2	3	4	5	6	7
ES8	The procedures of e-banking are comfortable.	1	2	3	4	5	6	7
ES9	I am not facing any difficulty using e-banking.	1	2	3	4	5	6	7
ES10	Overall, I feel satisfied using e-banking site.	1	2	3	4	5	6	7

### PART I: E- Trust

Please indicate the extent to which you agree or disagree with each statement using the scale below

ET-1	My banking institution provides reliable websites for banking services	1	2	3	4	5	6	7
ET-2	e-banking channels keep its promises and commitments in Nigeria	1	2	3	4	5	6	7
ET-3	Other people will not be aware of my banking transactions.	1	2	3	4	5	6	7
ET-4	I would feel secure sending sensitive information like my account number, pincodes etc. over the e-banking platform.	1	2	3	4	5	6	7
ET-5	I trust my bank's technology in providing internet banking services.	1	2	3	4	5	6	7
ET-6	Overall, I trust my bank.	1	2	3	4	5	6	7

### PART J: Hedonic Motivation

Please indicate the extent to which you agree or disagree with each statement using the scale below

HM-1	E-banking website often stimulate my curiosity.	1	2	3	4	5	6	7
HM-2	I derive a lot of fun while using e-banking channels	1	2	3	4	5	6	7
HM-3	The features of e-banking website are entertaining	1	2	3	4	5	6	7
HM-4	My imagination is always aroused while using e-banking.	1	2	3	4	5	6	7
HM-5	The features of e-banking keep me happy always.	1	2	3	4	5	6	7
HM-6	I am always pleased with the usage of e-banking.	1	2	3	4	5	6	7
HM-7	Overall, I enjoy using e-banking.							

Thank you for participation.

## Appendix B Sample of related studies

### Sample of related studies

S/ N	Author/Yr	Country	Focus	DV	IV	Mediating	Moderatin g	Method	Theory	Findings	FReRec
1.	Al-Majali & Mat (2011)	Jordan	E-banking	Adoption	Perceived usefulness, Perceived ease of use, Trialability, Compatibility, Trust, awareness	Nil	Nil	SEM	IDT	+ve and significant	Service quality & Self efficacy.
2.	Eriksson, Kerem & Nilson (2004)	Estonia	Internet banking	Usage	Trust, Perceived Usefulness, ease of use,	Ease of use	N/A	LISREL/SPSS		+ve and significant	Extension of TAM and TBP Trust should be included in future model
3.	Poon (2008)	Malaysia	E-banking	Adoption	Accessibility, Security, Bank Management and Image, Convenience, Feature availability, Fees and charges, Design, speed and Pertinent	N/A	N/A	ANOVA	TAM and flow theory	-Ve +ve	N/A
4.	Wang (2008)	Taiwan	Contactless credit card	Adoption	Perceived usefulness, ease of use, compatibility, Trust,	N/A	N/A	Logistic regression	IDT and TAM	+Ve & -ve	N/A

5.	Kaseir, Ashour & Yacout (2009)	Egypt	Internet banking	Continuance intention	Perceived risk & Availability of infrastructural facilities Perceived benefits, perceived ease of use, perceived risk, subjective norm	N/A	N/A	ANOVA	TPB, TRA & TAM	+ve & -ve	Satisfaction and service quality should be investigated.
6.	Janghir & Begun (2008)	Bangladesh	Electronic banking	Customer adaptation	Perceived security, perceived ease of use and perceived security and privacy	Customer attitude	N/A			+ve & -ve	
7.	Musiime & Ramadhan (2011)	Uganda	Electronic Banking	Satisfaction	Access to account, control of account and usage of account	Awareness, interest, evaluation and usage	N/A	Multiple Regression Analysis			
8.	Al-Fahim (2011)	Malaysia	Internet banking	Internet Banking adoption	Perceived usefulness, Perceived ease of use, perceived risk and awareness	N/A	N/A	SEM	TAM	+ve but insignificant & -ve	
9.	Chong et al (2010)	Vietnam	Online Banking	Online banking adoption	Perceive usefulness, Perceive ease of use, government	N/A	N/A	Correlation and multiple Regression analysis	TAM	+ve & -ve	



10.	Abushanab et al (2010)	Jordan	Banking	Behavioral Intention	support and Trust Performance expectancy, social influence, self efficacy, perceive trust, locus of control, perceive facilitating condition, personal innovativeness, perceive risk	N/A	N/A	Regression analysis technique	UTAUT	+ve & -ve	Longitudinal research recommended. Future studies should consider usage
11.	Safeena, Date & Kafammi (2011)	Indian	Banking	Mobile banking adoption	Perceived ease of use, perceived usefulness, perceived risk, use of e-banking	Use of internet banking	N/A	SPSS	+ve	TAM	Longitudinal study
12.	Abbasi (2011)		Internet technology acceptance	Behavior Usage	Perceived usefulness, perceived ease of use, Government Support,	Behavioral intention	Institution support, voluntariness and experience	PLS-SEM	+ve	Theory of plan behavior	N/A
13.	Adesina & Ayo (2010)	Nigeria	Banking	Intention to use	Perceived ease of use, perceived usefulness, perceived credibility, computer self-efficacy	Attitude	N/A	Bivariate correlation technique	+ve	TAM	N/A
14.	Akhlaq & Ahmed (2013)	Pakistan	Banking	intention	Perceived usefulness, perceived	Trust	N/A	SEM	+ve	TAM	cultural issues and legal

15.	Al-Daz Manzano et al (2009)		Banking	usage	ease of use Perceived risk, perceived usefulness, perceived ease of use, financial involvement,	Trust	N/A	SEM	+ve & -ve	TBP & TAM	framework
16.	Aliyu, Yunus, & Tasmin (2012)	Nigeria	Banking	adoption	Customer reluctant to change, perceived ease of use, cost, awareness, price factors	N/A	N/A	Regression	+ve & -ve		
17.	Al-Fahim (2012)	Malaysia	Banking	Adoption	Perceived usefulness (PU), Perceived ease of use (PEU), awareness, and risk and trust	N/A	N/A	SEM	+ve	IDT and TAM	Similar studies could be carried out outside university environment
18.	Fachomyo (2012)	Cameroon	Banking	Adoption	PU, PEU, quality of internet connection, perceived trust, perceived accessibility, perceived service cost	Attitude	demographic variables and awareness	SEM	+ve & -ve	TAM, TPB and TRA	N/A
19.	Kazi (2013)	Pakistan	Banking	intention	PU, PEU, convenience, perceived	N/A	N/A	Multiple regression analysis	Ve & -ve	TAM	Researchers can compare the results

					credibility						
20.	Chandio (2013)	Pakistan	Banking	Intention	Output quality, response time, accessibility, terminology, technology self efficacy	Perceived usefulness, perceived ease of use	trust	SEM	+ve	TAM	and look the gap in order to further investigate the students of higher education behavioral intention to adopt Internet banking Longitudinal studies
21.	Kersharwani & Radhakrishna (2013)	India	Bank	Financila risk, technology complexity, social influence, PU, trust, privacy risk, performance risk and PEU	N/A	N/A	SEM	+ve	TRA, TPB and TAM	N/A	
22.	Shorabi et al (2012)	Malaysia	Banking	adoption	Perceived trust, charges, privacy and security	N/A	N/A	Multiple Regression analysis	+ve and significant . Trust is the most significant		Future studies can be conducted to cover a wider scope
23.		Nigeria	Banking	Net benefit	System	Continue	N/A				

					quality, information quality and service quality	intention and esatisfactio n					
24.	Ikoh and Iboh (2013)	Nigeria	Banking	Satisfaction	Ease of use, privacy and security, cost/time effectiveness , use of account, account control, access of account	N/A	N/A	Multiple regression	+ve	N/A	N/A
25.	Sathye (1999)	Australia	Banking	Adoption	Awareness, ease of use, safety and security, price, resistance to change, availability of infrastructur e	N/A	N/A	Chi-square tests	+ve	N/A	N/A
26.	Moon and Kim (2000)	South Korea	WWW	Actual usage	Perceived playfulness, EU, PU	Attitude and intention	N/A	Stepwise multiple regression	+ve	TAM and TRA	N/A
27.	Wang et al (2003)	Tiwan	Internet banking	Behavioral intention	Computer self efficacy	PU, PEU and perceived credibility	N/A	Squared multiple correlation	+ve and significan t	TAM	Effect of screen design and feedback on acceptance. Objective and subjective measures

											should be employed Actual usage should be further investigated
28	Pikkarainen et al (2004)	Finland	Banking	Usage	PU, PEU, information, security and privacy, quality of internet	N/A	N/A	Regression analysis	+ve and -ve	TAM	Future studies should consider subjective norm, IDT and TPB theories
29	Prakash & Malik (2008)	India	Banking	adoption	Accessibility, reluctance, costs, reliability, security concern, convenience and ease of use	N/A	N/A	Factor analysis	+ve & -ve	N/A	N/A
30	Juwaheer et al (2012)	Mauritius	Banking	adoption	Peu, pu, subjective norm, attitude, security and trust, level of awareness, demographic variables	N/A	N/A	Descriptive and inferential analysis	+ve	TAM, TRA and TPB,	Further studies should be conducted on adopters and non adopters intention. The studies can be extended to government bodies, corporate

31.	Lu et al (2005)	Texas	Wireless service	Intention	Facilitating condition	Trust	N/A	SEM/Pearsons correlation	+ve		customers and so on Users and non-users should be studied
32.	Chan et al (2010)		E-governme nt	Satisfaction	Awareness, compatibility , self efficacy, flexibility. Avoidance of personal interaction, trust, convenience and assistance	Perceived expectancy, effort expectancy, social influence, facilitating condition	N/A	SEM	+ve	UTAUT	
33.	Tan, Chong, Boon, Ooi & Chong (2010)	Malaysia	Banking	Intention	Perceived usefulness, perceived ease of use, trust, perceived financial control, perceived risk, social influence	N/A	N/A	Multiple regression analysis	+ve &-ve	TAM & TBP	Future studies can compare users of different age.  Other studies should consider quality of internet connection, government support, convenience and privacy
34.	Liao & Cheung (2008)	Hong Kong	Internet banking	satisfaction	Usefulness, ease of use, reliability, security,	N/A	N/A	Regression analysis	+ve &-ve	TAM and servqual paradigms	N/A

35.	George & Kumar (2014)	India	Online banking	Satisfaction	responsiveness, continuous improvement Perceived usefulness, perceived ease of use and perceived risk	N/A	N/A	Multiple Regression	+ve & -ve	Extended TAM	Future studies could incorporate familiarity (awareness) into models
36.	Kim, Han & Lee (2013)	Korea	Shopping mall	intention	Perceived usefulness, perceived risk and subjective norm	Trust	N/A	SEM	+ve & -ve	TRA & TAM	N/A
37.	Eid (2011)	Saudi Arabia	E-commerce	E-loyalty	User interface, information quality, perceived security, perceived privacy	e-satisfaction and e-trust	N/A	SEM	+ve & -ve	TRA, TAM & ECT	Customer value, purchasing culture, and government support
38.	Yusafzai, Pallix & Foster (2003)	N/A	Online banking	intention	Perceived security, perceived privacy	Trust and risk	Perceived benevolence, perceived integrity and perceived benevolence				
39.	Yusafzai et al (2010)		e-commerce	Continuance intention	Trust, service quality, system quality, information	User satisfaction and PU	N/A	Multiple linear regression	+ve	TAM, ECT and IS success theory	Perceived usefulness be incorporate into future

				quality							studies for the purpose of parsimony
40.	Polasik & Wisniewski (2009)	United Kingdom	Internet banking	adoption	Perceived security, internet experience, marketing exposure, use of other banking products, types of internet connection used, demographic characteristics	N/A	N/A	Binomial logistic regression	+ve with perceived being the strongest factor	TAM & IDT	Multi-country setting approach may be adopted.  Marketing exposure may further be investigated
41.	Al-Hawari (2010)	UAE	Education	E-retention	PU, PEU, Enjoyment, Design feature	E-satisfaction	N/A	SEM	+ve & -ve	TAM	N/A
42.	Wang		Contactless credit card	Adoption	PU, PEU, compatibility, customer involvement, trust, perceived risk and availability of infrastructure	N/A	N/A		+ve & -ve	TAM & IDT	N/A
43.	Wessels and Drennan (2010)	Australia	M-Banking		Ease of use, perceived usefulness, cost, risk, compatibility	Attitude	N/A	Multiple regression	+ve & -ve (peu & perceived risk)	TAM and attitudinal theory	N/A



44.	Loureino, Kaufmann & Rabino (2014)		Online banking	intention	, need for interaction Self control, usefulness, commitment,	Total satisfaction, reputation, trust and commitment	Individualism and masculinity	PLS	+ve and -ve	TAM	Relationship marketing variables such as perceived value, satisfaction, trust and image should further be investigated.
45	San-Martin and Lopez-Catala	Spain	M-commerce	satisfaction	Trust, impulsiveness, involvement and innovativeness	N/A	N/A	SEM	+ve and -ve (innovativeness)	IDT	Gaps between intention and actual usage should be explored Future studies can investigate variables that are external to individual users such as perceived usefulness, ease of use or m-vendor reputation Atopic that requires additional research is
46	Yousafzai et al (2009)		Internet banking	intention	Perceived trustworthiness, perceived	Trust and perceived risk	N/A	SEM	+ve		

					security and perceived privacy						the conceptualization of trust
47	Aliyu, Younus & Tasmin (2012)	Nigeria	Electronic banking adoption		Accessibility, price, ease of use, reluctant to change, awareness, security concern	N/A	N/A	Regression analysis	+ve & -ve (ease of use & reluctant to change)	N/A	N/A
48	Hanafizadeh & Reza (2012)		Online banking intention		awareness	Financial risk, security risk, time	N/A	SEM	+ve and -ve	Perceived risk theory	Comparative studies based on IB adoption based on community
49	Mazzon & Hernandez (2010)	Brazil	Online banking intention		PEU, trialability, image, results demonstrability, visibility, relative advantage, compatibility, subjective norm, perceived behavioral control	attitude	N/A	PLS	+ve and -ve	DTPB	
50	Wang, Hsieh & Song (2012)	Hong Kong	Instant messaging satisfaction		Perceived social presence, perceived media, PU, and	N/A	N/A	SEM	+ve & -ve (media richness)	Motivation theory	Future studies should consider actual usage

51.	Susanto et al (2013)	Indonesia	Banking	intention	perceived enjoyment Perceived security, perceived privacy, trust propensity, company reputation, website quality	Initial trust	Government support and relative benefit	PLS	+v & -ve (government support and perceived security)	Additional insights are likely to be gained by examining consumer trust in Internet banking in other developing countries having differences in government, infrastructure, and culture.	
52	Amin, et al (2014)		Mobile marketing	Satisfaction	Trust, perceived ease of use and perceived usefulness	N/A	N/A	SEM	+ve	TAM & Morgan & Hunt commitment theory	Actual usage should be examined by future research Future studies should compare the satisfied respondents with the dissatisfied respondents in respect of mobile satisfaction



53	Puschel, Mazzo & Hernandez (2010)	Brazil	Mobile Banking	Intention and adoption Attitude, perceived behavioral control	Relevant advantage, compatibility, image, results demonstrability, visibility, PEU, self-efficacy, resource facilitating condition, technology facilitating condition, subjective norm	N/A	N/A	PLS	+ve and -ve	DTPB and others	Future studies should consider image and trialability
54	Mann & Sahni (2013)		Banking	Adoption	PEU, perceived security, demographic variables, adoption behavior	N/A	N/A	Non-hierarchical regression	+ve		N/A
55	Sohail & Shanmugan (2003)	Malaysia	Banking	User Behaviour	Accessibility, security, reluctance to change, cost and convenience	N/A	N/A	t-test	+v & -ve (security concern, cost)		Larger sample to cover all regions
56	Lee, Hsieh and Hu (2011)	Taiwan	E-learning	Behavioral intention	compatibility, relative advantage, trialability, observability	PEU & PU	N/A	SEM	+ve & -ve (compatibility and observability)	TAM and IDT	N/A
57	Kumar & Raavindran (2012)	India	Mobile banking	Continuance intention	Perceived Service quality, PU,	satisfaction	Perceived risk	PLS	+ve & -ve (perceive	TAM	A larger sample

					PEU, Perceived credibility				d ease of use & Perceive d risk		
58	Chau & Ngai (2010)		Banking	Internet banking behavior	Self-efficacy, perceived risk, social influence	Attitude Behavioral intention	N/A	Multiple Regression		TAM & TRA, SERVQUA L	Longitudinal
59	Abbasi, Chandio, Soomro et al (2011)	Pakistan	Education al Institution	Behavior usage	Perceived usefulness, and perceived ease of use, social norm	N/A	Governme nt support and institution support	PLS	+v	TAM	N/A
60	Wei & Chong (2009)	Malaysia	M- commerc e	intention	PU, PEU social influence, trust, perceived cost	N/A	N/A	Correlation and multiple regression analysis	+v &-v (PEU)		Compatibilit y, self efficacy and perceived enjoyment for further studies.
61	Tan, Chong and Lin	Malaysia	Internet marketing	Behavioral intention	Performance expectancy, effort expectancy, social influence, facilitating conditions	N/A	N/A	Multiple regression	+ve &-ve	UTAUT	Longitudinal N/A
62	Teo, Chong & Lin (	Malaysia	e- payment	perception	Benefits, self efficacy, ease of use, trust and security	N/A	N/A	Multiple Regression	+v & -v (trust and security)	TAM	perceived usefulness and applicability should be considered by future

											studies.
63.	Zhou (2013)	China	Mobile sites	Continuous usage	Information quality, system quality, perceived enjoyment, attention focus	satisfaction	N/A	LISREL	+ve		Effect of service quality on user satisfaction on mobile sites
64	Zhou (2011)	China	M-commerce	satisfaction	Information quality, system quality,	PEU, PU and Trust	N/A	SEM	+v	TAM, information success theory and trust theory	longitudinal Switching cost, commitment and longitudinal studies
65	Lin (2011)	Taiwan	Mobile Banking	Intention/usage	Perceived relevant advantage, perceived ease of use, perceived compatibility, perceived competence, perceived benevolence, perceived integrity	attitude	N/A	SEM	+v &-v (perceived benevolence)	IDT and trust theory	Information quality, system quality and interface design quality effect on satisfaction should be examined
66	Fonchamyo (2013)	Cameroon	banking	Adoption	PU, PEA, quality of internet connection, perceived trust, perceived security,	attitude	Perceived awareness and demographic variables	SEM	Significant & not significant (income, gender, perceived risk and	TAM	N/A

					perceived reliability, perceived accessibility and perceived service cost				quality of internet connection)		
67	Liebana-Cabanillas (2013)		Banking	satisfaction	Perceived usefulness, perceived ease of use, accessibility	Trust	N/A	SEM	+ve	TAM	N/A
68	Kim & Lee (2013)	Korea	Mobile service	satisfaction	Information quality, system quality, self efficacy	Perceived usefulness and perceived ease of use	N/A	PLS	+ve & -ve (service quality & self efficacy)	TAM & ACSI	Larger sample
69	Mai, Tuan & Youshi (2013)	Vietnam	Mobile shopping	loyalty	Trust, customer interface, perceived usefulness, perceived ease of use	satisfaction	Internet and shopping experience (treated as control variables)	SEM	+v & -ve (perceived ease of use)	TAM	N/A
70	Yiu, Grant, & Edgar (2007)	Hong Kong	Banking	intention	PU, PEU, Perceived risk, and perceived innovativeness	N/A	N/A	t-test pearson correlation	+ve	TAM	N/A
71	Al-Smadi (2012)	Jordan	banking	intention	Uncertainty avoidance, PEU, PU, perceived risk,	attitude	N/A	Multiple Regression	+v	TPB	Similar studies to be carried out in another country
72	Prakash & Malik	India	Banking	intention	Accesibility, reluctance to	N/A	N/A	Correlation matrix	+ve & -ve (awarene		N/A

	(2008)				change, costs, security concern, ease of use and convenience				ss)		
73	Pikkarainen et al (2004)	Finland	Banking	usage	Quality of internet connection, perceived usefulness, perceived enjoyment, information, security and privacy	N/A	N/A	Multiple Regression	+v (PU and information) & -v	TAM	Subjective norm, IDT and TPB to be used by future researchers
74	Shorabi (2013)	Malaysia	Banking	adoption	Cost, trust, privacy, security	N/A	N/A	Multiple Regression	+ve	N/A	Wider region with larger sample size
75	Odumeru (2012)	Nigeria	Banking	acceptance	Perceived enjoyment, income, perceived risk, age, education, perceived benefits and perceived ease of use	N/A	N/A	Multiple Regression	+ve	IDT	Larger sample
76	Nor, Barbuta-Misu & Sroe (2011)	Romania	Banking	Intention	PU, PEU, Perceived compatibility, self efficacy, Technical resources,	N/A	N/A	Multiple regression	+ve & -ve (PEU & self efficacy)	DTBP	N/A



77	William, Slade & Dwivedi (2014)	UK	Education (E-reader)	Intention	perceived security Subjective Norm, PU, perceived cost	N/A	N/A	PLS correlation matrix	+ve & -ve (PEU)	TAM Extension	N/A
78	Ozkan et al, (2010)	Turkey	E-payment	adoption	Perceived risk, security, perceived advantage, trust, web assurance usability	intention	N/A	Multiple regression	+ve		Use of TAM as a theory



# Appendix C

## Missing Values Output

### Result Variables

	Result Variable	N of Replaced Missing Values	Case Number of Non-Missing Values		N of Valid Cases	Creating Function
			First	Last		
1	ES2	1	1	266	266	SMEAN(ES2,2)
2	ES6	1	1	266	266	SMEAN(ES6,2)
3	PU2	1	1	266	266	SMEAN(PU2,2)
4	EU3	1	1	266	266	SMEAN(EU3,2)
5	PU8	1	1	266	266	SMEAN(PU8,2)
6	PS1	1	1	266	266	SMEAN(PS1,2)

## Appendix D

### Smart PLS Out Put-Measurement Model

	<b>AVE</b>	<b>Composite Reliability</b>	<b>R Square</b>	<b>Cronbachs Alpha</b>	<b>Communality</b>	<b>Redundancy</b>
<b>AW</b>	0.560871	0.884297		0.845227	0.560871	
<b>EA</b>	0.54361	0.904875	0.499665	0.879971	0.54361	0.083512
<b>ES</b>	0.531503	0.772482	0.423027	0.561229	0.531503	0.142597
<b>ET</b>	0.597059	0.854411	0.456402	0.772436	0.597059	0.049439
<b>EU</b>	0.551363	0.8308		0.729228	0.551363	
<b>FC</b>	0.556487	0.833543		0.733913	0.556487	
<b>HM</b>	0.656167	0.904983	0.343729	0.868575	0.656167	0.087448
<b>PS</b>	0.57273	0.869877		0.814092	0.57273	
<b>PU</b>	0.608513	0.860854		0.783898	0.608513	



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## Appendix E

### BLINDFOLDING PROCEDURE

CV R

Total	1-SSE/SSO
EA	0.2187
ES	0.2111
ET	0.2406
HM	0.2243

Indicator CrossValidated Redundancy

Total	SSO	SSE	1-SSE/SSO
AW1	266	103.8823	0.6095
AW2	266	99.6952	0.6252
AW3	266	144.2384	0.4578
AW4	266	125.0227	0.53
AW6	266	125.7479	0.5273
AW8	266	105.2286	0.6044
EA1	266	199.0675	0.2516
EA2	266	199.7012	0.2492
EA3	266	192.2656	0.2772
EA5	266	230.6656	0.1328
EA6	266	196.5317	0.2612
EA7	266	218.0023	0.1804
EA8	266	213.1395	0.1987
EA9	266	213.2097	0.1985
ES3	266	219.2498	0.1758
ES6	266	186.7108	0.2981
ES9	266	215.1376	0.1912
ET2	266	217.6591	0.1817
ET4	266	196.1045	0.2628
ET5	266	177.0744	0.3343
ET6	266	181.9875	0.3158
EU10	266	106.401	0.6
EU6	266	133.6543	0.4975
EU8	266	115.0038	0.5677
EU9	266	122.6344	0.539

FC10	266	138.2376	0.4803
FC4	266	104.9473	0.6055
FC8	266	124.796	0.5308
FC9	266	104.4244	0.6074
HM3	266	199.665	0.2494
HM4	266	188.5817	0.291
HM5	266	193.8983	0.2711
HM6	266	224.5035	0.156
HM7	266	225.0386	0.154
PS1	266	121.3206	0.5439
PS10	266	88.2061	0.6684
PS2	266	131.6747	0.505
PS7	266	122.2659	0.5404
PS9	266	104.7834	0.6061
PU10	266	137.3892	0.4835
PU6	266	111.7417	0.5799
PU7	266	86.7623	0.6738
PU8	266	80.6021	0.697



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