

**The impact of mobile banking on traditional  
banking transactions in Zimbabwe: the case  
of ZB Bank.**

Tafadzwa Antony Mbawa (R028725W)

A dissertation research submitted in partial  
fulfillment of the requirements for the degree of  
Master of Business Administration

**2013**

**Graduate School of Management  
University of Zimbabwe**

Supervisor: Dr G. T. Hapanyengwi

## Declaration

I, **Tafadzwa Antony Mbawa**, do hereby declare that this dissertation is the result of my own investigation and research, except to the extent indicated in the Acknowledgements, References and my comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other University.

---

Student's Signature

---

Date

---

Supervisor's Signature

---

Date

## **Dedication**

This research work is dedicated to my wife Juliat, my daughter Nicole and above all Lord God Almighty.

## **Acknowledgements**

I am very grateful to God for taking me this far, nothing is impossible with Him. I would also like to say thank you to my love, Juliat and my daughter Nicole, for supporting me throughout the period of this research, the Lord will surely bless you.

Special mention goes to the participants of this research for their time and contributions which made this study a success, thank you.

Finally, my appreciation goes to Dr. G. T. Hapanyengwi for his guidance with all his vital feedback and support, the Lord will continue to give you strength so you can continue to do well unto others as you have done unto me, thank you.

## **Abstract**

This research focused on analyzing the impact of mobile banking on traditional banking transactions, which assisted in ascertaining whether mobile banking was still just a delivery channel for banking services or the way to do banking. This was achieved through an empirical analysis of the case of the ZB Bank's mobile banking platform called e-Wallet. The motivation behind this study was the rapid changes that were happening in the mobile banking industry, but a gap remained in addressing the implications of this innovation on traditional banking transactions which this study sought to close whilst contributing to the existing literature on mobile banking. The research highlighted the trends in adoption and usage of e-Wallet and at the same time assisted in addressing some of the discrepancies that existed between the level of adoption and usage of e-Wallet. The researcher also indicated some of the challenges faced by e-Wallet and its users and recommended the policy changes needed to address these challenges. A case study approach was used as this allowed for an in-depth analysis of the issue. The ZB Bank staff and its customers formed the target population from which a sample of respondents was selected. Data was gathered through the use of questionnaires and structured interviews. The data was analyzed using qualitative and quantitative techniques with the help of the Statistical Package for Social Scientists (SPSS). The research findings showed that mobile banking had transformed the way banking was done. It had achieved this through the introduction of new products and services that brought convenience and saved costs for both the customer and the bank. Mobile banking still enjoyed high adoption and usage despite of the challenges it faced. The research also established that mobile banking was no longer just like other delivery channels for banking services but a way of doing banking business, thus the bank needed to strategize along the mobile banking innovation. The study advocated for a regulatory framework by the responsible authorities to properly govern the players in the industry. It also recommended that the bank should invest in risk and compliance functions to mitigate the risk of theft and fraud. This study was carried out in a liquidity constrained environment which could have affected some of the results therefore the researcher recommends that this study be repeated in a stable economic environment.

## List of Abbreviations

“e-Wallet”	Electronic Wallet – mobile banking product used by ZB Bank.
“the bank”	ZB Bank
RBZ	Reserve Bank of Zimbabwe
POTRAZ	Postal & Telecommunications Regulatory Authority of Zimbabwe
SMS	Short Messaging Service
ICT	Information Communication Technology
USSD	Un-structured Supplementary Service Data
SIM	Subscriber Identity Module
ATM	Automated Teller Machine
POS	Point of Sale
PDA	Personal Digital Assistant
WAP	Wireless Access Protocol
AML	Anti-Money Laundering
CFT	Combating Financial Terrorism

## Table of Contents

Declaration .....	ii
Dedication .....	iii
Acknowledgements .....	iv
Abstract .....	v
List of Abbreviations .....	vi
List of Figures.....	x
List of Tables .....	xi
CHAPTER ONE – INTRODUCTION.....	1
1.1 Introduction to study .....	1
1.2 Background to the study .....	2
1.3 Research Problem .....	4
1.4 Research Objectives.....	5
1.5 Research Questions .....	6
1.6 Research Hypotheses .....	6
1.7 Justification of Research.....	7
1.8 Scope of Research .....	8
1.9 Limitations to study .....	8
1.10 Dissertation structure.....	9
1.11 Chapter Summary .....	10
CHAPTER TWO – LITERATUREREVIEW – ICT IN BANKING.....	11
2.1 Introduction .....	11
2.2 Definition of terms.....	12
2.3 Mobile Banking Business Models .....	16
2.4 Access to financial services in Zimbabwe.....	22
2.5 Mobile banking products and service innovations.....	24
2.6 Mobile banking trends for ZB Bank and developing economies .....	25
2.7 Adoption trends of mobile banking by customers .....	28
2.8 Importance and Challenges of mobile banking .....	29
2.9 Case Studies .....	31
2.10 The Conceptual Framework .....	34
2.11 Chapter Summary .....	37

CHAPTER THREE – RESEARCH METHODOLOGY.....	38
3.1. Introduction.....	38
3.2. Recap of the Problem Statement.....	38
3.3. Recap of the study objectives.....	38
3.4. Methodological Framework.....	39
3.4.1. Recap of Major Research Question.....	39
3.4.2. Recap of the hypotheses.....	39
3.4.3. Recap the variables being focused on.....	39
3.4.4. Research Assumptions.....	40
3.4.5. Limitations.....	40
3.5. Research Design.....	40
3.5.1. Research Approach.....	41
3.5.2. Research Strategy.....	41
3.5.3. Unit of Analysis.....	42
3.5.4. Research Instrument.....	42
3.5.5. Pilot Study.....	44
3.5.6. Population and Sampling.....	45
3.5.7. Administering the Research Instrument.....	45
3.6. Data Analysis.....	46
3.7. Validity and Reliability.....	46
3.8. Ethics and Values.....	46
3.9. Chapter Summary.....	47
CHAPTER FOUR – RESULTS AND DISCUSSION.....	48
4.1. Introduction.....	48
4.2. Response Rate.....	48
4.3. Reliability tests.....	49
4.4. Data Analysis.....	50
4.4.1. Background.....	50
4.4.2. Impact of mobile banking on traditional banking transactions.....	53
4.5. Hypotheses Tests.....	68
4.6. Chapter Summary.....	69
CHAPTER FIVE – CONCLUSIONS AND RECOMMENDATIONS.....	69
5.1. Introduction.....	70

5.2. Research Summary .....	70
5.3. Conclusions .....	71
5.3.1. Mobile banking products and services .....	71
5.3.2. Adoption of mobile banking by customers.....	71
5.3.3. Challenges of mobile banking .....	72
5.4. Research Hypotheses .....	73
5.5. Recommendations.....	74
5.6. Areas for further study .....	74
REFERENCES .....	75
APPENDIX A – HYPOTHESIS TESTING RESULTS .....	82
APPENDIX B – SAMPLE QUESTIONNAIRE .....	83

## List of Figures

Figure 1.1: Subscribers for ZB Bank e-Wallet product from 2009 to 2012 .....	4
Figure 2.1: Mobile Banking: How does it work? Cash in .....	16
Figure 2.2: Mobile Banking: How does it work? Cash out.....	16
Figure 2.3: Different arrangements of mobile banking .....	18
Figure 2.4: Non-bank model variations .....	21
Figure 2.5: ZB Bank`s branch distribution network .....	23
Figure 2.7: ZB Bank`s e-Wallet progress .....	28
Figure 2.8: The research conceptual framework.....	34
Figure 4.1: Frequency of respondent`s job category.....	50
Figure 4.2: Frequency of e-Wallet services usage .....	54
Figure 4.3: ZB Bank/e-Wallet yearly revenue contribution .....	58
Figure 4.4: E-Wallet registrations and transactions per year .....	63
Figure 4.5: E-Wallet registrations/Average transactions per subscriber.....	68

## List of Tables

Table 2.1: Architecture of Zimbabwe's Banking Sector.....	22
Table 4.1: Reliability tests results.....	49
Table 4.2: Frequency of time spent with the bank for employees .....	51
Table 4.3: Frequency of time spent with the bank for customers.....	52
Table 4.4: Frequency of age groups of respondents.....	52
Table 4.5: Mobile banking (e-Wallet) products and services responses .....	55
Table 4.6: Comparison of e-Wallet and traditional banking transaction costs.....	59
Table 4.7: Adoption of e-Wallet by customers' responses .....	60
Table 4.8: Challenges faced by mobile banking (e-Wallet) responses.....	64
Table 4.9: Results summary of hypotheses .....	68

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction to study

Mobile banking is one of the latest in a myriad of emerging technological innovations in the banking industry across the globe. Almost half of the world population now uses mobile devices for communication. During the period of 2008 to 2012 a billion subscribers were added leaving the world mobile subscriber base at 3.2 billion users. Mobile phones offer a communications channel for executing on-line real time financial transactions. This channel reduces the cost of financial transactions both for the provider and consumer. It also allows easy entry to the financial services sector by new competitors, and new relationships for distributing financial services to be formed. These developments encourage the access to financial services via the mobile network infrastructure.

Zimbabwe has been no exception to the impact of this wave of mobile banking innovation as the period 2006 to 2013 has seen most banking institutions offering mobile banking as a delivery channel for banking services. Most of these products have been mainly targeting the “unbanked” particularly those in remote parts of the country. Amongst these banks is ZB Bank, a subsidiary of ZB Financial Holdings Pvt Ltd, which introduced its mobile banking (SMS Banking) platform in 2006. This research paper focused on studying the impact of this platform on traditional banking transactions.

There is no universal form of mobile banking but there exist purposes and structures that vary from country to country. The variations offer different functions that include payments to service providers, utility bill payments, transfers between individuals, and remittances. Currently different institutional and business models deliver these systems. Porteous (2006) say that some are offered entirely by banks, others entirely by mobile network operators, and whilst others involve a partnership between a bank and a mobile network operator. The ZB Bank e-Wallet product is a

partnership between the bank and a mobile network operator named Econet Wireless Pvt Ltd.

## **1.2 Background to the study**

Mobile banking is one innovation which has progressively rendered itself in pervasive ways cutting across numerous sectors of the economy and industry. An appropriate banking environment is considered a key pillar as well as an enabler of economic growth (Jorgensen, 2004). The term mobile banking is used to denote the access to banking services and facilities offered by financial institutions such as account-based savings, payments and other products and services by use of an electronic mobile phone device.

Porteous (2006) distinguishes between two aspects of mobile banking which are additive and transformational characteristics. The additive aspects are those whereby the mobile phone is used as a delivery channel to an existing bank account. The additive characteristic is when mobile banking adds to the range of delivery channels or enhances the convenience of existing customers of an institution. Transformational characteristics are those when the products and services of mobile banking are targeted at the “unbanked” even with the institution which can become a growth strategy for the financial institution.

ZB Financial Holdings Limited was incorporated in Zimbabwe in May 1989, as a holding company for a group of companies, which had been providing various financial services since 1951. On October 30 2006, the group adopted a new monolithic brand which led to the change of its name from Finhold Group Pvt Ltd to ZB Financial Holdings Limited. This change also coincided with the introduction the mobile banking platform to the public in the form of SMS banking by one of its subsidiaries, ZB Bank. This product offered services such as SMS alerts, Account balance enquiries, Account transfers and Airtime top-ups. The product has since evolved into a new product called e-Wallet which includes additional services like bill payments for a number of merchants and cash transfers. The decision to offer this product was made in line with the need to keep up with technological advancements

in offering the best service to customers and after realizing the untapped market space - the *“unbanked” public – “the blue ocean strategy”* of growing a business.

According to CGAP(2006) mobile banking offers a potential solution for the millions of people in emerging markets that are able to access a cell phone but, are excluded from the financial mainstream. It can make basic financial services more accessible by minimizing time and distance to the nearest retail bank branches as well as reducing the bank’s own overheads and transaction-related costs. This is in-line with one of the goals or aims of the central bank of Zimbabwe, which is to ensure financial inclusion in the financial services sector of the country.

The scope of mobile banking services offered by ZB Bank`s e-Wallet product include the following:

- ✓ Balance enquiry.
- ✓ Mini-statement enquiry.
- ✓ Send Money.
- ✓ Payment of utility bills.
- ✓ SMS Alerts.
- ✓ Airtime top-up.

The usage of the mobile banking product has been increasing recently for ZB Bank`s e-Wallet product as illustrated by Figure 1.1



**Figure 1.1: Subscribers for ZB Bank e-Wallet product from 2009 to 2012**

Since 2009 the subscribers for ZB Bank's e-Wallet platform have been on an upward trend. The subscribers grew from 2 059 in 2009 to 120 845 by 2012. Karjaluoto(2002)claim that "the mobile platform offers a convenient additional method for managing money without handling cash. This has brought a different dimension to banking." The traditional ways of banking have somehow been affected by the emergence of mobile banking, but the question is – how have they been affected and what is the magnitude of the impact of this new technological innovation? What is the future of banks regarding this new innovation in banking technology?

### 1.3 Research Problem

Many banking institutions have struggled to make traditional business models more profitable given the high costs and lower profit margins. Thus traditional models do not suit either the service provider or consumer therefore creating the potential for a viable business model and therefore presenting an opportunity for banks to expand market penetration by reaching previously "unbanked" customers (Lee, Lee, & Kim,

2007). ZB Bank and other players in the industry were no exception to this phenomenon.

ZB Bank adopted mobile banking in 2006 to offer its clients the freedom to pay bills, to send and receive cash, to receive updates on the various account activity and marketing efforts while present at a party in order to provide more personal and intimate relationships to its valued customers. Despite the adoption of mobile phone banking technology by the bank, a gap remained in addressing the overall implications of the mobile banking platform, in relation to traditional banking transactions. It is essential for the bank to understand the direction being taken by this technological innovation as it impacts on its growth strategies. This research sought to address this gap by examining the various products and services of mobile banking, the trends in adoption by customers and the challenges faced by mobile banking.

#### **1.4 Research Objectives**

The objectives of this study from which the research questions were derived from include the following:-

- i. To determine the impact of products and services offered by mobile banking (e-Wallet) on traditional banking transactions.
- ii. To determine the impact of the adoption trends of mobile banking (e-Wallet) by customers on the traditional banking transactions.
- iii. To establish the challenges faced by mobile banking (e-Wallet) and their impact on traditional banking transactions.
- iv. To assess the overall impact on traditional banking transactions by mobile banking and determine whether mobile banking is still a delivery channel for banking services.

## 1.5 Research Questions

The major research question was is mobile banking still just another delivery channel for banking services or the way to do banking business? To answer the main research question, the following focused questions were answered during the course of the study:

- i. What is the impact of mobile banking products and services on traditional banking transactions?
- ii. How does the adoption trend by customers of the mobile banking technology affect traditional banking transactions?
- iii. How are the challenges encountered by mobile banking (e-Wallet) affecting traditional banking transactions?
- iv. Is e-Wallet still a delivery channel for banking services offered by ZB Bank?
- v. How different is mobile banking from the traditional ways of banking?

## 1.6 Research Hypotheses

The following hypotheses were established for this research:

- H1:** An increase in products and services of mobile banking results in a decrease in traditional banking transactions.
- H2:** A high adoption of mobile banking technology leads to a decrease in traditional banking transactions.
- H3:** A decrease in challenges of mobile banking will result in a decrease in traditional banking transactions.

## 1.7 Justification of Research

The motivation to explore the mobile banking platform of ZB Bank (e-Wallet) came from the fact that it is a new model of banking that the industry at large has embarked on, given the continuing high pace changes in the areas of technological and marketing innovation, hence contributing significantly to national economic growth. The impact of this innovation on current banking business models has not been given enough attention. The lobbying by bankers on the Reserve Bank to order Econet wireless to stop offering what they consider a banking product, has left a lot of concern as to where is the mobile phone taking banking to? To this end, it is essential for bankers to understand the direction being taken by this innovation as it impacts on their growth strategies, to which this study immensely contributes.

Mobile banking reduces the costs that are associated with branch overheads, which has been enabled by the convergence of telecommunications and financial services. Mobile banking services offer convenience and efficiency to customers. The threat to traditional banking practices by mobile banking needs the consideration of management as ZB Bank has heavily invested in the traditional practices.

The study highlighted the trends in adoption of mobile phone banking by customers, by doing so it addressed the concerns that may be leading to the discrepancies between level of technology adoption and usage. This would help banks readdress the technology adoption strategies to be in line with customer taste and preferences. By examining the challenges facing mobile banking, the study recommends possible policy changes be undertaken by the Reserve Bank of Zimbabwe together with players in the mobile banking industry in order to address the challenges.

The research added more aspects of mobile banking in the body of knowledge of mobile banking and the industry at large especially in Zimbabwe where the subject is still considered to be new by bringing the subject closer home through exploring the ZB Bank`s experience where certain effects which might not be present or might have a different impact in other environments can be studied. In the Zimbabwean environment mobile devices are well suited for making payments because their penetration level is higher than that of computers. Immense opportunities for growth

exist in the mobile banking industry, particularly in view of the rapid rise in penetration rates(Gono, 2013). According to POTRAZ (2012) “The second quarter of 2012 registered 10.9 million mobile subscribers up from 9.8 million recorded in the first quarter of 2012. This reflects an 11.2% increase in the mobile subscriber base” (p.2).In Zimbabwe mobile penetration rate moved up from around 9 to 10% in 2008 to around 86.6% currently obtaining, hence there are a few people left to be connected to the information society represented by the remaining 13.4%(POTRAZ, 2012).

## **1.8 Scope of Research**

This research focused on assessing the impact of mobile banking (e-Wallet) on traditional banking transactions. It aimed to identify the current position of ZB Bank`s mobile banking service relative to local, regional and international platforms through a comparative analysis. The research also aimed at establishing whether the bank should continue extending the offerings of mobile banking as a delivery channel or adopt it as a banking business model.

The field from which the research sourced data include company reports, journal publications, books, interviews and other archival records. Publicised related researches carried out by other scholars, mostly from the sub-Saharan Africa and Asia, on the impact of mobile banking or mobile financial services were explored.

## **1.9 Limitations to study**

The following were the limitations to the study and the researcher sought not to compromise the quality of the study therefore employed measures to minimise the limitations:

- a) The research focused on the mobile banking product for ZB Bank due to time and funding constraints on this study. The researcher looked at other similar products from the local, regional and international market comparatively.
- b) The mobile banking industry is characterised by fast changing technology and higher adoption and use as such the time to complete this study needed to be shortened as some information would be quickly irrelevant.

- c) Some respondents did not necessarily value the research and the common suspicion among such was the information would be used for non-academic purposes. The researcher adhered to high ethical standards and assured the respondents of the intended use of their valuable information.

## **1.10 Dissertation structure**

This research followed the following structure:

### **Chapter One**

The first chapter introduces the topic of study, the background to the study and defines the management problem to be studied.

### **Chapter Two**

The second chapter critically analyses researches done by other researchers and literature on this topic highlighting the gaps that exist and explaining the need for this study. This chapter also considers models done by other researchers and authors with regards to the management problem at hand.

### **Chapter Three**

The third chapter designs the way of carrying out the research which includes the research instruments employed and the subjects affected by the research. This chapter systematically describes the steps followed during the research exercise.

### **Chapter Four**

The fourth chapter analyses the results collected using the instruments explained in the previous chapter. This adopts the use of different statistical techniques for data analysis.

### **Chapter Five**

The final chapter summarises and draws conclusions and recommendations on the research based on the findings from the previous chapter. It concludes on how the problem at hand can best be solved.

## **1.11 Chapter Summary**

This chapter mainly highlights the background of the area of study, the problem to be researched, the limitations involved as well as the significance of this study. The next chapter gives perspective to the issues highlighted in this chapter by linking the research area and problem to the available literature. A link of such nature helps in focusing the research problem to specific areas that need research. A critical analysis of the models and concepts done by other authors and researchers were done to elaborate further the need to carry out this research.

# CHAPTER TWO

## LITERATURE REVIEW – ICT IN BANKING

### 2.1 Introduction

Through the review of literature, the researcher seeks to provide a solid base for the research where concepts and models are derived. Jankowicz (2000):

Knowledge does not exist in a vacuum, and your work only has value in relation to other peoples`. Your work and your findings will be significant only to the extent that they're the same as, or different from, other people's work and findings (p. 159).

It is essential for any research to have theoretical underpinnings from which it is derived; hence this chapter sought to establish how mobile banking has affected traditional banking transactions by reviewing literature that falls under the following main areas:

- 1) Definition of terms – Traditional Banking transactions, Electronic Banking, Internet Banking, Smart Card Banking, Mobile Banking and Impact of mobile banking.
- 2) Access to financial services in Zimbabwe.
- 3) Mobile Banking Trends.
- 4) Adoption of mobile banking.
- 5) Impact of mobile banking.
- 6) Mobile banking business models.
- 7) Challenges and Importance of mobile banking.
- 8) Case Studies – Impact of mobile banking.
- 9) Conceptual Framework.

## 2.2 Definition of terms

### a) Traditional Banking transactions

Traditional banking transactions include but are not limited to; Account information enquiry, Bill or Invoice Payments and funds transfers, Savings and Investments and Customer updates and awareness. These are carried out by clients upon a visit to a brick and mortar banking hall, any other institution mandated to offer such services by the bank, or a technological gadget such as an Automated Teller Machine (ATM) or Point of Sale terminal (POS). For transactions that involve visiting a banking hall they can only be executed within the operating timelines of the bank or an institution mandated to do so. This means clients are limited to the bank opening times for them to do such transactions. The introduction of mobile banking definitely affected the execution of all these types of transactions; hence determining whether mobile banking is still a delivery channel for banking services or a way of doing banking business, but the question is by what magnitude and to what extent. This is the gap which this research sought to fill in and contribute to the body of knowledge of mobile banking technology.

### b) Electronic Banking

Prior to understanding mobile banking it is essential to understand the associated term that has a bearing on the definition of mobile banking. The term is “electronic banking”, which is defined by Prakash and Malik (as cited in Aliyu, Younus, & Tasmin, 2012) as:

The use of technology to communicate instructions and receive information from a financial institution where an account is held. This service includes the system that enables financial institutions, customers, individuals or businesses to access accounts, transact business, or obtain information on financial products and services through a public or private network. (p. 1)

Electronic banking is the provision of banking services to customers through Internet technology (Ovia, 2005).The FFIEC (as cited in (AZOUZI, 2009)published a booklet in which it advanced a very specific definition of e-banking: it is *“the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels”* (p 3.).Customers access their accounts and carry out multiple transactions through networks and intelligent interactive devices such as Personal Computers (PC), Personal Digital Assistants (PDA), Automated Teller Machines (ATM), mobile phones, Wireless Application Protocol (WAP), and not forgetting the famous device called the internet which could lead e-banking to achieve its peak (AZOUZI, 2009, p. 3).

Electronic banking can be classified into threebasic categories which include:

- a) Internet banking,
- b) Smart card banking and
- c) Mobile or telephone banking.

Bill Gates (as cited in AZOUZI, 2009, p. 3)said that *“banking is essential, banks are not”* which meant that the traditional bank branch will vanish in order to be surrogated by electronic banking which continues to attract new users(AZOUZI, 2009).This discussion is mainly going to focus on the mobile banking innovation of electronic banking.

### **c) Internet Banking**

This is a form of electronic banking service where the bank offers customers with an interface for interacting with their financial products through the internet from the comfort of their homes or offices. What this means is customers can do inter-account and inter-bank transfers, pay for their goods and services, view and print their account statements, do balance enquiries over the internet.

#### d) Smartcard banking

This is banking through the use of electronic cards (Value Card, ATM Card, Debit Card and Credit Card to mention just a few). The smart card system makes it easy for the customer to have access to their cash, pay their bills, make transfers and make enquiries about their accounts without visiting the banking hall.

Basically ZB Bank, through the use of Information and Communication Technology, now employ other ways such as Automated Telling Machines (ATMs), Internet banking and Mobile banking to deliver its services even to the most remote parts of the country. Electronic banking has been the main technology driven revolution in conducting financial transactions for ZB Bank and the Zimbabwean banking industry in general.

#### e) Mobile Banking

The convergence of telecommunications and financial services has created opportunities for the emergence of mobile banking solutions, which can remove the barrier of an expensive and time-consuming visit to the nearest brick and mortar bank and in so doing encourages interaction with the formal economy (CGAP, 2006). The terms **mobile banking**, **mobile payments**, **mobile transfers**, and **mobile finance** refer collectively to a set of applications that enable people to use their mobile telephones to exercise some control over their bank accounts, store value, transfer funds, or even have access to credit or insurance products (Donner, 2008).

According to (Porteous, 2006):

Mobile payments are financial transactions that are done using mobile devices such as a mobile phone. Mobile banking includes mobile payments but involves access by a mobile device to a broader range of banking services offered by banks. Mobile payments and mobile

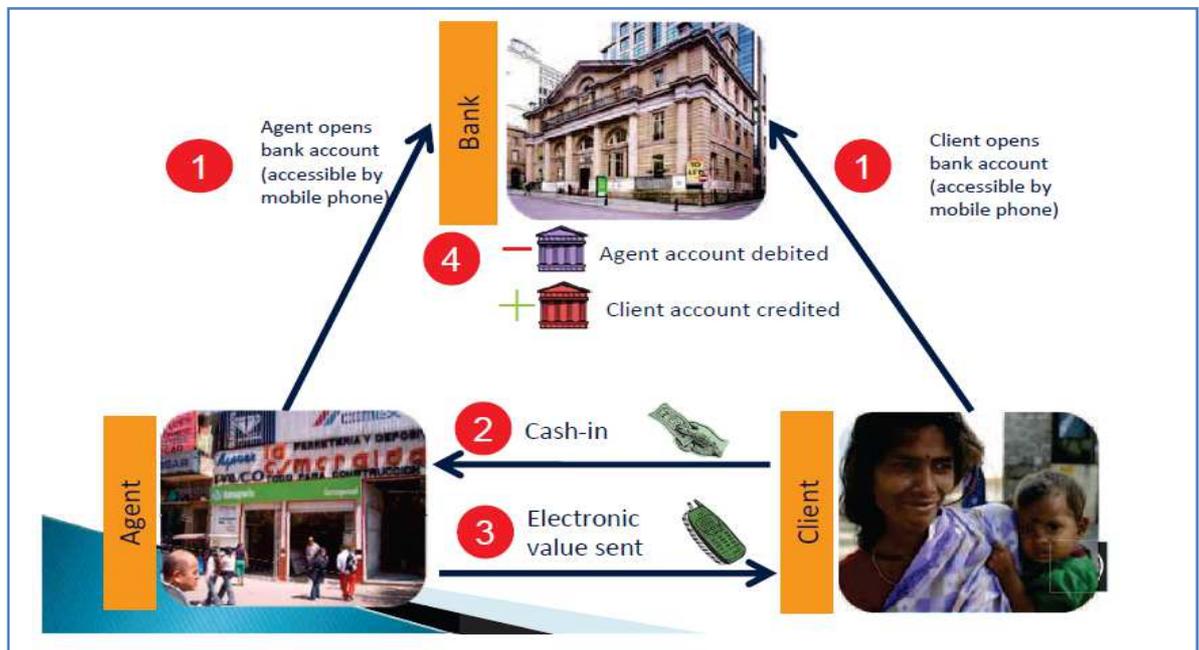
banking are themselves subsets of the broader domains of electronic payments and electronic banking respectively. (p. 3)

Tiwari and Buse(as cited in Tiwari, Buse, & Herstat, 2007) “Mobile Banking refers to provisioning andavailing of banking and financial services with the help of mobile telecommunicationdevices” (p. 3). Mobile banking is electronic banking via the mobile device in which customers access a range of financial products and services electronically. It requires the customer to hold a deposit account to which payments and transfers are made from.According to Otubu(2009) some of the features where mobile banking has given its hand are fund transfer and bill payment where the customers have the freedom of maintaining an account through a mobile device.

Nevertheless a gap remains in addressing the overall impact or influence of mobile phone banking on traditional banking transactions. This is shown by studies on mobile phone banking that have little or no examination of how the technology is affecting traditional banking transactions.Mobile banking has great potential in the way it could affecttraditionalbanking transactions, by increasing income streams for the banks and increasing customer satisfaction that comes with the convenience brought by the technology. However, the extent to which these are realistically possible remains questionable owing to the studies that reveal un-addressed concerns between investments in mobilebanking systems among banking institutions and adoption of mobile banking by potential customers. This research intended to fill in this gap by examining the effect of mobile banking on traditional bankingtransactions while ascertaining whether mobile banking was still a delivery channel for banking services with reference to ZB Bank.

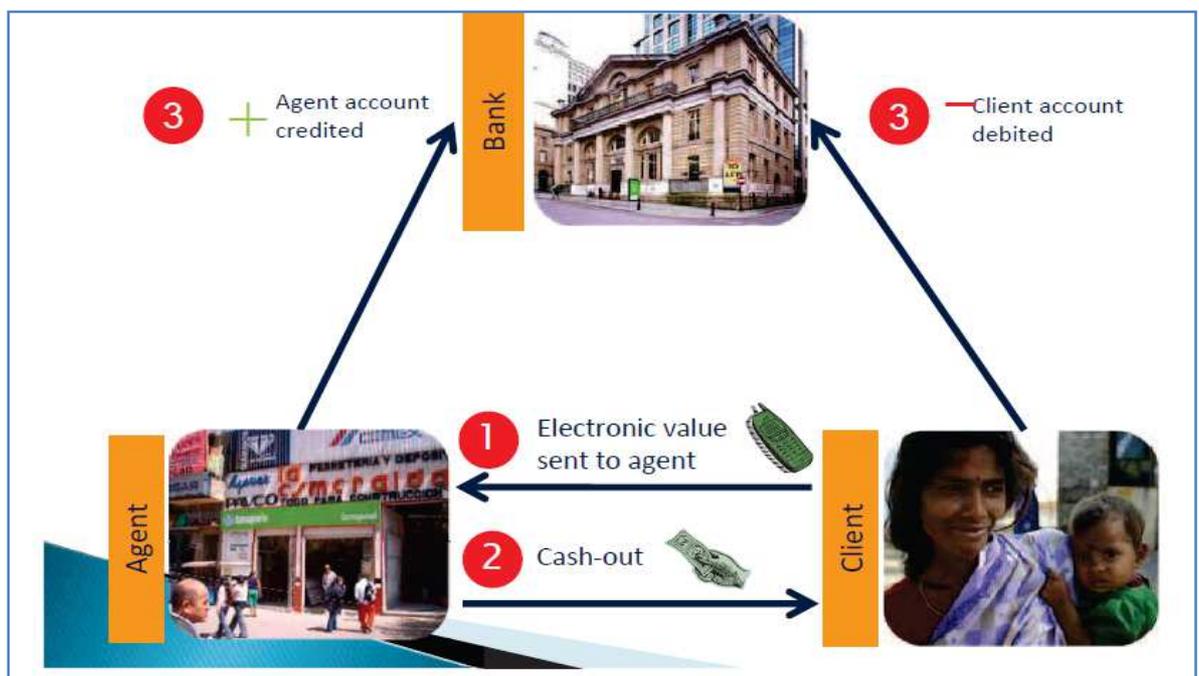
## 2.3 Mobile Banking Business Models

### a) Processes of mobile banking – how is mobile banking done?



**Figure 2.1: Mobile Banking: How does it work? Cash in**

(Source: M. Tarazi, CGAP 2006)



**Figure 2.2: Mobile Banking: How does it work? Cash out**

(Source: M. Tarazi, CGAP, 2006)

## **b) The Mobile Banking Business Models**

Porteous (2006) wrote that banking models have different characteristics and can be classified as bank driven, joint-ventures, non-bank led or non-bank driven. Whilst all the models vary in form, one of the driving forces behind all of them appears to be technology providers, each providing a particular technology, which is shaping the offerings and their ability to reach a particular market.

### **i. Bank-based**

According to CGAP this model is when customers have a direct contractual relationship with a bank or similar prudentially regulated and supervised institution and it is this institution that is regulated to provide the service. The institution enters into an arrangement with a mobile network operator to offer their clients access to financial services through text messaging or the more elaborate smartphone applications. This arrangement can accommodate an agent who may offer customer service, handle cash and manage liquidity. It mostly targets existing bank customers. In other countries such as Pakistan where there are regulatory constraints in the provision of financial services banking institutions target the “unbanked” as well for mobile banking. This model of mobile banking is the one adopted by ZB Bank for its e-Wallet product and other bankers in the industry.

#### **“Dutch Bangla Bank Limited (DBBL)” in Bangladesh**

Hernandez, Bernstein, and Zirkle (2011) say that “DBBL was the first bank to introduce mobile banking services through mobile operators Banglalink and Citycell. Primarily using these mobile operator’s retail outlets and agents, low-income individuals in remote areas could receive mobile banking services such as mobile payments and remittance services. Subscribers must own a mobile phone to receive the service. Subscribers withdraw and deposit cash from the mobile by going through the agent network” (p. 10).

## “Islami Bank Bangladesh Limited (IBBL)” in Bangladesh

Hernandez, Bernstein and Zirkle, (2011) also went on to say that “IBBL entered into an agreement with Software Shop Limited (SSL) Wireless to provide mobile banking services to existing IBBL customers. As a result, customers of IBBL can check their balance and make inquiries using their mobile phone. These customers can also receive SMS alerts and mini statements by just sending SMS to 6969 number from any mobile operator. The main aim is to upgrade the service to allow customers of IBBL to receive money from anywhere in Bangladesh and abroad” (p. 10).

As more developments and more players continue to come on-board for mobile banking there are variations of the bank-based model such as:

Different arrangements of the bank-based model	
Arrangement	Description
One-to-one	Exclusive arrangement between a bank and a mobile operator.
One-to-many	The bank provides m-banking services through multiple operators or a mobile operator provides m-banking through multiple operators.
Many-to-many	The banks and mobile operators all provide m-banking services, and exclusivity is not permitted.

**Figure 2.3: Different arrangements of mobile banking**(Source:Hernandez, Bernstein, & Zirkle, 2011)

### ii. Non-bank based

CGAP define this as whereby the customers have a direct contractual relationship with the non-bank service provider for example mobile communications service provider or issuer of stored value payment instruments. The non-bank is the one that is licensed to provide the service. Customers carry out their transactions with a retailer or registered outlet on their virtual accounts stored on some server by the service provider. The main target for this model are the “unbanked” and it usually facilitates for movement of cash between registered and unregistered users and payment of bills. Here customers have to visit an agent to

deposit cash or convert stored value back into cash. This model in Zimbabwe is common with mobile communications service providers such as Econet Wireless's Eco-cash and Net-one's One-wallet, Telecel's TeleCash products.

### **“ECOCASH” in Zimbabwe**

Mobile network operator Econet provides the Ecocash mobile banking service. It has several agents dotted across the country in the form of shops, post offices, banks, and outlets that mainly do Ecocash business. Effectively these perform the same functions as traditional banking halls, but are cheaper for Econet to establish and manage as these functions are left to a third party. The third party is paid on commission basis. Only Econet customers can register through any of these agents or visit Econet outlets to do so. Customers can send and receive money to registered and unregistered users on any network. This operation is similar to the Netone's and Telecel's. The Ecocash product has now been linked with banks such that the bank's clients can access their bank accounts from the Ecocash platform. The product belongs to Econet which has also acquired a banking institution called Steward bank making its product's position in the industry stronger. In Zimbabwe this model falls under the National Payment Systems Act, but there is no direct control of the monetary authorities.

### **“GCASH” in the Philippines**

According to Hernandez, Bernstein and Zirkle (2011) “mobile provider Globe Telecom in the Philippines offers the GCASH mobile banking service. It allows a mobile phone to be used as a mobile wallet to send money to — and receive money from — other GCASH users. Retail agents conducting cash-in and cash-out functions are required to register with the Central Bank of the Philippines and to send personnel for training on anti-money laundering practices. While the bank handles the mobile banking and supervises the telecommunication companies, these

companies are solely responsible for their agents” (p. 7). Here there is an involvement of the central bank in the operations of the mobile network operator which runs this service unlike the Zimbabwean situation where the central bank is not directly involved.

### **“M-PESA” in Kenya**

Hernandez, Bernstein, & Zirkle, (2011, p. 8) explained M-Pesa as below:

Perhaps the most successful non-bank mobile banking service is M-PESA, launched in Kenya by Safaricom and Vodafone. The M-PESA stored value accounts are carefully structured so as not to constitute a “banking activity” under the Kenyan Banking Act. To address liability concerns, Safaricom in consultation with the Central Bank of Kenya (CBK) invests an amount equal to M-PESA’s net deposits in commercial banks in order to ensure the safety of customer deposits.

M-PESA targets unbanked pre-paid mobile phone subscribers. A customer can deposit, transfer and withdraw cash at any of Safaricom’s many distribution agents. Only Safaricom customers can register for M-PESA, but recipients of transfers do not need to have an M-PESA account or be a Safaricom subscriber. (para. 20)

Non-bank model variations				
	MNO as bearer	MNO as application	MNO/Bank joint venture	MNO as bank
Churn reduction	No reduction in churn as any MNO can offer the service	Reduction in churn	Definite reduction in churn	Definite reduction in churn
Regulatory and licence constraints	No impact	Low impact PCI compliance	Banks typically facilitate regulatory compliance	High regulatory and licence requirements
Brand	Not used	Not used	MNO brand	MNO brand
Banking system	None required	Financial switching only	Some required	High infrastructure requirement
Distribution chain for cash handling	Not used	Not used	MNO and bank	MNO only
Transactional risk	None	Some	Half of the risk	All of the risk
Cost revenue	Marginal Low	Some cost Good	High cost High	Very high costs High

**Figure 2.4: Non-bank model variations**(Source:Hernandez, Bernstein, & Zirkle, 2011)

### iii. Joint – ventures between mobile network operators and banks

Both mobile network operators and banks have approached the market in the form of a joint venture. Some legislation in other countries has restricted independent players in the industry but promoted joint ventures.

In a joint venture setup deposits are done into the account that is held by the bank. Customers can access their funds from the bank and its agents. The mobile network operator provides the infrastructure to carry the payment instructions for the customer(Porteous, 2006).

#### “MTN Mobile Money”

Porteous(2006) gave a background on MTN Mobile money saying that “it was launched in South Africa in 2005 as a joint venture between the country’s second largest network operator MTN and large commercial bank, Standard Bank. Mobile Money starter packs are available via MTN agents and bank branches; and account opening takes place remotely through an interactive process during which voice recordings are taken as

biometric identifiers and the Mobile Money menu is downloaded over the air to a 32 K SIM card.”

## 2.4 Access to financial services in Zimbabwe

Banks in Zimbabwe are more present in urban and peri-urban areas yet 70% of the population resides in the remote areas of the country. RBZ(2013) reported that 70% of the country’s 12 million people do not have bank accounts. An estimated US\$2.5 to 3 billion is circulating outside the formal banking system due to low confidence in the financial institutions triggered by the decade of domestic financial crisis which resulted in the collapse of more than 10 financial institutions and lack of access to financial services in the rural communities of Zimbabwe. This has created a unique potential in the expansion of access to financial services for a large segment of the “unbanked” as well as streamlining operations and reducing operational overheads.

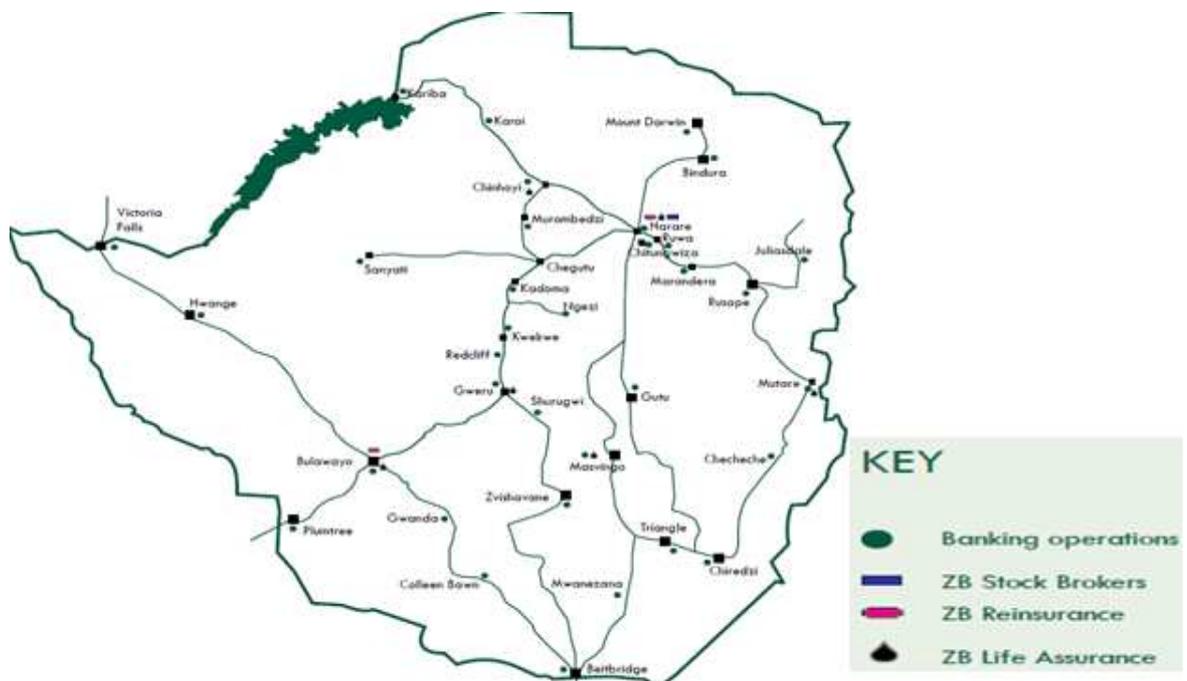
**Table 2.1: Architecture of Zimbabwe's Banking Sector.** (Source (Gono, 2013))

Type of Institution	Number
Commercial Banks	16
Building Societies	3
Merchant Banks	2
Savings Banks	1
<b>Total</b>	<b>22</b>

In spite of the growth in the number of financial institutions, the bank penetration rate as measured by the collective number of accounts held by banks was not more than 20% of the entire adult population by 2011. Geographical representation of branches was concentrated in major cities and towns(Chikoko & Mangwendeza, 2012, p. 2). Accordingly, 70% of the country’s population which is in the rural areas is served by only 11.7% of the banks’ total branch network (RBZ, 2011). Considering that POTRAZ (2012)claims that 10.9 million out of 12 million Zimbabweans own mobile phones it will only be viable and meaningful for banking institutions to go after the 70% “unbanked” segment of the population and stop competing for the same

customer base. This is supported by Chan, Kim and Mauborgne (2005) who challenge companies to break out of the red ocean of bloody competition by creating uncontested market space that makes the competition irrelevant, instead of trying to divide up existing and often shrinking demand and benchmarking competitors. Banks continue to shun rural communities and the informal sector with traditional banking services, but with mobile banking banks are able to offer financial services to the rural communities and the informal sector. Mobile banking allows for anywhere any time access to banking services at a lower cost than traditional banking services.

### The ZB Bank branch network



**Figure 2.5: ZB Bank's branch distribution network** Source: (ZB Financial Holdings Annual Report, 2012)

ZB Bank has a total of 48 branches across the country, but most of them are located in urban areas. There is basically little or no presence in the rural areas of the country by the bank thus it's difficult for rural dwellers to access ZB Bank's financial products and services.

## 2.5 Mobile banking products and service innovations

The new phenomenon of mobile banking that has brought changes to traditional banking can be regarded as innovative using the definition of innovation as found in the Oslo Manual. Innovation is defined as the implementation of a new or significantly improved product, good or service, process, a new marketing method, a new organizational method in business practices, workplace organization or external relations (OECD/Eurostat, 2005).

Njenga(2009) defined mobile banking as a platform that offers services such as;

### a) **Account information**

This entails mini-statement inquiry, sms alerts on account activity, monitoring deposits, loan repayments, insurance policy management, pension plan management and cheque status management,

### b) **Payment and transfers**

These include funds transfers, micro-payment handling, airtime topups, bill payment processing, peer to peer payment, and business to business payments,

### c) **Savings and Investment**

These include; portfolio management services, personalized alerts and notification on security prices,

### d) **Customer Relationship Management**

This entails status of requests for credit including mortgage approval, insurance, coverage, and cheque book and card requests. It also includes exchange of data messages including complaint submission, and communication on new ATM location.

In a research on financial inclusion by Zimbabwean commercial banks done by Chikoko and Mangwendeza(2012) mobile banking was identified as one of the innovations employed by banks to enable them to offer financial services even to the most remote parts of the country. A study undertaken by Kimenyi(2009) indicated that technological innovations have now made it possible to extend financial services to millions of poor people at a relatively low cost. For instance mobile telephone money transfer services that allow mobile phone users to make financial transactions or transfers funds across the country conveniently and at a low cost. M-PESA – a mobile payment service found in Kenya and provided by the main mobile network operator, Safaricom in conjunction with Vodafone, is a good example of how low-cost approaches that use modern technology can effectively expand the financial services frontier. Today, M-PESA is used by millions of Kenyans to make payments, send remittances and store funds for short periods. Many are able to use this service, at low risk and cost (Njenga, 2009). The increased demand for mobile banking has alerted banks and technology providers alike who sense not only business opportunities through developing and offering such services to their respective customers but also perceive a risk of being left behind in this new, innovative segment(Tiwari, Buse, & Herstat, 2007).

## **2.6 Mobile banking trends for ZB Bank and developing economies**

According to Mathur and Shrimali (2007):

In Asian countries like India, China, Bangladesh,Indonesia and Philippines,where mobile infrastructureis comparatively better than the fixed-lineinfrastructure, and in European countries, wheremobile phone penetration is very high (at least 80%of consumers use a mobile phone), mobile banking islikely to appeal even more (p. 66).

The widespread adoption of mobile phones in Zimbabwe has made the provision of financial services through Information Communication Technology (ICT) possible. Mobile banking has been adopted by banks as a delivery channel for their financial services in Zimbabwe, with ZB Bank introducing its product in the year 2006 in the

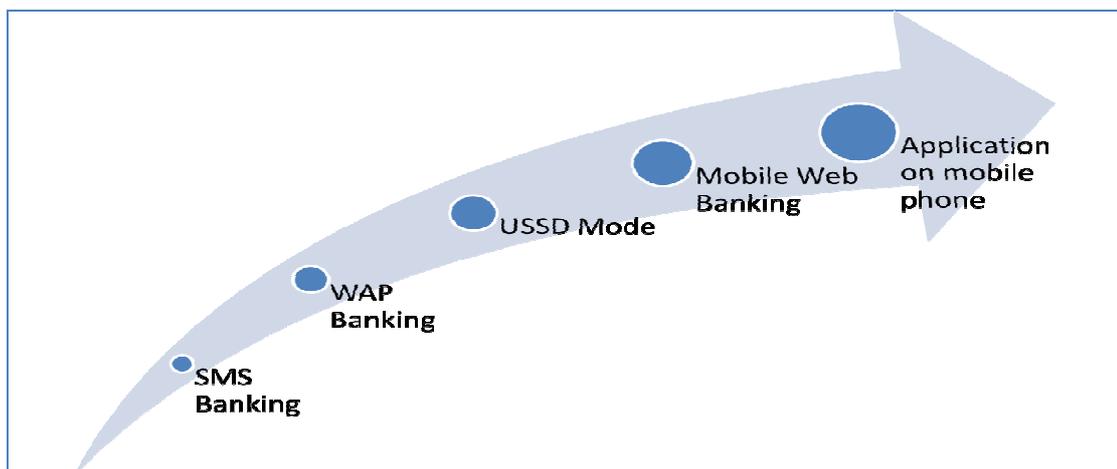
form of SMS banking. It came in as a complement to the brick and mortar branches and helps the bank to harness the customers who cannot afford traditional banking services but can afford a mobile phone. This product later evolved into what is now known as the e-Wallet product in 2009, which offered additional services such as merchant's bill payments and sending money. The new platform is using what is called the Un-structured Supplementary Service Data (USSD) technology, which is menu driven rather than the short messaging service (SMS) one. Mobile banking has over the years evolved on the Zimbabwean market, being triggered by various business needs and subsequent growth has been accelerated by the race between business and technology as each tries to keep pace with the other.

Gono (2013) said in his monetary statement "mobile money transfer services are merely a payment system or delivery channel which does not amount to deposit taking. Accordingly, mobile money transfers in Zimbabwe should operate on a credit push principle where all electronic money value is backed by pre-funded balances which are held in banking institutions". Gono urged banks to take advantage of this impelling development in the area of mobile banking as an effective distribution network or channel for financial products to various segments of the transacting public.

Whereas Burger (2013) concluded that banks can no longer just upgrade existing mobile banking offerings – the approach taken with traditional banking products, branches even online banking, because mobile banking is not just a delivery channel anymore. Burger points out that mobile banking coupled with broader trend of information technology consumerization, is transforming how business is conducted and how growth strategies are to be developed. Juniper Research (as cited in Burger, 2013) estimates that by 2017 more than 1 billion mobile phone users will have used their mobile devices for banking purposes, compared with slightly more than 590 million users this year.

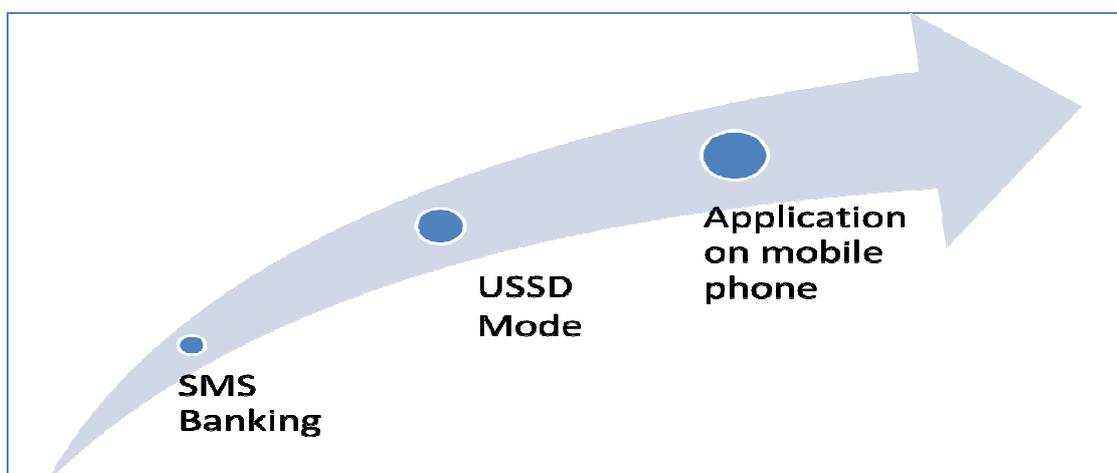
This research sought to close this gap of whether mobile banking was still a delivery channel for banking services or is now the way to do banking business through an empirical analysis of the impact of mobile banking on traditional ways of doing banking transactions. Kiran (2009) says that "the mobile device technology progressed

at a rapid pace and consumer expectations on usability of it began to progress. Mobile banking has progressed to offer enhanced customer experience and adopt the latest technology trends in communication to offer real time exchange of data". This technology driven progress of mobile banking can be depicted as in the following diagram:



**Figure 2.6: International technology driven progress of mobile banking** Source: (Kiran, 2009, p4)

According to (Kiran, 2009) these developments marked the evolution of mobile phone into a transaction instrument. A research claims that there are 4 billion phones in the world covering 70% of the population. Another research predicts that by 2014, half of the mobile subscribers will use their mobile phone for physical and digital purchases.



## **Figure 2.7: ZB Bank`s e-Wallet progress**

The ZB Bank`s e-Wallet product is currently using the USSD technology whereas the developed world is ahead using applications for mobile banking on their phones. The bank is currently working on introducing the application on mobile phone for the e-Wallet product as indicated by the E-Banking and Information Technology personnel during interviews. This will be the next step for the e-Wallet product. These new products and services will help the bank to lock in customers in the use of mobile banking.

### **2.7 Adoption trends of mobile banking by customers**

Adoption is the acceptance and continued use of a particular product, service or idea (Safeena, Rahmath, Hundewale, Nisar, and Kamani, 2011). Adoption of mobile phone banking presents a catalyst through which banking institutions could invest in systems aimed at facilitating the process (CBK, 2007). Many authors acknowledge that mobile banking has been taken up rapidly in many developing countries which have experienced a high penetration rate of mobile phone handsets in the market (Boadi et al., 2007; UNCTAD, 2007; Donner, 2007; Wray, 2008; Cruz et al., 2010).

Research relating to customer adoption of innovations has shown that it is perceived attributes of innovation rather than personal characteristics that are stronger predictors of adoption decision (Black, 2002). Rogers(1995) says that the perceived innovation characteristics are supposed to provide the framework on how potential adopters perceive an innovation. The evaluation of innovation has generally been endorsed by research along the product characteristics that involve; accessibility, usability and compatibility. The perceived risk associated with the financial product itself as well as with electronic delivery channel is higher in banking services than in basic consumer goods and hence increasing the importance of the innovation attribute (Harrison, 2000). An increased adoption of this technology by customers will result in mobile banking transactions being a substitute for banking transactions thus change the way banking is done.

## **2.8 Importance and Challenges of mobile banking**

Mobile banking is a critical component of banking to both the customer and the service provider. It has brought several advantages and disadvantages with it.

### **a) Importance to customer**

Mobile banking is an important channel for the customer. It brings convenience, speed and control as the customer will be in touch with their bank accounts anywhere, anytime of the day. It makes it easier and faster to make bill payments and purchases of goods and services considering the busy schedules that many people have. For example ZB Bank's e-Wallet product has merchants like Zesa, Edgars Stores, City of Harare, Cimas, Truworths, ZBLife and Topics Stores.

### **b) Importance to service provider – banks**

Johnston, Bercum, and Piscini(2010)agreed that “the mobile banking channel allows banks to offer customers features they cannot find online, such as remote check deposit, individual payments and real-time fraud notification” (p. 2). Banking institutions could improve their operational efficiencies by adopting an integrated financial services delivery channel strategy that includes mobile banking. Johnston, Bercum, and Piscini (2010) also indicate that mobile banking has several opportunities for increasing revenues for banking institutions. These include monetizing the value of customer analytics, delivering real-time access to products and services, and carrying out targeted marketing campaigns considering the knowledge of consumer preferences that the bank would have collected over a period of time through these channels. This platform or channel also offers the bank with the opportunity to expand beyond their geographical boundaries as well as the ability to cross-sell and up-sell products and services to existing customers.

### **c) Challenges of mobile banking**

Mbogo (2010) concluded that the majority of mobile banking users are low and average income earners. These categories also have the highest number of “unbanked” individuals. On this pretext, users perceive mobile banking as a substitute for bank accounts. This may in a way deny the banks an opportunity to undertake banking functions upon such customers. The idea of banks outsourcing the mobile phone service for them to offer mobile banking is another deterrent factor. For instance it took over six months for ZB Bank to acquire a USSD code for its mobile banking platform from one of the mobile phone service providers as indicated by one of the Electronic Banking department personnel during an interview.

The access to mobile banking services in rural areas is faced with cash float challenges in light of prospected demand. For the underdeveloped regions of the country where mobile network signal is extremely sparse or non-existent access to mobile banking services is a serious issue of concern. Pelowski(2010) indicated system failure as a key challenge mobile phone banking faced due to overloading of central servers, poor network reception and frequent power outages.

Luarna (as cited in Ongwenyi, 2012) says that:

Although mobile money is critical to development, the increase in usage in areas that were potentially vulnerable to money launders (ML) and terrorist financing was worrying. The presence of regulations reinforced mobile banking; however regulators were uncertain about how best to regulate mobile banking for financial integrity. Luarna further explained that as more countries draft mobile banking regulations, operational guidance on optimal means to develop effective Anti – Money Laundering (AML) and Combating the Financial Terrorism (CFT) regulatory framework for mobile money was proving to be insufficient and incomplete. One driving concern is that regulatory initiatives would be assessed as non-compliant when

subjected to AML/CFT, a situation that would lead to excessive rigidity and conservatism in regulations.

The main issue with mobile banking for customers is to do with security of their funds. The mobile banking applications are not platform scalable. That is there are some mobile phone operating systems which cannot support some mobile banking applications thereby at times forcing the customer to change their device. To realize full potential banks need to invest heavily in integration of their systems and establish partnerships with service providers.

## **2.9 Case Studies**

### **a) SIMPLUS**

COINTEL began in the late 90s by developing a means to electronically load prepaid airtime directly to the customer's account at the mobile network operator without the customer having to buy a paper based recharge voucher. Cointel extended this technology to additional transaction types and eventually full mobile banking, and branded it Simplus. Cointel also migrated from SMS based mobile banking technology to mobile technologies such as USSD, JAVA and WAP. Originally servicing its own commerce needs Cointel now services multiple MNOs, multiple banks, and even multiple markets from its on-behalf platform in South Africa. Cointel supports multiple bearer channels. Cointel has since packaged and licensed its Simplus technology to other markets.

### **b) M-PESA**

M-Pesa is a joint venture between Vodafone and Safaricom (the local mobile operator) with the backing of Citibank and Commercial Bank of Africa. Mbiti and Weil(2011) explained M-Pesa as a money transfer system operated by Safaricom, Kenya's largest cellular phone provider. M-Pesa allows users to

exchange cash for mobile money on their phones, to send mobile money to other cellular phone users, and to exchange mobile money back into cash.

The name M-Pesa is derived from the Swahili word pesa, which means cash. Agrawal(2010) says that there are four basic types of transactions that can be carried out through M-Pesa which are:

- transfers from person to person
- transfers from individuals to businesses
- cash withdrawals at designated outlets
- loan receipt or repayment

According to (Agrawal, 2010):

Subscribers of Safaricom can register for the M-Pesa service by filling up a simple form and providing any identification proof. Once registered, Safaricom replaces their SIM with the M-Pesa enabled SIM if required as all new SIM cards come enabled by default. To load the money on the wallet, the user needs to visit the nearest M-Pesa agent and deposit cash there in exchange for mobile money. This mobile money is like currency that can be used to make payments or transfer to any other person. The mobile money can be transferred to any person or merchant via an encrypted SMS. The receiver of the virtual currency can either use it for further transactions or can cash-out from any of M-Pesa designated outlets (para. 3).

Over 1.1 million Kenyans had registered, to use M-Pesa, within eight months of its inception in March 2007 and over US\$87 million had been transferred over the system (Safaricom, 2007). According to Safaricom (2009) over 8.5 million Kenyans had registered to use the service by September 2009 and US\$3.7 billion (equivalent to 10 percent of Kenya`s GDP) had been transferred over the system since inception. Agrawal(2010)says that “M-Pesa has close to 28000 agents and Kenya has 3000 ATMs and 840 bank branches which pale in comparison.”

### **c) Dutch-Bangla Bank Limited (DBBL) in Bangladesh**

According to(Sybase, 2013):

Dutch-Bangla Bank Limited (DBBL) is a joint-venture bank in Bangladesh, launched by local shareholders as well as the Dutch company FMO. The bank focuses on financing high-growth manufacturing industries in Bangladesh. Traditional banking in Bangladesh is very costly for rural customers – they need to pay numerous charges such as half-yearly service charge, annual card charge, government charges and online charge (outstation transaction charge). Customers also need to maintain a minimum balance in their accounts which tends to be difficult for rural customers. Moreover, most of the rural people are not educated and thus cannot write cheques or sign them.

In Bangladesh more than 55% people own mobile phones but only 13% people have a bank account. So DBBL Mobile Banking can bridge the gap of unbanked people through mobile banking. As DBBL Mobile Banking has expanded the operation at the grass roots level, it has generated huge employment opportunities for the local people. In the year 2011, 416 employees were recruited and posted in different Upazila Offices. DBBL will expand the mobile banking services at the Union/Territory level and 18,000 employees will be recruited to support the mobile banking operations of DBBL (p. 1–2).

These case studies mainly focus on the socio-economic impact of mobile banking and there are little or no case studies that look at the impact of mobile banking on the traditional banking transactions from which banking institutions derive their business models. This means that banking institutions have to be ready if mobile banking is going to define the way to do banking in the future.

## 2.10 The Conceptual Framework

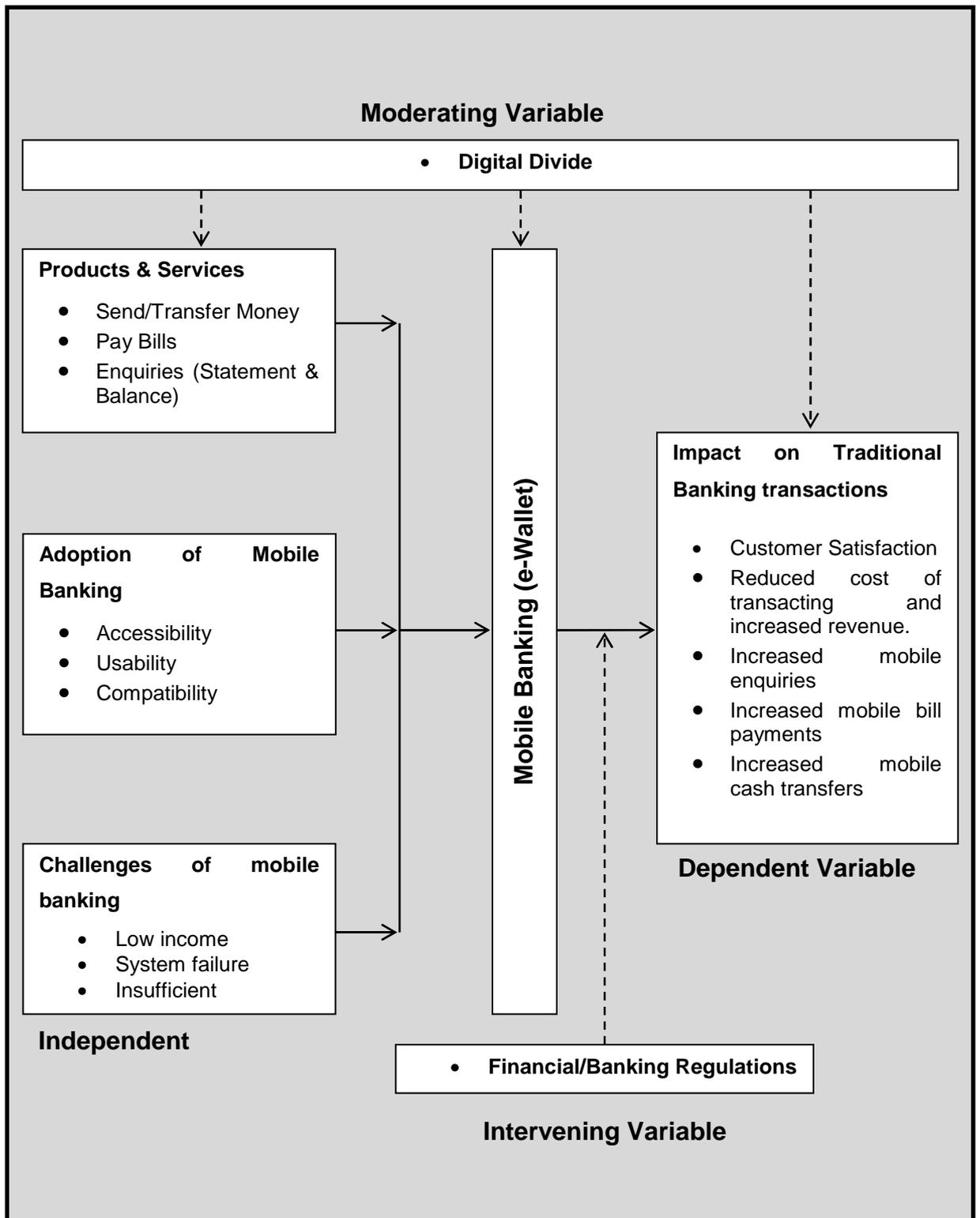


Figure 2.8: The research conceptual framework

The conceptual framework identified and defined the variables at play in the relationship between mobile banking and traditional banking. A variable refers to a characteristic or attribute of an individual or an organization that can be measured or observed and that varies among the people or organization being studied (Creswell, 2009).

### **Dependent variable**

A dependent variable is one being measured as an outcome which is also called outcome, response, criterion, or explained variable (Associates, 2013). The impact on traditional banking transactions was the dependent variable in this research. The impact was viewed according to the level to which customers are satisfied by the technology. This was seen through the volumes of transactions coming through the platform as customers had an option to use traditional banking services if they were not satisfied with the technology.

### **Independent variables**

An independent variable is one that is selected or controlled by the researcher to determine its relationship to the observed outcome of the research – also called explanatory, predictor or manipulated variable (ETR Associates, 2013). The following were the independent variables identified for this research.

#### **a) Mobile banking products and services**

Mobile banking presented the bank with new products and services to offer its current and potential clients. The mobile banking platform provides simple uncomplicated banking, value for money, convenience and superior customer service. It is easy to be integrated to other banking channels such as ATMs (TowerGroup, 2010). If more products and services were added to the mobile banking platform coupled with high adoption of the technology the number of traditional transactions would be on the decline. Therefore the volumes of traditional banking transactions are dependent on what mobile banking can offer the customer.

## **b) Adoption by customers**

The ultimate expectation from ZB Bank was that upon introduction of e-Wallet their customers would quickly adopt and use it thus increasing revenue generation and reducing the cost of delivering the financial services. This would mean an increase in customer satisfaction and an increased use of the platform coupled with increased income from fees and commissions levied on customers as they transact. The cost of accessing a service or technology also determines the level of adoption by customers. The volume of traditional banking transactions also depends on the level of adoption and use of mobile banking by customers. High adoption and use implies reduced use of traditional banking transactions.

## **c) Challenges of mobile banking**

Mobile banking platform (e-Wallet) is subject to technological challenges such as low income amongst owners of mobile phones, systems failure and insufficient regulations as mentioned by Mbogo(2010), Pelowski (2010) and CBK (2007). The level to which the bank could mitigate or avoid these challenges would ultimately determine the extent of the impact of mobile banking on traditional banking transactions. The issue of trust is of paramount importance for customers to use a technology and if banks could manage this challenge they could realize more transactions coming through the mobile banking frontier.

## **Moderating variable**

A moderating variable is an interaction that is qualitative or quantitative, which affects the direction or strength of the relation between dependent and independent variables. Moderation occurs when the relationship between two variables is dependent on a third variable. A moderator is a third variable that affects the zero-order correlation between two other variables. The relationship between the mobile

banking and traditional banking is possible as long as mobile communications have reached the area and also the people have access to mobile phones which are compatible with the technology. Mobile banking also enables financial inclusion for the general populace, especially for those residing in the most remote parts of the country at a minimal cost. This was represented using a dotted line in the diagram to show that it only affects the direction to be taken by the relationship between dependent and independent variables.

### **Intervening variable**

An intervening variable is a hypothetical internal state that is used to explain relationships between observed variables, such as independent and dependent variables. A regulatory framework defines the relationship that could exist between the mobile banking transactions and traditional banking transactions. The lack of a regulatory framework for mobile banking poses risks of abuse of depositors funds, theft and fraud of customer`s data all building a lack of trust in the technology among customers. This might cause customers to shun away from the technology and make use of the traditional methods which offer them the trustworthiness they want thus an increase in traditional transactions. The existence of a regulatory framework improves confidence of customers in the technology thereby improving its adoption and usage. This was also represented using a dotted line but affecting the actual relationship by defining how the relationship should be established.

## **2.11 Chapter Summary**

This chapter focused on reviewing literature on the impact of mobile banking on traditional banking transactions with reference to ZB Bank`s mobile banking platform called e-Wallet. The starting point was the definition of terms and then it looked at models currently in use in Zimbabwe and other countries, literature on access to financial services, mobile banking products and service innovations, trends in the industry, adoption of mobile banking by customers and challenges of mobile banking. This research also looked at work done by other authors and cases from other countries on adoption and impact of mobile banking.

# **CHAPTER THREE**

## **RESEARCH METHODOLOGY**

### **3.1. Introduction**

This chapter presents a discussion of the research design used to explore the research. Firstly, a justification for the research design used and a description of the research setting provided. The data collection method including verification strategies and the research instruments employed was also discussed. Lastly the procedure employed for the analysis of data collected using the various research instruments was documented.

### **3.2. Recap of the Problem Statement**

ZB Bank faced with the need to make traditional banking channels more profitable and to harness the “unbanked” public especially the rural populace, adopted new innovative ways of offering its clientele access to financial services in a cheaper way. This has come through the adoption of mobile banking in partnership with mobile network service provider Econet. Considering the growth rate of this platform in subscriber base and transaction volumes the major question now is that; is mobile banking just a delivery channel for banking services or it’s the way to do banking business now and in future? If it is the way to do business what will become of the traditional ways of doing banking, which the bank is still heavily investing in?

### **3.3. Recap of the study objectives**

The research sought to establish the relationship that exists between mobile banking transactions and traditional banking transactions. It went on further to establish the effect of new products and services that came through mobile banking on traditional banking transactions. The research also sought to establish the effect of the adoption trend of the technology by customers on traditional banking transactions. The other objective of the study was to assess the effect of mobile banking

challenges on traditional banking transactions. The above mentioned objectives assisted in determining whether banks should continue treating mobile banking as one of the delivery channels for banking services or a business model on which banks should develop growth strategies.

### **3.4. Methodological Framework**

#### **3.4.1. Recap of Major Research Question**

The major research question for this research was – will mobile banking (e-Wallet) change the growth strategies for ZB Bank or it is just another delivery channel for banking services.

#### **3.4.2. Recap of the hypotheses**

For this research the following hypotheses were proposed:

- H1:** An increase in products and services of mobile banking results in a decrease in traditional banking transactions.
- H2:** A higher adoption of mobile banking technology leads to a decrease in traditional banking transactions.
- H3:** A decrease in challenges of mobile banking will result in a decrease in traditional banking transactions.

#### **3.4.3. Recap the variables being focused on**

The dependent variable for this research was the impact of mobile banking (e-Wallet) on traditional banking transactions. The impact is assessed in terms of customer satisfaction leading to a variation in volumes of transactions channelled through the two modes of banking. The independent variables for the research are the products and services of mobile banking,

the adoption trends of the technology by customers and the challenges faced by mobile banking. The increase or decrease of these variables has an effect on the traditional banking transactions.

#### **3.4.4. Research Assumptions**

The following assumptions were considered for this research:

- a) The data collected for this research was considered accurate for the purpose of this study.
- b) The sample for this research was representative of the whole population.

#### **3.4.5. Limitations**

- a) The analysis of other competing products was dependent on whether there were no wrong perceptions about the purpose of the study from the concerned parties.
- b) On comparative analysis with international products the researcher relied on published information and company websites.

### **3.5. Research Design**

Kerlinger(1986) describes a research design as a plan, structure and strategy of an investigation conceived so that the researcher obtains answers to research questions or problems. The research design describes the procedures for conducting the study including the conditions data was obtained. Its purpose is to provide the most valid, accurate answers as possible to research questions (McMillan & Schumacher, 1993). From different research designs, the researcher chose the case study approach. A research carried out by Yin(1994) defined a case study as an empirical inquiry that investigates a contemporary phenomenon in depth within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.

### **3.5.1. Research Approach**

This research took a quantitative approach in establishing the impact of mobile banking on traditional banking transactions. The researcher chose the quantitative approach because the research involved analysis of data that could be usefully quantified to answer most of the research questions and meet the objectives of the study. The quantitative approach clearly establishes the properties of and relationships between variables under study. The quantitative approach has facts that speak for themselves with little interpretation and explanation. However the researcher did not completely discard the qualitative analysis of data, but used it to be able to describe the relationships established and their impact on traditional banking transactions.

The ZB Bank's e-Wallet product was the main focus of this study but consideration was also given to other products available on the market such as Ecocash, M-pesa and Gcash. A case study can contribute uniquely to the body of knowledge of an individual, organization, social, and political phenomena (Yin, 1984). This study aimed to produce significant insights into the mobile banking activities and their impact on traditional banking activities. The setting of this study was natural, that is the study was on a product currently in the market place rather than a laboratory setting.

### **3.5.2. Research Strategy**

Considering the research problem of this study it was seen fit to use the case study approach which gives the opportunity to look at real situations in the live environment. A case study can contribute uniquely to the knowledge of individual, organizational, social, and political phenomena (Yin, 1984).

This research project was carried out based on (Myers, 1997) guidelines which state that the case study method involves at least four stages of work:

- Determining the present situation: in this research, this was achieved through the use of structured questionnaires and interviews.

- Gathering information about background to the present situation: in this study, this was achieved through interviews and by referring to documentation and other sources (secondary data) available from the case study organisation (ZB Bank).
- Gathering more specific data: in this study, this was achieved through the in-depth exploration of the use of stories and storytelling in the case study organisation, by further interviews, collection and analysis of reports on mobile banking.
- Presenting an analysis of findings and recommendations for action: in this study, this was achieved through the feedback provided on interim and final bases to the case study organisation, as well as the production of the final research report.

The selection of a single case complied with what (Cavaye, 1996 p. 236) stated in that the "...study of a single case enables the researcher to investigate a phenomenon in depth... enabling a rich description and revealing its deep structure."

### **3.5.3. Unit of Analysis**

The unit of analysis for this research was the impact of the mobile banking platform of ZB Bank (e-Wallet) on traditional banking practices of the same institution. Although this was the principal unit of analysis of this research there was consideration of the effects of new mobile banking products and services on traditional banking transactions, the effects of adoption trends by customers and the challenges faced by mobile banking platforms.

### **3.5.4. Research Instrument**

(Stake, 1995), and (Yin, 1994) identified at least six sources of evidence in case studies. The following reflects the research of both (Yin, 1994) and (Stake, 1995):

- Documents, Archival records, Interviews, Participant-observation, Direct observation and Physical artefacts

This research used interviews, questionnaires and company annual reports as data gathering instruments. These were categorised into primary data and secondary data sources.

### **Primary data**

Zikmund (1997) states that primary data are gathered and assembled for the particular research project available. This study relied mainly on the data collected through structured interviews and questionnaires as its primary source of information.

#### **a) Questionnaire**

A questionnaire is a document containing lists of pertinent questions used to gather primary data directly from elements of the population and selected sample (Diamantopoulos, Schlegelmilch & Reynolds, 1994). According to Bell (1993, p.76) questionnaires are a good way of collecting certain types of information quickly and relatively cheaply as long as subjects are sufficiently disciplined to abandon questions that are superfluous.

The questionnaire was designed in such a way that enabled respondents to choose their own responses and express their own opinions. The questionnaire consisted of both open-ended and closed-ended questions. This enabled the researcher to get more in-depth responses, as planned, to be able to analyze the responses quantitatively and qualitatively, interpreting what respondents wrote with the help of the theory.

#### **b) Interviews**

Interviewing is a meeting of two persons to exchange information and ideas through questions and responses, resulting in communication and joint construction of meaning about a particular topic (Janesick, 2004).

(Kvale, 1996) defined an interview as “ ... an interchange of views between two or more people on a topic of mutual interest, sees the centrality of human interaction for knowledge production, and emphasizes the social situatedness of research data.” There are three types of interviews and these are structured, semi-structured and unstructured (Corbetta, 2003).

For the purpose of this study the researcher adopted the structured interviews. The questions and the order in which the questions were to be asked were determined in advance. The structured interview was used mainly as a guide to understand the responses given by respondents on the main research instrument – the questionnaire. The interview targeted the staff of ZB Bank.

### **Secondary data**

According to Zikmund(1997) “Secondary data is mostly historical data. It is data that will have been collected and assembled for some other project”. Secondary data is data gathered and recorded by someone else before the current project. It is not primarily intended for the current study. In this study the researcher gathered information from the e-Wallet project documentation and e-Wallet reports as secondary data.

#### **3.5.5. Pilot Study**

A pilot study was carried out using ten workmates at different levels including 6 managerial and 4 non-managerial. The managerial team included one individual at senior management level. The respondents were chosen on a convenience basis. The response rate for the pilot study was 90% as only one respondent did not return their questionnaire. The pilot study revealed that the questionnaire was clear and easy to understand.

### **3.5.6. Population and Sampling**

“The target population for this research is the staff of ZB Bank and customers. Sampling is a process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting a fact, situation or outcome regarding a bigger group” (McPhail, 2001). The sample size targeted for this study constituted of 80 individuals. These were made up of 30 ZB Bank clients and 50 ZB Bank staff members.

There are two main sampling methods which are non-probability sampling where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected and probability sampling where the samples are gathered in a process that gives all the individuals in the population equal chances of being selected. The researcher made use of non-probability sampling where the population from which the sample was drawn was based on the employees who were more involved in the mobile banking business of the organization and targeted customers of the bank.

### **3.5.7. Administering the Research Instrument**

The main research instrument – the questionnaire was administered to 80 individuals. The individuals comprised of 50 ZB Bank staff and 30 customers. Amongst the ZB Bank staff 20 came from the E-Banking department and 20 from Consumer Banking department, which deals with the customers at the front office. The other 10 came from the Information Technology department who are the supporters of the mobile banking platform (e-Wallet). The remaining 30 questionnaires were distributed to the ZB Bank customers.

The interview research instrument was also used to get more clarification on some of the responses given on the questionnaires and also to complement the questionnaire in data collection. The interviews were targeted at ZB Bank staff.

### **3.6. Data Analysis**

The research used both the descriptive and inferential statistics to analyse the data. Simple frequency counts and percentages were used. The analysis was done with the help of the Statistical Package for Social Scientists (SPSS). Data was collected, cleaned and then collated. After that that data was entered into SPSS and analysis carried out. Descriptive statistics (frequency counts, percentages, mean score) were calculated for each variable and tabulated using frequency distribution tables and bar charts. Correlation tests were done to establish the relationships between research variables. In this research ANOVA was used to compare the means of the variables to test for statistical significance at 0.05 level of significance.

### **3.7. Validity and Reliability**

In developing the questionnaire and the interview guide, validity, reliability and objectivity of the information to be obtained from the instrument was considered. Labovitz and Hagedorn(1976) define validity as the ability of the instrument to measure what it is supposed to measure.

The researcher implemented a pilot test which assisted in determining flaws, limitations, or other weaknesses within the questionnaire and interview design and made the necessary refinement of research questions prior to the implementation of the study as suggested by (Kvale, 2007).

### **3.8. Ethics and Values**

According to Skinner, Ferrell, and Dubinsky (1988) “deontological philosophies focus on the factors or means used to arrive at an ethical decision. These philosophies emphasize moral obligations or commitments that should be binding or necessary for proper conduct”. A deontological approach means that the researcher should not harm participants, no matter what the potential benefit is. Kantian ethics suggest that “persons should be treated as ends and never purely as means” (Beauchamp and Bowie, 1997).

This research was conducted in an ethical manner taking into cognizance the deontological philosophy. The researcher ensured high ethical conduct in this research through using the data collected strictly for academic purposes only. Names of institutions and respondents were also noted entirely for the purposes of this study only.

### **3.9. Chapter Summary**

This chapter presented a detailed description of the research design and the research methodology. In this study, the case study approach was considered as the appropriate method. The questionnaires and structured interviews were regarded as the primary data collection methods. The company websites, promotional material and source documents were considered as the secondary source of data. The next chapter presents the research findings, presentation and analysis.

# **CHAPTER FOUR**

## **RESULTS AND DISCUSSION**

### **4.1. Introduction**

This chapter presents the research findings and discussion in relation to the literature of the study. The chapter presents the analysis performed on the responses obtained from the questionnaires and information obtained from secondary data. The results were categorised into groups which emanated from the research variables and study objectives. These have been discussed in relation to the literature review.

### **4.2. Response Rate**

According to Fowler (1984) response rate describes the extent to which the final data set includes all sample members and it is calculated as the number of people who participated in the interviews divided by the total number of people in the entire sample including those who refused to participate. There are several reasons why response rate is not usually 100%. For this research some questionnaires were never returned whilst some were spoiled and were unusable. Some research participants prioritized other commitments over the interviews whereas others scheduled the interviews outside the research period.

A sample of 80 respondents was chosen for this research and 62 responses were received, but only 56 were usable as the other 6 questionnaires were spoiled, hence 70% response rate was achieved. This response rate is adequate to use for data analysis and is in line with Saunders, Lewis and Thornhill(1997) who placed a benchmark for acceptable response rate at between 50 percent and 92 percent.

### 4.3. Reliability tests

**Table 4.1: Reliability tests results**

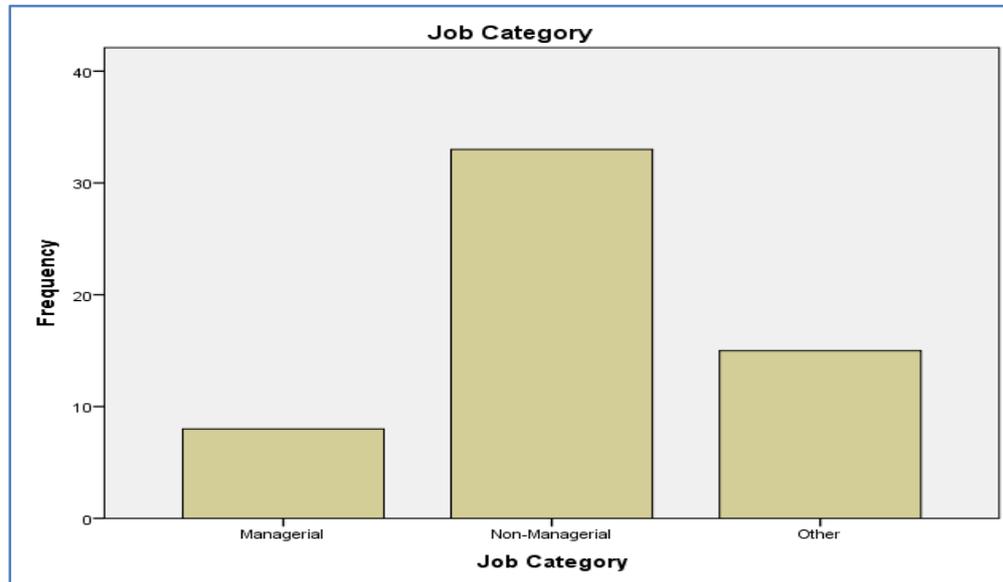
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items	Analysis
Mobile Banking (e-Wallet) Products & Services	0.827	0.795	10	Very Good
Adoption of mobile banking (e-Wallet) by customers	0.712	0.798	10	Good
Challenges faced by mobile banking (e-Wallet)	0.734	0.746	10	Good

The internal consistency reliability of the research instrument was assessed quantitatively for each of the variables in the research instrument. Internal consistency reliability is given by the Cronbach alpha values as presented in table 4.1. All reliability measures were above 0.7 as recommended by (Nunnally, 1967; Wixom and Watson, 2001). This shows that all the three variables were generated from the set of questions that gave a stable response thus the instrument was reliable.

#### 4.4. Data Analysis

##### 4.4.1. Background

###### a) Job Category



**Figure 4.1: Frequency of respondent's job category**

The study constituted of managerial, non-managerial and customers of ZB Bank who were crucial participants for this research. The majority of the respondents were non-managerial staff followed by customers and managerial staff. This indicated that the research had respondents who strategize and oversee implementation of the mobile banking solution; those who manage daily operations of the platform and the users of the product as well. The respondents' profile constituted of 41 employees of the organization and 15 customers. Out of the 41 employees 8 were managerial and 33 non-managerial. This ensured that the research had enough representation from strategic levels to operational levels and customers. The 15 customers were put in the other category by default.

**b) Time spent with the bank**

**Table 4.2: Frequency of time spent with the bank for employees**

	Frequency	Percent	Valid Percent	Cumulative Percent
Years	0-5	15	36.6	36.6
	6-10	7	17.1	53.7
	11-15	11	26.8	80.5
	15-20	5	12.2	92.7
	Above 20	3	7.3	100.0
	Total	41	100.0	100.0

The time spent with the organization was an indicator of the respondent's in-depth understanding and experience of the e-Wallet platform and how it has influenced traditional banking transactions. The time period was distributed over 5 categories as shown in Table 4.2. Out of the 41 employees who participated in the survey 36.6% had worked in the organization for a period of 0-5 years, 17.1% had worked for a period of 6-10 years, 26.8% had gone for 11-15 years with the organization, 12.2% had worked for a period of 15-20 years and 7.3% had gone above 20 years with the organization reflecting a good experience of both traditional banking and mobile banking.

**Table 4.3: Frequency of time spent with the bank for customers**

	Frequency	Percent	Valid Percent	Cumulative Percent
Years	0-5	4	26.6	26.6
	6-10	6	40.0	66.6
	11-15	3	20.0	86.6
	15-20	1	6.7	93.3
	Above 20	1	6.7	100.0
	Total	15	100.0	100.0

The time spent with the bank for respondents from the customers was also an indicator of the understanding of the impact of e-Wallet on traditional banking transactions. The distribution of respondents was as shown in Table 4.3. The number of customers who had been with the bank for a longer time reduced most likely due to the hyperinflationary era that caused many individuals to close bank accounts and were unable to re-open them after dollarization of the economy. Thus the bank had to look for new clientele who are mostly concentrated in the 0-5 and 6-10 years category.

**c) Age Group**

**Table 4.4: Frequency of age groups of respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	27	48.2	54.0
	31-40	12	21.4	78.0
	41 & above	11	19.6	100.0
	Total	50	89.3	100.0
Missing System	6	10.7		
Total	56	100.0		

The age of respondents was an indicator for how likely they perceive and adopt technology together with its advantages and risks. A total of 50

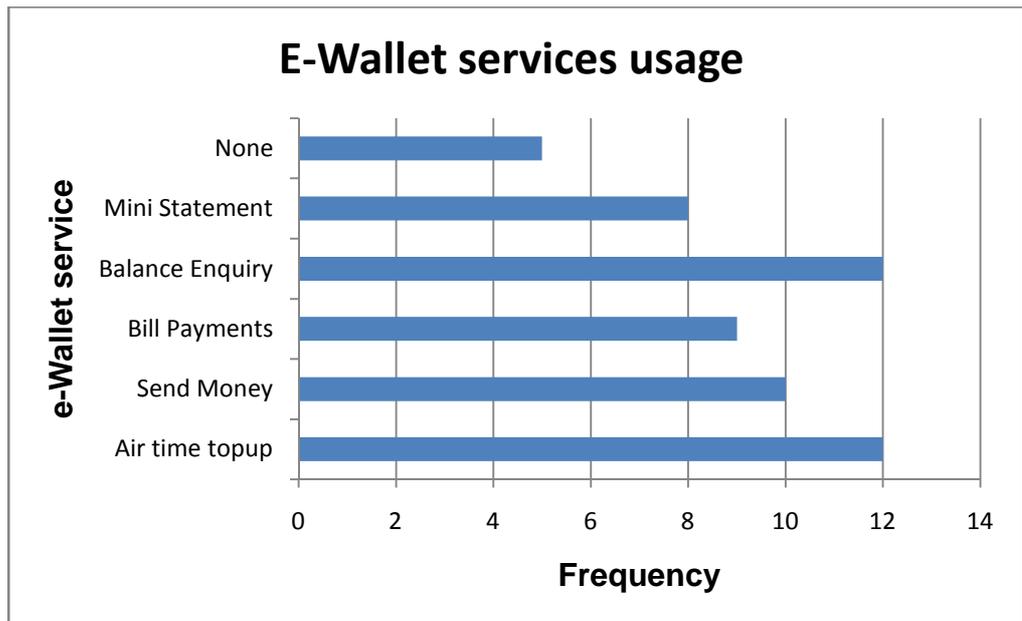
respondents confirmed their age category whereas 6 were not willing to reveal their age group. This is probably due to the sensitivity some individuals attach to divulging their age to researchers. Nevertheless the larger group of respondents (48.2%) was of the 18-30 years age which is a more responsive group to technology compared with those advanced in years. The 31-40 years group had 21.4% of the respondents. The remaining 19.6% came from the 41 years and above age group.

#### **4.4.2. Impact of mobile banking on traditional banking transactions**

In order to establish the effect of mobile banking (e-Wallet) on traditional banking transactions the researcher focused on finding out the most frequently used services on e-Wallet by customers. The researcher also focused on finding out the new products and services that had been introduced by e-Wallet. The researcher sought respondent`s opinions on how mobile banking innovations had affected traditional banking transactions. Further inquiry was done on how mobile banking had affected traditional banking transactions. This was achieved through asking respondents for their opinions on the effect of the adoption of mobile banking by customers and challenges of mobile banking on traditional banking transactions.

##### **a) Mostly used transactions on e-Wallet**

The secondary data obtained from the organization under study indicated that most customers currently use the Enquiries, Airtime top-up, Send Money and Bill Payments products of the e-Wallet platform. These are new products that came as a result of mobile banking but are substitutes of traditional banking transactions. For example instead of doing an inter-account transfer when paying their bills customers on the e-Wallet platform can do this transaction on their mobile phone thus reducing the total number of inter-account transfer transactions in banking halls. The respondents also confirmed this assertion as indicated by their responses in Figure 4.2.



**Figure 4.2: Frequency of e-Wallet services usage**

According to respondents the order of use of e-Wallet services starting with mostly used are Balance Enquiries, Mini-Statement Enquiry, Airtime topups, Send Money and Bill Payments respectively. This could imply that e-Wallet to some extent transformed the way banking activities were undertaken, a situation that could have an overall effect on the traditional banking transactions

**b) Mobile Banking (e-Wallet) Products & Services**

Respondents were asked to indicate whether they were agreeable to the claim that the use of e-Wallet improved customer relations thus increasing customer satisfaction; hence increased number of transactions coming through the mobile banking platform. The questions in this section of the questionnaire also aimed at finding out the new products and services that came on board as a result of e-Wallet. They also went on further to ascertain the impact of these products and services on traditional banking transactions according to the respondent`s perspective.

**Table 4.5: Mobile banking (e-Wallet) products and services responses**

Mobile Banking (e-Wallet) Products & Services		Frequency	Percent (%)	Mean (M) & Standard Deviation (SD) of responses
The e-Wallet platform is well known amongst ZB customers and potential customers.	Strongly Disagree	6	10.7	M = 3.98 SD = 1.368
	Disagree	1	1.8	
	Not Sure	13	23.2	
	Agree	4	7.1	
	Strongly Agree	32	57.1	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Number of customers paying their bills through e-Wallet has increased.	Disagree	5	8.9	M = 3.96 SD = 0.914
	Not Sure	9	16.1	
	Agree	28	50.0	
	Strongly Agree	14	25.0	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Average number of banking transactions per day has increased as a result of e-Wallet.	Strongly Disagree	1	1.8	M = 3.95 SD = 1.394
	Disagree	4	7.1	
	Not Sure	10	17.9	
	Agree	12	21.4	
	Strongly Agree	29	51.8	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
E-Wallet has yielded a positive reaction among customers.	Disagree	3	5.4	M = 4.00 SD = 0.874
	Not Sure	9	16.1	
	Agree	24	42.9	
	Strongly Agree	20	35.7	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
The advent of e-Wallet has improved customer relations.	Strongly Disagree	7	12.5	M = 3.95 SD = 1.394
	Disagree	1	1.8	
	Not Sure	10	17.9	
	Agree	8	14.3	
	Strongly Agree	30	53.6	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
The bank has an effective e-Wallet help desk.	Strongly Disagree	8	14.3	M = 3.89 SD = 1.448
	Disagree	1	1.8	
	Not Sure	10	17.9	
	Agree	7	12.5	
	Strongly Agree	30	53.6	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	

Mobile Banking (e-Wallet) Products & Services		Frequency	Percent (%)	Mean (M) & Standard Deviation (SD) of responses
The bank needs to invest more on mobile banking as it is the way to do banking nowadays.	Disagree	4	7.1	M = 4.00 SD = 0.874
	Not Sure	9	16.1	
	Agree	26	46.4	
	Strongly Agree	17	30.4	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
There is a noticeable change in transactions based on mobile phone banking technology (e-Wallet).	Disagree	2	3.6	M = 3.73 SD = 0.798
	Not Sure	21	37.5	
	Agree	23	41.1	
	Strongly Agree	10	17.9	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
E-Wallet has enabled ZB Bank to reach out to the unbanked population.	Strongly Disagree	6	10.7	M = 3.86 SD = 1.327
	Not Sure	17	30.4	
	Agree	6	10.7	
	Strongly Agree	27	48.2	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
E-Wallet transactions have replaced similar traditional banking transactions.	Disagree	2	3.6	M = 3.91 SD = 0.900
	Not Sure	7	12.5	
	Agree	10	17.9	
	Strongly Agree	37	66.1	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	

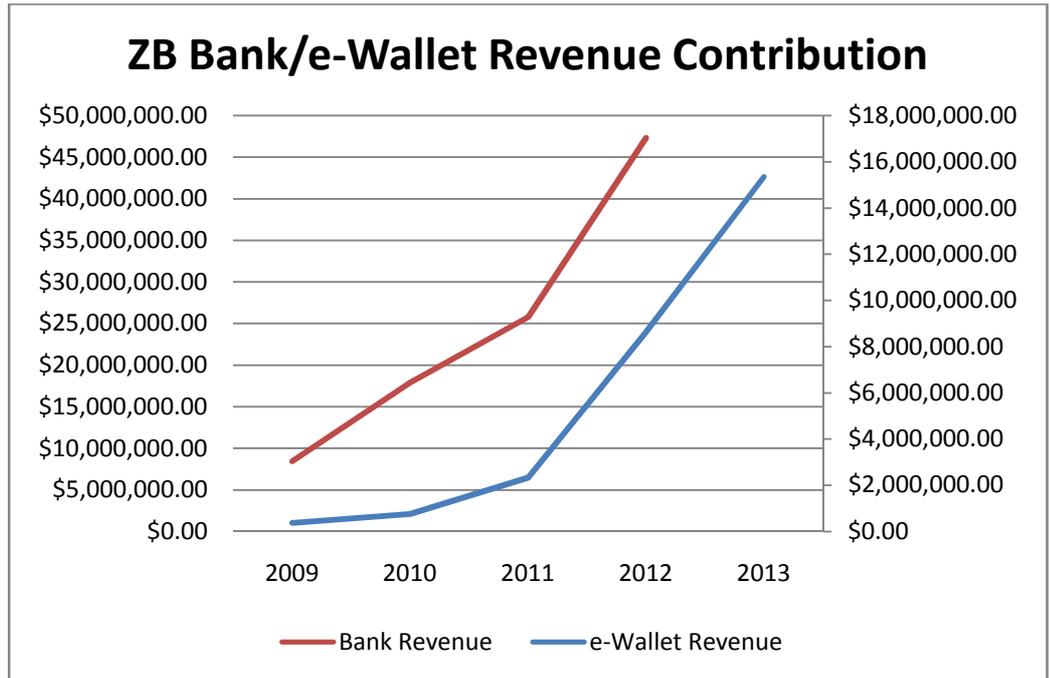
The arithmetic means for the respondents' answers to the effect of mobile banking products and services on traditional banking transactions ranged from 3.73 to 4.00 as shown in Table 4.5. The standard deviation for the same also ranged from 0.798 to 1.448. Most respondents represented by 67.9% agreed with the assertion that customer relations had improved due to the advent of mobile banking products and services. This implies that most respondents agreed that the use of the new mobile banking products and services led to improved customer relations which meant increased customer satisfaction as indicated by (TowerGroup, 2010, p.11). TowerGroup highlighted customer satisfaction as one of the competitive advantages brought by mobile banking. The respondents also agreed that the use of e-Wallet products and services resulted in an increase in the number of average daily transactions that came through since more

customers were using this for their daily banking by 73.2%. Respondents also agreed that the introduction of mobile banking has enabled ZB Bank to reach out to the “unbanked” part of the population of Zimbabwe. This means that traditional ways of banking will be used less often compared to mobile banking as there are more “unbanked” than the “banked” individuals according to (Gono, 2013). This move is in-line with Gono (2013) when he encouraged banks to take advantage of the impelling development of mobile banking.

The respondents (84%) strongly concurred that mobile banking was replacing traditional banking transactions which implies that mobile banking to some extent transformed the way banking activities were being carried out, a situation that could result in the decrease of traditional banking transactions. In future this can mean a total move to mobile banking which is what Burger (2013) indicated. Burger highlighted that mobile banking and ICT consumerization has transformed the way banking business is conducted and how growth strategies for banks are to be developed.

#### **i. E-Wallet Revenue Volumes**

Figure 4.3 shows e-Wallet`s yearly contribution to the bank`s revenue from 2009 to July 2013 as obtained from the institutions` revenue and statistics reports. The platform has other services which are still being offered for free to the customer. These are account balance enquiries and mini-statement requests.



**Figure 4.3: ZB Bank/e-Wallet yearly revenue contribution**

The contribution of e-Wallet services to the bank's income has been on an upward increase over the past four and half years. In 2010 the figure had doubled from that of 2009 where as in 2011 the figure tripled. In 2012 the figure had quadrupled and by half year of 2013 the figure had already doubled from that of 2012. This is a tremendous growth rate considering the current liquidity constrained environment which the institution is operating in. This supports what Johnston, Bercum, and Piscini stated in 2010. They said that mobile banking has several opportunities for increasing revenues for banking institutions.

ii. E-Wallet transaction costs versus traditional transactions

**Table 4.6: Comparison of e-Wallet and traditional banking transaction costs**

E-Wallet Transaction type	Cost	Traditional Transaction type	Cost
Send Money	<ul style="list-style-type: none"> <li>✓ \$0.50 for account holder.</li> <li>✓ 2.5% for non-account holder.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Inter-Account Transfer</li> <li>✓ RTGS</li> </ul>	<ul style="list-style-type: none"> <li>✓ \$2 + 1% withdrawal fee.</li> <li>✓ \$10 per transaction.</li> </ul>
Airtime Top up	No Charge	Not Available	Not Available
Bill Payments	\$1 per transaction	Not Available	Not Available
Deposits	No Charge	Deposits	No Charge
Withdrawals	<ul style="list-style-type: none"> <li>✓ 1% for amount withdrawn.</li> </ul>	Withdrawals	<ul style="list-style-type: none"> <li>✓ 1% of withdrawal amount.</li> </ul>
Balance Enquiry	No Charge	Balance Enquiry	No Charge
Mini-Statement	No Charge	Statement	\$0.50 per page

The cost of most of e-Wallet transactions is lower than that of similar traditional transactions as shown in Table 4.6. This is just the cost of fees and commissions levied by the bank for processing the transaction not considering other costs such as travelling costs to the nearest banking hall, which is greatly reduced in mobile banking since customers can transact from anywhere at any time. The costs of accessing a service should be minimal due to increased competition in the business world. Mobile banking reduces the costs of accessing banking services for the customer. According to Tiwari, Buse and

Herstatt (2006) “mobile banking makes it possible to offer ubiquitous, semi-personal consulting services in real time. These services can be centralized to exploit economies of scale and scope as well as regional cost differences”(p.10). This results in a banking institution offering mobile banking services at a lower cost compared to traditional banking services. If banks can drive more transactions to mobile phones then the greater the possibility of them closing poorly performing branches in order to increase operating efficiencies (Johnston, Bercum, & Piscini, 2010).

### **c) Adoption of mobile banking (e-Wallet) by customers**

Customer adoption of mobile banking goes a long way in defining how they would want to do their daily banking activities. In the case of positive adoption, customers would definitely change their way of banking towards the newly adopted technology and this would have an effect on traditional ways of banking. This study established adoption of e-Wallet by customers through analysis of registration statistics and responses obtained from questionnaires. All this was done in an attempt to predict the direction that traditional banking transaction may take.

### **Table 4.7: Adoption of e-Wallet by customers' responses**

Adoption of mobile banking (e-Wallet) by customers		Frequency	Percent (%)	Mean (M) & Standard Deviation (SD) of responses
Introduction of e-Wallet has made banking easier and de-congested banking halls.	Disagree	2	3.6	M = 3.75 SD = 0.815
	Not Sure	21	37.5	
	Agree	22	39.3	
	Strongly Agree	11	19.6	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
E-Wallet services are cheaper compared to other similar banking services.	Strongly Disagree	2	3.6	M = 3.86 SD = 1.103
	Disagree	4	7.1	
	Not Sure	14	25.0	
	Agree	16	28.6	
	Strongly Agree	20	35.7	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Most ZB Bank customers are aware of the mobile banking platform (e-Wallet).	Disagree	4	7.1	M = 3.75 SD = 0.815
	Not Sure	14	25.0	
	Agree	20	35.7	
	Strongly Agree	18	32.1	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
The e-Wallet product is clear and easy to use for ZB Bank customers.	Strongly Disagree	12	21.4	M = 2.80 SD = 1.484
	Disagree	17	30.4	
	Not Sure	7	12.5	
	Agree	6	10.7	
	Strongly Agree	12	21.4	
	<b>Total</b>	<b>54</b>	<b>96.4</b>	
Missing	<b>System</b>	<b>2</b>	<b>3.6</b>	
Total		<b>56</b>	<b>100.0</b>	
Easy access, timeliness and cost saving nature of e-Wallet have led to its increased adoption among customers.	Strongly Disagree	3	5.4	M = 3.25 SD = 1.066
	Disagree	12	21.4	
	Not Sure	14	25.0	
	Agree	22	39.3	
	Strongly Agree	5	8.9	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
The e-Wallet product is secure and upholds data integrity principles.	Disagree	3	5.4	M = 3.20 SD = 0.644
	Not Sure	43	76.8	
	Agree	6	10.7	
	Strongly Agree	4	7.1	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	

Adoption of mobile banking (e-Wallet) by customers		Frequency	Percent (%)	Mean (M) & Standard Deviation (SD) of responses
Many customers do not trust doing transactions on the e-Wallet platform.	Disagree	2	3.6	M = 3.96 SD = 0.873
	Not Sure	16	28.6	
	Agree	20	35.7	
	Strongly Agree	18	32.1	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Most customers adopt e-Wallet based on cost considerations.	Strongly Disagree	1	1.8	M = 3.89 SD = 1.021
	Disagree	4	7.1	
	Not Sure	14	25.0	
	Agree	18	32.1	
	Strongly Agree	19	33.9	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
The use of e-Wallet has improved customer satisfaction.	Strongly Disagree	2	3.6	M = 3.54 SD = 1.128
	Disagree	10	17.9	
	Not Sure	12	21.4	
	Agree	20	35.7	
	Strongly Agree	12	21.4	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Without e-Wallet ZB Bank would lose some of its customers for another bank offering a mobile banking solution.	Disagree	1	1.8	M = 4.02 SD = 0.924
	Not Sure	8	14.3	
	Agree	12	21.4	
	Strongly Agree	35	62.5	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	

The mean for responses in this category of the questionnaire is ranging from 2.80 to 4.02 and the standard deviation is ranging from 0.644 to 1.484 which clearly shows that responses were concentrated on agreeing that e-Wallet had a positive adoption mainly due to its attributes of easy access, timeliness and cost saving. 67.8% respondents agreed that most of ZB Bank customers were aware of the mobile banking platform called e-Wallet. To a greater extent respondents (58.9%) agreed that mobile banking had assisted in decongesting banking halls. This was also confirmed by banking halls enquiries clerks interviewed as a follow up to the questionnaire responses. They indicated that most clients used to

enquire for their account balances and statements and these numbers have since subsided owing to drive by retail banking department to encourage customers to register and use e-Wallet for such enquiries. Most respondents concurred, with a mean response of 3.93 and a standard deviation of 0.931; that e-Wallet services are cheaper than similar traditional banking services. This means that responses to this question were more concentrated on agreeing with the assertion.

It was not very clear on the issue of e-Wallet being secure and upholding data integrity principles as 76.8% of the respondents were not sure of this. This concurs with the observation of Luarna (as cited in Ongwenyi, 2012)) that although mobile money is critical to development, its usage will further depend on the extent to which customers feel secure about their finances. This was supported by the respondents` opinion on the assertion that “many customers do not trust doing transactions on the e-Wallet platform” as many agreed with a mean of 3.96 and a standard deviation of 0.873.

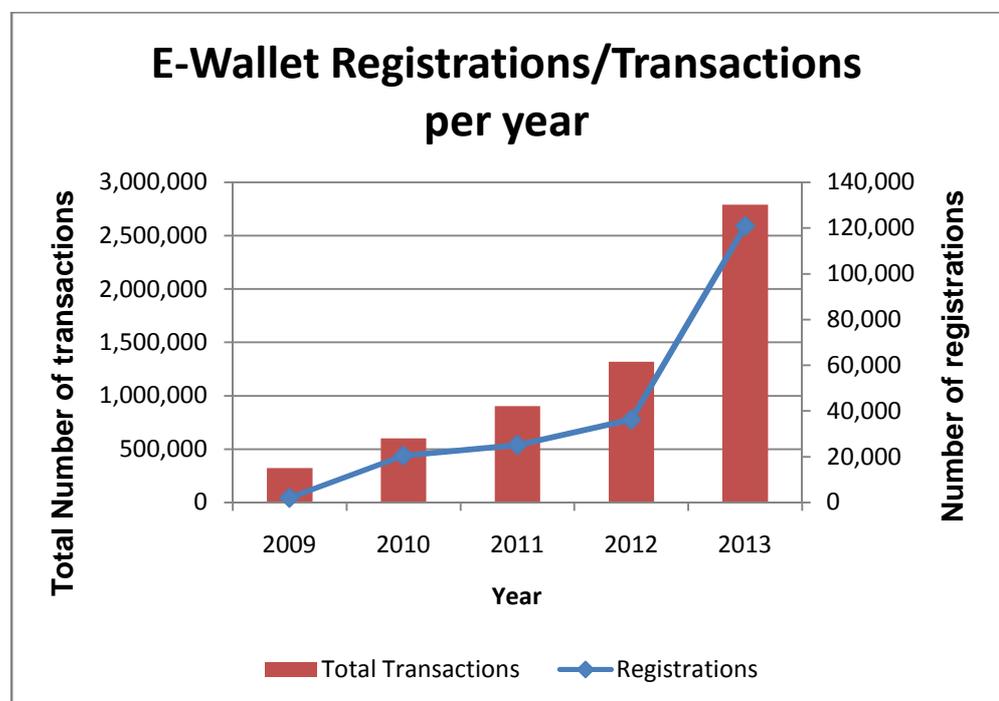


Figure 4.4: E-Wallet registrations and transactions per year

The rate of customer registrations over the four and a half year period as shown in Figure 4.4 shows that there has been a positive adoption of the mobile banking platform by ZB Bank customers with the highest figure of 120 845 being attained by mid-year of 2013. The interviews conducted with the Electronic Banking department personnel revealed that the slow adoption at the beginning of 2009 and 2010 is because of inadequate advertising and visibility of the product on the market. This was improved from 2011 and is evidenced by a sharp increase in registrations from this period onward.

The number of transactions that came through the mobile banking platform was also on an upward trend owing to the sharp increase in registrations over the same period. This could have overall effect on the traditional banking transactions as more customers tend to use mobile banking for their daily banking activities.

#### **d) Challenges faced by mobile banking (e-Wallet)**

Challenges faced by customers in utilizing the mobile banking service (e-Wallet) and those encountered by the bank in offering the service to the public consistently have an effect on traditional banking transactions. The researcher sought to establish the impact of mobile banking challenges on traditional banking transactions. The findings for this part of the questionnaire are presented in Table 4.8.

**Table 4.8: Challenges faced by mobile banking (e-Wallet) responses**

Challenges faced by mobile banking (e-Wallet)		Frequency	Percent (%)	Mean (M) & Standard Deviation (SD) of responses
E-Wallet operations are often faced with failure of mobile network systems.	Not Sure	9	16.1	M = 4.44 SD = 0.769
	Agree	12	21.4	
	Strongly Agree	33	58.9	
	<b>Total</b>	<b>54</b>	<b>96.4</b>	
Missing	System	2	3.6	
<b>Total</b>		<b>56</b>	<b>100.0</b>	
E-Wallet is not to be a substitute of bank accounts but a complement.	Strongly Disagree	41	73.2	M = 4.23 SD = 0.853
	Not Sure	2	3.6	
	Agree	6	10.7	
	Strongly Agree	7	12.5	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Mobile phone banking (including e-Wallet) is entrusted to agents whose integrity cannot be strictly regulated.	Disagree	2	3.6	M = 4.38 SD = 0.885
	Not Sure	9	16.1	
	Agree	11	19.6	
	Strongly Agree	34	60.7	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
ZB Bank cannot control the process of e-Wallet efficiently because they have no control over the whole process.	Disagree	1	1.8	M = 4.44 SD = 0.856
	Not Sure	10	17.9	
	Agree	8	14.3	
	Strongly Agree	36	64.3	
	<b>Total</b>	<b>55</b>	<b>98.2</b>	
Missing	System	1	1.8	
<b>Total</b>		<b>56</b>	<b>100.0</b>	
Lack of clear regulatory framework in mobile phone banking (including e-Wallet) poses a risk to banks and customers.	Not Sure	6	10.7	M = 4.64 SD = 0.672
	Agree	8	14.3	
	Strongly Agree	42	75.0	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
Most of e-Wallet customers are low income earners who do not frequently transact on their accounts.	Disagree	2	3.6	M = 3.56 SD = 0.898
	Not Sure	33	58.9	
	Agree	7	12.5	
	Strongly Agree	13	23.2	
	<b>Total</b>	<b>55</b>	<b>98.2</b>	
Missing	System	1	1.8	
<b>Total</b>		<b>56</b>	<b>100.0</b>	
Most system down time of e-Wallet is due to inefficiency of the mobile network operator.	Strongly Disagree	1	1.8	M = 4.13 SD = 0.972
	Disagree	5	8.9	
	Not Sure	13	23.2	
	Agree	16	28.6	
	Strongly Agree	21	37.5	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
E-Wallet agencies in rural	Disagree	4	7.1	

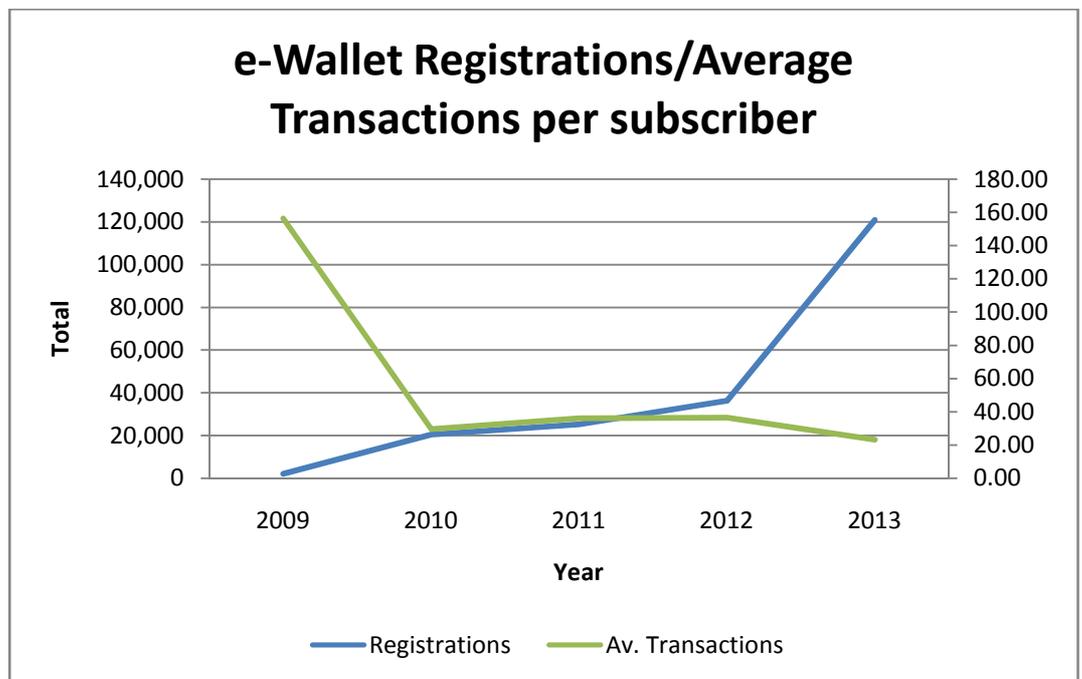
Challenges faced by mobile banking (e-Wallet)		Frequency	Percent (%)	Mean (M) & Standard Deviation (SD) of responses
areas have challenges of accessing cash needed by their customers.	Not Sure	10	17.9	M = 4.16 SD = 0.968
	Agree	15	26.8	
	Strongly Agree	27	48.2	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
E-Wallet forces most customers to change their mobile devices due to incompatibility.	Disagree	11	19.6	M = 3.59 SD = 1.125
	Not Sure	18	32.1	
	Agree	10	17.9	
	Strongly Agree	17	30.4	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	
The bank is managing risks associated with mobile banking (e-Wallet) sufficiently.	Strongly Disagree	1	1.8	M = 3.21 SD = 0.803
	Disagree	3	5.4	
	Not Sure	42	75.0	
	Agree	3	5.4	
	Strongly Agree	7	12.5	
	<b>Total</b>	<b>56</b>	<b>100.0</b>	

It was agreeable amongst respondents represented by 80.3% that e-Wallet operations are often faced with failure of mobile network systems considering that the responses to this assertion had a mean of 4.4 with a standard deviation of 0.769. Only 3.6% did not respond to this assertion. Though e-Wallet would be a convenient and a cheaper technology its reliability would be eluded by systems failure. This agrees with the findings of Pelowski (2010) who indicates that systems failure is among the major challenges of mobile banking. This implies that the bank need not rely on one mobile network operator for the operations of its e-Wallet service and also needs an efficient disaster recovery plan for its mobile banking systems.

Out of 56 respondents 73.2% agreed with the assertion that e-Wallet was not replacing traditional bank accounts for ZB Bank but was a complement. This meant that the use of either of the two modes of banking would depend on which is more favorable and accessible to the customer at a particular point in time. This implied that it could be difficult for the bank to entirely depend on mobile banking for the entire banking

process. The assertion that mobile banking is entrusted with agents whose integrity cannot be strictly regulated was agreeable with most respondents with a mean of 4.38 and a standard deviation of 0.885. This will likely push customers to continue holding on to traditional ways of banking at the same time taking advantage of the benefits of mobile banking.

Most of the respondents represented by 78.6% agreed with the assertion that the bank cannot efficiently control the whole e-Wallet process due to the number of players involved. Only 17.9% were not sure of this assertion and 1.8% totally disagreed. In such a scenario it is likely that customers may prefer to have the traditional ways of banking at their disposal. The lack of a clear regulatory framework for mobile banking in the country was found to be affecting both customers and the bank as well. Most of the respondents were in agreement with the assertion that lack of a regulatory framework posed a risk to both to customers and the bank with a mean of 4.64 and a standard deviation of 0.672. Such a scenario could lead customers to preferring traditional methods of transacting over the mobile phone way.



**Figure 4.5: E-Wallet registrations/Average transactions persubscriber**

The number of subscribers has been on an upward trend for the e-Wallet platform over the 5 year period, but the average number of transactions has been on the decline. This can be attributed to the challenges being encountered on the e-Wallet platform, which could have caused some subscribers to resort to the traditional ways of doing banking transactions.

**4.5. Hypotheses Tests**

The statistical tests carried out showed that all the three hypotheses were supported by the data collected (See Appendix A for results). The analysis of variance (ANOVA) results supported the following hypotheses:

**Table 4.9: Results summary of hypotheses**

No.	Hypothesis	Results	Reason
H1:	An increase in products and services of mobile banking results in a decrease in traditional banking transactions.	Supported	ANOVA Results, p = 0.034 p < 0.05
H2:	A higher adoption of mobile banking technology leads to a decrease in traditional banking transactions.	Supported	ANOVA Results, p = 0.019 p<0.05
H3:	A decrease in challenges of mobile banking will result in a decrease in traditional banking transactions.	Supported	ANOVA Results, p = 0.044 p<0.05

The correlation results showed that there is a positive correlation between mobile banking products and services and adoption of mobile banking by customers. This means that it is likely that as more products and services are introduced there will be an increased adoption of the technology. There is a negative correlation between mobile banking products and services and challenges of mobile banking. This means that an increase of products and services implies high adoption and a decrease of challenges of mobile banking. Adoption of mobile banking by customers is also negatively correlated to challenges of mobile banking which means that an

increase in adoption reflects a decrease in challenges of mobile banking (See Appendix A for results).

#### **4.6. Chapter Summary**

The chapter presented the results and findings of the research. The results and findings emanated from questionnaires distributed to staff members and customers, interviews carried with staff members of the Electronic Banking department of ZB Bank and secondary data obtained from the institution. These results were matched with what literature said on the subject matter. Some results concurred with literature whilst some were at variance with literature. The new products and services that came as a result of the e-Wallet platform resulted in the reduction of transactions that came through traditional banking channels. The adoption of e-Wallet by customers also had affected traditional banking transactions negatively. The challenges being faced by e-Wallet have inhibited it from completely taking over from traditional banking transactions. The conclusions and recommendations will be discussed in the next chapter.

## **CHAPTER FIVE**

# CONCLUSIONS AND RECOMMENDATIONS

## 5.1. Introduction

This chapter presents the study conclusions and recommendations based on the objectives and research questions of the research on impact of mobile banking on traditional banking transactions. Areas of further study will also be presented in this chapter. The study conclusions were derived from results presented on the previous chapter.

## 5.2. Research Summary

The research sought to establish the impact of mobile banking on traditional banking transactions through an empirical analysis of the new products and services that came along with mobile banking, the adoption of the product by customers and the challenges faced by mobile banking and how they impacted on traditional banking transactions. The motivation was centered on the fact that some authorities had referred to mobile banking as a delivery channel whereas others were seeing it as a way to do banking business for now and in the future. The way mobile banking is viewed by banks and authorities has an impact on the strategy direction of banks and mobile network operators. That is why banks need to understand the direction being taken by mobile banking. The study focused on a case study of ZB Bank's mobile banking product called e-Wallet.

The researcher sampled 80 respondents comprised of ZB Bank managerial and non-managerial staff and ZB Bank customers. The researcher managed to receive 56 responses out the 80 questionnaires distributed. The researcher also did follow up interviews with some of the bank staff to clarify on issues gathered on questionnaires. The researcher also relied on secondary data obtained from company reports and the Electronic Banking department.

### **5.3. Conclusions**

Mobile banking has definitely transformed the way banking activities are undertaken thus resulting in the reduction of traditional banking transactions.

#### **5.3.1. Mobile banking products and services**

The transformation of banking activities was achieved through the introduction of new products and services which make mobile banking a unique product. According to this research the products and services include bill payments, airtime top-up, cash transfers or send money, electronic mini-statements, cash deposits and cash withdrawals. These have easy access, convenience, timeliness and cost saving as attributes for the satisfaction of the customer. There was undisputable evidence that traditional banking transactions were still being carried out in banking halls which is a signal to say mobile banking transactions had not yet replaced traditional banking transactions. Although these new products and services had not replaced traditional banking transactions they had influenced and enhanced the way in which banking activities were carried out. Mobile banking had increased the number of transactions that were coming through on a daily basis and the researcher concluded that more customers were making use of mobile banking. This gave the bank an opportunity to realize more income from fees and commissions from these transactions. The mobile banking platform was centralized but offered real-time thus the bank could take advantage of economies of scale and scope to deliver the service at a cheaper cost. This made mobile banking services more attractive to use than traditional banking services.

#### **5.3.2. Adoption of mobile banking by customers**

It was clear and evident that customers of ZB Bank were aware of and knew how to use the mobile banking platform called e-Wallet at the time of the research. Thus mobile banking came through as a user friendly technology thus signaling the likelihood of high adoption by customers. According to Roger (1995) mobile banking technology presents an innovative technology with attributes such as easy access, timeliness and cost saving nature that favor technology acceptance. These favorable attributes of adoption are the force behind high adoption of the mobile banking technology that leads to a decrease in the use of traditional banking services by customers. Nevertheless mobile banking is still to win security trust amongst customers. Some customers are still skeptical about the security and integrity of mobile banking. This could be the reason why mobile banking transactions have not completely replaced traditional banking transactions. Cost has also been major contributor in having customers adopt mobile banking technology. This could mean that if the cost increases it could result in customers opting for traditional banking services instead of mobile banking services.

### **5.3.3. Challenges of mobile banking**

Mobile banking has its own challenges which according to this research include mobile network failures, lack of a clear regulatory framework, systems failures and lack of trust. If the bank fails to manage these challenges well customers will prefer the traditional way which will be more reliable for them. This would imply less use of mobile banking and more for traditional banking services resulting in an increase in traditional banking transactions.

Therefore the researcher concludes that mobile banking is no longer just a delivery channel for banking services but a way of doing banking and as such banks need to focus on developing growth strategies along the lines of mobile banking as a business model. This has been supported by the fact that most of banking transactions are now being channeled through mobile banking. Mobile banking has brought a lot of advantages both to the customer and the bank. It has huge cost

advantages, convenience for the customer, time saving attribute and breaking of geographical boundaries for banks. With the current advances in technology and its adoption by customers banks need to model their strategies around the use of technology in banking if they want to continue being relevant in this day and age. Mobile banking is one of the latest advances in technology which banks need to fully take on board. The implementation costs compared to traditional banking are not too high such that more players are likely to come on board with ease. This means increased competition for the banks. The researcher also concluded that the banks need to lobby the regulatory authorities to implement the right regulatory framework for mobile banking as this impact on their operations with this business model.

#### **5.4. Research Hypotheses**

The research problem questioned the impact of mobile banking on traditional banking transactions as a way of ascertaining whether mobile banking was still a delivery channel for banking services or it was now the way to do banking transactions. The following research hypotheses were put forward for this research:

- H1:** An increase in products and services of mobile banking results in a decrease in traditional banking transactions.
- H2:** A higher adoption of mobile banking technology leads to a decrease in traditional banking transactions.
- H3:** A decrease in challenges of mobile banking will result in a decrease in traditional banking transactions.

The statistical tests done supported all three hypotheses thus the researcher concluded that if the bank increases products and services for mobile banking with the right features for high adoption and reduce the challenges of the mobile banking platform, which they can control, more customers will transact on that platform leading to a decrease in use of traditional transactions. The increase in mobile banking usage will mean the bank has to focus on growth strategies that are anchored on the mobile banking business model as it will be the main source of its revenue.

## **5.5. Recommendations**

After a successful completion of the research the researcher put forward the following recommendations to the Reserve Bank of Zimbabwe and ZB Bank.

1. The Reserve Bank of Zimbabwe must put in place a regulatory framework for all models of mobile banking to improve confidence of the public in the new technology. The regulatory framework can touch on issues like protection of depositors' funds, which immensely contributes to lack of trust in the financial services sector if it is not catered for. This will increase adoption and use of the new technology by customers implying more income for the bank.
2. ZB Bank must not just focus on expanding mobile banking offerings as a delivery channel for banking services, but develop business growth strategies along the mobile banking business model. The bank can needs to invest more in mobile banking as it is currently the way to do banking business.
3. The challenges currently being encountered in mobile banking make it more difficult for banks to rely on mobile banking for the entire process of banking. Therefore it is recommended that whilst the bank is focusing on mobile banking it must not completely ignore to maintain traditional ways of banking.
4. ZB Bank needs to invest more in risk and compliance functions as these will save them on major losses resulting from fraud and theft of data. This will increase the level of trust thereby enjoying high adoption of the technology by customers.

## **5.6. Areas for further study**

This research focused on the impact of mobile banking services on traditional banking transactions as a way of determining whether mobile banking was still a delivery channel for banking services or the way to do banking business. However it would be interesting if further studies can be carried out in the following areas:

- a) The research was carried out in a liquidity constrained environment which could have affected some of the results obtained the researcher recommends that this research be carried out in an environment where liquidity is not a major challenge.

- b) The effects of mobile banking challenges on mobile banking technology adoption by customers and banking institutions.

## **REFERENCES**

Agrawal, M. (2010, January 19). M-Pesa: Transforming Millions of Lives. Retrieved July 25, 2013, from Telecom Circle: <http://www.telecomcircle.com/2010/01/m-pesa/>

- Aliyu, A. A., Younus, S. M., & Tasmin, R. B. (2012). An Exploratory Study on Adoption of Electronic Banking: Underlying Consumer Behaviour and Critical Success Factors. Case of Nigeria. *Business and Management Review* Vol. 2(1) , pp. 01 – 06.
- Associates, E. (2013). Defining Research Variables (Operationalization). Retrieved June 20, 2013, from National Service-Learning Clearinghouse: <http://www.servicelearning.org/service-learning-research-primer/defining-research-variables-operationalization>
- AZOUZI, D. (2009). The Adoption of Electronic Banking in Tunisia: An Exploratory Study. *Journal of Internet Banking and Commerce*, 3-4.
- Beauchamp, T. and Bowie, N. 1997. 'Ethical Theory and Business Practice', in T. Beauchamp and N. Bowie (eds), *Ethical Theory and Business*. Upper Saddle River, NJ: Prentice Hall.
- Bell, J. 1993. *Doing Your Research Project*. Philadelphia Open University Press.
- Black, N. J ( 2002). Modelling consumer choice of distribution channels: an illustration from financial services. *International Journal of Bank Marketing*. Vol. 20 (4), pp. 161-173 (n.d.).
- Boadi, R.A., Boateng, R., Hinson, R. and Opoku, R.A. (2007). Preliminary insights into m-commerce adoption in Ghana. *Information Development*, 23(4), pp. 253-265.
- Burger, K. (2013, February 08). What's Next For Mobile Banking? . Retrieved March 02, 2013, from *Bank Systems & Technology*: <http://www.banktech.com/channels/whats-next-for-mobile-banking/240148121>
- Businessdictionary.com. (2013, March 01). Business Dictionary. Retrieved 01 March, 2013, from *BusinessDictionary*: <http://www.businessdictionary.com/definition/impact.html#ixzz2MJUkCETO>
- Cavaye, A., 1996. Case study research: a multi-faceted approach for IS. *Information Systems Journal*, 6(4):227-242
- CBK.(2007). *Payment Systems in Kenya*. Central Bank of Kenya annual financial report for year 2007. Nairobi : Central Bank of Kenya . (n.d.).

- CGAP.(2006). Mobile Phone Banking and Low-Income Customers Evidence from South Africa. Retrieved from: [http://www.globalproblems-globalsolutions-files.org/unf\\_website/PDF/mobile\\_phone\\_bank\\_low\\_income\\_customers.pdf](http://www.globalproblems-globalsolutions-files.org/unf_website/PDF/mobile_phone_bank_low_income_customers.pdf)
- Chan Kim, W., & Mauborgne, R. (2005). *Blue Ocean Strategy*. Massachusetts: Harvard Business School Publishing Corporation.
- Chikoko, L., & Mangwendeza, P. (2012, October). Financial inclusion by Zimbabwean commercial banks in a liquidity constrained environment. *Journal of Economics and International Finance* Vol. 4(10), 252-259.
- Corbetta, P. (2003). *Social Research Theory, Methods and Techniques*. London: SAGE Publications.
- Creswell, J. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (3<sup>rd</sup>ed)*: Thousand Oaks, Calif.: Sage Productions, Inc.
- Cruz, P., Neto, L. B. F., Munoz-Gallego, P. and Laukkanen, T. (2010). Mobile banking rollout in emerging markets: Evidence from Brazil, *International Journal of Bank Marketing*, vol. 28, no. 5, pp. 342-371.
- Diamantopoulos, A., Schlegelmilch, B. B., & Reynolds, N. (1994). Pretesting in questionnaire design: The impact of respondent characteristics on error detection. *Journal of the Market Research Society*, 36(October), 295–314.
- Donner, J. (2007). M-banking and m-payment services in the developing world: Complements or substitutes for trust and social capital. Annual Meeting of the International Communication Association San Francisco. California, Microsoft Research India.
- Donner, J. D. (2008). Mobile banking and economic development: Linking adoption, impact, and use. *Asian Journal of communication*, 2-3.
- Fowler, F. J. Jr. (1984). *Survey research methods*. Thousand Oaks, CA: Sage.
- Gono, G. (2013). *Monetary Policy Statement*. Harare: Reserve Bank of Zimbabwe.

- Handford, R. (2012, July 09). World Bank's new database shows three quarters of the world's poor are unbanked. Retrieved March 01, 2013, from Mobile World Live: <http://www.mobileworldlive.com/mobey-forum-hidden-controls-are-holding-back-mobile-wallet-development>
- Harrison, T. (2000). Financial services marketing. Wiltshire: Prentice Hall. . (n.d.).
- Hernandez, J. (2011). The Regulatory Landscape for Mobile Banking. Colombia: Telecommunications Management Group.
- Hernandez, J., Bernstein, J., & Zirkle, A. (2011). The Regulatory Landscape for Mobile Banking. International Telecommunications Union.
- Janesick, V. J. (2004) 'Stretching' exercises for qualitative researchers (2nd edn) (Thousand Oaks, CA, Sage).
- Jankowicz, A D. (2000). Business Research Projects (3<sup>rd</sup> Edition), London, Thompson Learn
- Johnston, B., Bercum, M., & Piscini, E. (2010). Mobile banking A catalyst for improving bank performance. UK: Deloitte.
- Karjaluoto, H. (2002). Selection criteria for a mode of bill payment: Empirical investigation among Finnish bank customers. International Journal of Retail & Distribution Management, 30(6), 331-339.
- Kerlinger, F.N. (1986). Foundations of Behavioral Research (3<sup>rd</sup> ed.). Fort Worth: Holt Rinehart and Winston. 3rd ed.). Fort Worth: Holt Rinehart and Winston.
- Kimenyi, N. S. (2009, October 16thb). Expanding the Financial Services Frontier:Lessons From Mobile Phone Banking in Kenya. Retrieved June 6th , 2013, from [http://mmublog.org/wp-content/files\\_mf/1016\\_mobile\\_phone\\_kenya\\_kimenyi.pdf](http://mmublog.org/wp-content/files_mf/1016_mobile_phone_kenya_kimenyi.pdf).
- Kiran, K. S. (2009). Evolution of Mobile Banking. Bangalore: Infosys Technologies Limited.
- Kvale, S. (2007).Doing Interviews.Thousand Oaks, CA: SAGE Publications.
- Labovitz and Hagedorn (1976): Introduction to Social Research. McGraw Hill, New York

- LEDRIZ. (2012). Beyond the Enclave. Harare: Labour & Economic Development Research Institute.
- Lee, K., Lee, H., & Kim, S. (2007). Factors influencing the adoption behaviour of mobile banking: a South Korean perspective. *Journal of Internet Banking and Commerce*, 12(2).
- Luarna, P., & Lin, H.-H. (2005). Toward an understanding of the behavioral intention to use mobile banking *Computers in Human Behavior* 21(6), 873-891.
- Mathur, M., & Shrimali, A. (2007). Mobile Banking : The Best Customer Service Tool for the Banks to Attract and Retain Customers. *Pacific Business Review - A Quarterly Refereed Journal*, 2-3.
- Mbiti, I., & Weil, D. (2011). MOBILE BANKING: THE IMPACT OF M-PESA IN KENYA. Cambridge: NATIONAL BUREAU OF ECONOMIC RESEARCH.
- Mbogo, M. (2010). The Impact of Mobile Payments on the Success and Growth of Micro-Business: The Case of M-pesa .Retrieved March 2012, 6th, from <http://www.ajol.info/index.php/jolte/article/viewFile/51998/40633>.
- McMillan, J. H. & Schumacher, S. (1993). *Research in education: A conceptual understanding*. New York: Harper Collins.
- McPhail, K. (2001). The Other Objective of Ethics Education: Rehumanizing the Accounting Profession – A Study of Ethics Education in Law, Engineering, Medicine, and Accountancy. *Journal of Business Ethics*.
- Myers, M.D., 1997. *Qualitative research in information systems*, [www.qual.auckland.ac.nz/](http://www.qual.auckland.ac.nz/) Accessed 01 July 2013
- Njenga, A. D. (2009, 18th March ). Mobile phone banking: Usage experiences in Kenya. Retrieved March 6th , 2012, from [http://www.w3.org/2008/10/MW4D\\_WS/papers/njenga.pdf](http://www.w3.org/2008/10/MW4D_WS/papers/njenga.pdf).
- Nunnally, J.C. (1967) *Psychometric Theory*. McGraw-Hill, New York, USA

- Ongwenyi, S. (2012, August). INFLUENCE OF MOBILE PHONE BANKING ON TRADITIONAL BANKING TRANSACTIONS; A CASE OF BANKING INSTITUTIONS IN NAIROBI CENTRAL BUSINESS DISTRICT. Nairobi, Kenya.
- OxfordDictionaries.com. (2013, March 01). Definition of Impact. Retrieved March 01, 2013, from Oxford Dictionaries: <http://oxforddictionaries.com/definition/english/impact>
- Porteous, D. (2006). THE ENABLING ENVIRONMENT FOR MOBILE BANKING IN AFRICA. 20 Winthrop Square, Boston MA02110 USA: Department for International Development (DFID).
- POTRAZ. (2012). Postal & Telecommunications Quarterly Sector Statistics Report – 2nd Quater of 2012. Harare, Zimbabwe: Postal & Telecommunications Regulatory Authority.
- Rogers, E.M. (1995). Diffusion of Innovations (4th ed.). New York: Free Press.
- Safeena, Rahmath, Hundewale, Nisar, and Kamani, Abdullah (2011).“Customer’s adoption of mobile-commerce: A study on emerging economy”, International Journal of e-Education, e-Business, e-Management and e-Learning, Vol. 1, No. 3, pp. 228-233.
- Saunders, M. & Lewis, P. and Thornhill, A. (1997).Research Methods for Business Students.Harlow : Prentice Hall.
- Skinner, S. J., Ferrell, O. C., & Dubinsky, A. J. (1988). Organizational dimensions of marketing research ethics. Journal of Business Research, 16, 209–223.
- Stake R E (1995). The Art of Case Study Research, Sage Publications, Thousand Oaks, California.
- Sybase. (2013). Success Stories Dutch-Bangla Bank Limited. Retrieved July 01, 2013, from Sybase Inc: <http://www.sybase.com/detail?id=1094460>
- Tiwari, R., Buse, S., & Herstat, C. (2007). Mobile Services in Banking Sector: The Role of Innovative Business Solutions in Generating Competitive Advantage. New Delhi.
- Tiwari, R., Buse, S., & Herstatt, C. (2006). Mobile Banking As Business Strategy:Impact Of Mobile Technologies On Customer Behaviour And Its Implications For Banks.

Portland International Conference on Management of Engineering and Technology (pp. 3-26). Istanbul: Hamburg University of Technology.

TowerGroup. (2010, October). Mobile Banking Case Studies.

United Nations Conference on Trade and Development.(2009). [Online]. Available from: [http://www.unctad.org/en/docs/ier2009\\_en.pdf](http://www.unctad.org/en/docs/ier2009_en.pdf). [Accessed 27 March 2013].

Wixom, B.H. & Watson, H.J. (2001) An empirical investigation of the factors affecting data warehousing success. *MIS Quarterly*, 25, 17–41

Wray, R. (2008). Cash in hand: why Africans are banking on the mobile phone.From HYPERLINK <http://www.guardian.co.uk/business/2008/jun/17/telecoms.telecoms>. [Accessed 02 June 2013].

Yin, R. (1984). *Case study research: Design and methods* (1st ed.). Beverly Hills, CA: Sage Publishing.

Yin R K (1994). *Case Study Research: Design and Method*, Second Edition, Sage Publications, Thousand Oaks, California.

Zikmund W.G. (1997). *Business Research Methods: Fifth edition*. Florida, The Dryden Press.

## APPENDIX A – HYPOTHESIS TESTING RESULTS

Correlations between variables table					
		Mobile Banking Products & Services	Adoption of mobile banking by customers	Challenges of mobile banking	Traditional Banking Transactions
Mobile Banking Products & Services	Pearson Correlation	1	.162	-.097	.295 <sup>*</sup>
	Sig. (2-tailed)		.232	.485	.027
	N	56	56	54	56
Adoption of mobile banking by customers	Pearson Correlation	.162	1	-.137	.592 <sup>**</sup>
	Sig. (2-tailed)	.232		.324	.000
	N	56	56	54	56
Challenges of mobile banking	Pearson Correlation	-.097	-.137	1	-.283 <sup>*</sup>
	Sig. (2-tailed)	.485	.324		.038
	N	54	54	54	54
Traditional Banking Transactions	Pearson Correlation	.295 <sup>*</sup>	.592 <sup>**</sup>	-.283 <sup>*</sup>	1
	Sig. (2-tailed)	.027	.000	.038	
	N	56	56	54	56
*. Correlation is significant at the 0.05 level (2-tailed).					
**. Correlation is significant at the 0.01 level (2-tailed).					

ANOVA Table					
	Sum of Squares	Df	Mean Square	F	Sig.
Traditional Banking Transactions * Mobile Banking Products & Services	7.267	4	1.817	2.837	0.034
Traditional Banking Transactions * Adoption of mobile banking by customers	8.099	4	2.025	3.244	0.019
Traditional Banking Transactions * Challenges of mobile banking	6.869	4	1.717	2.649	0.044

## APPENDIX B – SAMPLE QUESTIONNAIRE

### Impact of mobile banking on conventional banking transactions Questionnaire

#### Instructions

1. Indicate your response by ticking the box corresponding with your answer.
2. Where you need to type in your response please click the grey area and type in your response.
3. For Questions 2 up to 31 please tick ONLY ONE box that corresponds with your answer. You may tick by simply clicking on your preferred response.
4. If the response options do not provide a perfect fit for your unique situation use your best judgment.
5. Please complete the demographics section below, it is very important

#### Demographics

Job Category:            Managerial                                  Non- Managerial                                  Other  
Age Group: 18-30      31-40      41-50      51 & above  
Time with the bank (e.g 5 yrs): 0-5      6-10      11-15      16-20      21 & above

1. Which transaction is mostly carried out on the e-Wallet platform?
  - I      Airtime top-up
  - II      Send Money
  - III      Bill Payments
  - IV      Balance Enquiry
  - V      Mini Statement

#### Lickert Scale for questions 2 – 31

**Strongly -Disagree    Disagree      Not sure      Agree      Strongly-Agree**

#### Mobile Banking (e-Wallet) Products & Services

- 2      The e-Wallet platform is well known amongst ZB customers and potential customers.
- 3      Number of customers paying their bills through e-Wallet has increased.
- 4      Average number of banking transactions per day has increased as a result of e-Wallet.
- 5      E-Wallet has yielded a positive reaction among customers.
- 6      The advent of e-Wallet has improved customer relations.
- 7      The bank has an effective e-Wallet help desk.
- 8      The bank needs to invest more on mobile banking as it is the way to do banking nowadays.
- 9      There is a noticeable change in transactions based on mobile phone banking technology (e-Wallet).
- 10     E-Wallet has enabled ZB Bank to reach out to the unbanked population.
- 11     E-Wallet transactions have replaced similar conventional banking transactions.

### **Adoption of mobile banking (e-Wallet) by customers**

- 12 Introduction of e-Wallet has made banking easier and de-congested banking halls.
- 13 E-Wallet services are cheaper compared to other similar banking services.
- 14 Most ZB Bank customers are aware of the mobile banking platform (e-Wallet).
- 15 The e-Wallet product is clear and easy to use for ZB Bank customers.
- 16 Easy access, timeliness and cost saving nature of e-Wallet have led to its increased adoption among customers.
- 17 The e-Wallet product is secure and upholds data integrity principles.
- 18 Many customers do not trust doing transactions on the e-Wallet platform.
- 19 Most customers adopt e-Wallet based on cost considerations.
- 20 The use of e-Wallet has improved customer satisfaction.
- 21 Without e-Wallet ZB Bank would lose some of its customers for another bank offering a mobile banking solution.

### **Challenges faced by mobile banking (e-Wallet)**

- 22 E-Wallet operations are often faced with failure of mobile network systems. 23 E-Wallet is not to be a substitute of bank accounts but a complement.
- 24 Mobile phone banking (including e-Wallet) is entrusted to agents whose integrity cannot be strictly regulated.
- 25 ZB Bank cannot control the process of e-Wallet efficiently because they have no control over the whole process.
- 26 Lack of clear regulatory framework in mobile phone banking (including e-Wallet) poses a risk to banks and customers.
- 27 Most of e-Wallet customers are low income earners who do not frequently transact on their accounts.
- 28 Most system down time of e-Wallet is due to inefficiency of the mobile network operator.
- 29 E-Wallet agencies in rural areas have challenges of accessing cash needed by their customers.

### **Free-formatted questions**

- 30 E-Wallet forces most customers to change their mobile devices due to incompatibility.
- 31 The bank is managing risks associated with mobile banking (e-Wallet) sufficiently.
- 32 What other new products & Services would expect to be on e-Wallet?
- 33 Which other factors do you think influenced the adoption of e-Wallet?
- 34 What other challenges are being faced by the bank and customers in the use of e-Wallet?