



THE IMPACT OF MOBILE MONEY SERVICES ON THE PERFORMANCE OF RETAIL

BANKING IN GHANA

BY

AARON AMEYAW

(10702526)

**THIS LONG ESSAY IS SUBMITTED TO THE DEPARTMENT OF FINANCE,
UNIVERSITY OF GHANA BUSINESS SCHOOL, LEGON, IN PARTIAL FULFILMENT
OF THE REQUIREMENT FOR THE AWARD OF MASTER OF SCIENCE DEGREE,
DEVELPOMENT FINANCE.**

JULY, 2019.

DECLARATION

I hereby declare that apart from references to other people which have been duly cited, this project work is the result of my own work, and that it has neither in the whole nor in part been presented elsewhere.

Candidate's Name: AARON AMEYAW

Index Number: 10702526

Signature:

Date:

CERTIFICATION

I hereby declare that the preparation and presentation of this project work was supervised by me in accordance with the guidelines on supervision on project work laid down by the University of Ghana.

Supervisor's Name: DR. CHARLES ANDOH

Signature:

Date:

DEDICATION

This work is dedicated to the Almighty God for his unmerited favor towards me. I also dedicate it to my dear wife Mrs. Vivian Boakye Ameyaw and my three wonderful boys Nana Kwaku, Papa Kwasi and Nana Yaw.

ACKNOWLEDGEMENTS

I would like to first and foremost thank the Almighty God for seeing me through this program successfully.

Secondly, I wish to express my sincere appreciation to Dr. Charles Andoh, my Supervisor, for accepting to supervise my work and for his valuable comments and guidance which helped me finish this project successfully.

I also wish to thank management and staff of Fidelity Bank Ghana Limited, Ecobank Ghana Limited and GCB Bank who allowed me to use their banking halls to administer my questionnaires for this project work.

Finally, I would like to express special thanks to my friends, Alberta Amankwah, Kwaku Aboagye Acquah, Mary-Ann Kyeremeh Laryea and John Perry Aggrey who were my study mates and have contributed immensely to the success of my academic work, you guys were simply the best.

TABLE OF CONTENT

DECLARATION.....	i
CERTIFICATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENT.....	v
LIST OF TABLES.....	viii
LIST OF FIGURES.....	x
LIST OF ABBREVIATIONS.....	xi
ABSTRACT.....	xii
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Background of the Study.....	1
1.3 Statement of Problem.....	3
1.4 Research Purpose.....	5
1.5 Research Objectives.....	5
1.6 Research Questions.....	5
1.7 Significance of the Study.....	5
1.8 Scope and Limitation.....	6
1.9 Outline of the Study.....	6
CHAPTER TWO.....	8
LITERATURE REVIEW.....	8
2.1 Introduction.....	8
2.2 Conceptual Framework.....	8
2.3 Theoretical Framework.....	8
2.3.1 Technology Acceptance Model (TAM).....	9

2.3.2	Diffusion of Innovations Theory.....	11
2.4	Empirical Review.....	12
2.4.1	The Concept of Mobile Money	12
2.4.2	Mobile Money Operations	14
2.4.3	Purpose of Mobile Money Services	18
2.4.4	Benefits of Mobile Money Services in Ghana.....	20
2.4.5	Challenges of Mobile Money Services.....	22
2.4.6	Overview of the Ghanaian Banking Sector.....	23
2.4.7	Retail Banking.....	24
2.4.8	Impact of mobile money to the retail banking	25
CHAPTER THREE	29
METHODOLGY	29
3.1	Introduction.....	29
3.2	Research Design.....	29
3.3	Research Approach	29
3.4	Population	30
3.5	Sample and Sampling Procedure	30
3.6	Research Instrument.....	31
3.7	Data Collection Procedure.....	32
3.8	Data Analysis.....	32
3.9	Ethical Considerations.....	33
CHAPTER FOUR	34
DATA PRESENTATION AND ANALYSIS	34
4.1	Introduction.....	34
4.2	Profile of Respondents	34
4.2.1	Age Distribution of Respondents	34
4.2.2	Gender Distribution of Respondents	35
4.2.3	Occupational Profile of Respondents	36
4.2.4	Bank Distribution of Respondents.....	36
4.2.5	Number of Years with a Bank.....	37
4.3	Mobile Money Services.....	37
4.3.1	Number of years of using Mobile Money Services.....	37
4.3.2	Mobile Money Services used frequently	38
4.3.3	Mobile Money Network Used.....	39

4.3.4	Mobile Money Service Accessibility Ranking	39
4.3.5	Major frequent challenge with Mobile Money Services.	40
4.3.6	Ways to Make Mobile Money Accessible	40
4.4	Retail Banking in Ghana.....	41
4.4.1	Distribution of Bank Products used by Respondents	41
4.4.2	Retail Bank accessibility ranking by Respondents.....	42
4.4.3	Major frequent challenge with Retail banking according to Respondents	42
4.4.4	Ways to Make Retail Bank Accessible According to Respondents.....	43
4.5	Preferences of mobile money services and/or retail banking by Respondents.....	43
4.6	Distribution of Respondents with Mobile Money Services linked with Bank accounts.....	44
4.7	Accessibility of Mobile Money and/or Retail Banking Services.....	44
4.8	Impact of Mobile Money Services on Banking Activities	45
4.9	Impact of Mobile Money Services on Accessibility to Banking Activities	45
CHAPTER FIVE		46
SUMMARY, CONCLUSION AND RECOMMENDATIONS		46
5.1	Introduction.....	46
5.2	Summary of Findings	46
5.3	Conclusion	47
5.4	Recommendations	48
REFERENCES.....		49
APPENDIX 1		54

LIST OF TABLES

Table 1.1: Distribution of Mobile Money service.....	4
Table 2.1: Mobile money payment statistics.....	15
Table 2.2: Mobile Service players and their role.....	17
Table 4.1: Age distribution of respondents.....	35
Table 4.2: Gender Distribution of Respondents.....	35
Table 4.3: Occupational profile of Respondents.....	36
Table 4.4: Bank Distribution of Respondents.....	36
Table 4.5: Number of years spent with a bank.....	37
Table 4.6: Profile numbers of years respondents have used MMS.....	38
Table 4.7: MMS often used by Respondents.....	38
Table 4.8: Mobile money network used.....	39
Table 4.9: MMS accessibility ranking.....	39
Table 4.10: Major frequent challenges with MMS.....	40
Table 4.11: Ways to make Mobile money accessible.....	41
Table 4.12: Distribution of bank products used.....	41
Table 4.13: Retail bank accessibility ranking.....	42
Table 4.14: Major challenges with Retail banking.....	42
Table 4.15: Ways to make retail banking more accessible.....	43
Table 4.16: Preference of MMS and/or Retail banking.....	43

Table 4.17: Distribution of respondents with MMS linked with bank account.....	44
Table 4.18: Accessibility of Mobile money and/or retail bank.....	44
Table 4.19: Impact of MMS on banking activities	45
Table 4.20: Impact of MMS on access to banking services.....	45

LIST OF FIGURES

Figure 2.1: The Technology Acceptance Model.....	10
--	----

LIST OF ABBREVIATIONS

API	Application Programming Interface
ATM	Automated Teller Machine
ATU	Attitude Toward Usage
CEO	Chief Executive Officer
CFO	Chief Finance Officer
DOI	Diffusion of Innovations
E-banking	Electronic Banking
FSI	Financial Soundness Indicators
GSMA	Global Systems for Mobile Communications Association
M-Banking	Mobile Banking
MBS	Mobile Banking Service
M-Cel	Mozambique Cellular
MMT	Mobile Money Transfer
MNO	Mobile Network Operators
MoMo	Mobile Money
NCA	National Communications Authority
PIN	Personal Identification Number
POEU	Perception of Ease of Use
POS	Point of Sale
PU	Perceived Usefulness
PWC	PricewaterhouseCoopers
ROA	Return on Assets
SCB	Standard Chartered Bank
SMS	Short Message Service
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
TELCOS	Telecommunication Companies
USAID	United States Agency for International Development

ABSTRACT

The purpose of this project was to determine the impact of Mobile Money services on Retail banking in Ghana with emphasis on three selected banks, Ecobank Ghana limited, GCB Bank Limited and Fidelity Bank Ghana Limited. These banks were selected based on their share of industry deposit contribution.

A close ended questionnaire was designed and used to collect data from one hundred and thirty-three (133) respondents using convenience sampling. The respondents were customers and potential customers of the selected banks who walked into the various banking halls to perform a transaction. Data received from the questionnaire was coded and analyzed using SPSS version 20 and statistical tools such as frequency counts were employed.

It was observed that almost 52% of the respondents were females and about 72% of the respondents aged between 18- 35 which happens to be our generation Y age who are predominantly confident, ambitious and will mostly take the risk at trying new things. Significant among the findings were that most of the respondents preferred Mobile Banking services to retail banking since it was easily accessible, convenient to making Bill payment however, they think the charges for transactions should be reduced and measures should be implemented to reduce the incidents of fraudulent activities and also an improvement of the network coverage. The content of this work should help stakeholders within the financial services industry churn out electronic-products that will meet the needs of their customers.

KEYWORDS AND PHRASES: Banking institution, mobile money services, mobile network operators, retail banking.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Over the past years, the banking industry worldwide has seen some significant changes and continues to see more transformations with banks moving from the brick and mortar branches into mobile and digital transformations which have only just begun but seeing a lot of growth. “Banks are investing heavily in digital technology in which customers are using mobile phones, web or digital platforms to access banking services. Artificial Intelligence solutions such as Chatbots often assist customers to perform simple tasks such as making payments”.

Traditional banking services within Ghana have also undergone some major changes over the past decade, there have been major increases within the range of alternative channels out there for the delivery of banking services with the introduction of new technologies that have enhanced electronic banking products like the internet banking and varied Automated Teller Machines (ATM) services like cash deposits.

Financial inclusion which may be seen as an economic and social development approach that involves providing financial services through institutions to low income clients at an affordable rate has seen some growth in Ghana.

1.2 Background of the Study

Within the banking sector, retail banking is the segment that deals directly with individuals and the general masses of the unbanked population and most often the visible face of banking to the general public through its branch network, ATMs and other electronic channels for easy access to the public.

Some products offered by this segment include:

- Savings account

- Current account
- Loans (Mortgages/ Auto/ Personal)
- Credit/Debit cards.
- Bancassurance.

The inclusive banking unit which normally sits under the retail segment is mainly tasked to provide affordable financial services to the less privilege within the society with the aim of reducing cost and enhance quality service with limited Know Your Customer (KYC) process as approved per the Bank of Ghana guidelines. For banks to remain efficient, the higher utilization of more electronic channels that generates a lot of non-funded income should be a key component of the strategy. Financial inclusion provides an enabling platform for banks to achieve their strategic objective by providing financial services and products to all in a safe, convenient and cost-effective manner.

Increasingly, the extent of mobile money services is undoubtedly revolutionizing retail banking in Africa without exempting Ghana. The option of mobile money service has caught up so fast that it has presented an alternative financial service to many Africans to use mobile phone as a platform for payment and receipt of a form of currency termed Mobile Money.

A cursory study of the introduction of mobile money in Africa revealed that “the idea of mobile money started in 2002 when the institute of International Development-UK funded research found citizens of Botswana, Uganda, and Ghana were on their own accord using airtime as a substitute for money transfer”. Following this, in 2004, M-Cel in Mozambique introduced the first authorized airtime unit trade off which was an antecedent towards M-Pesa. The idea was further developed through a series of piloting to implement changes to the initial design. This revolution has transformed and upgraded the use of mobile phones from ordinarily making and receiving calls, substituting for travelling efforts, allowing quicker and easier access to information.

Unlike conventional banking and financial services, mobile money also offers the possibilities to make deposit, withdrawal and to transfer money at a low cost and instantly compared to the traditional banking system where some transactions would be done with high charges and also value dated. Despite some challenges associated with this mode of payments, some state institutions have integrated their systems unto these mobile money platforms to enhance payments and receipt of payments from their clients which is an indication that the economy could be moving into a cashless system. Up until recently, Ghana had four Mobile Network Operators offering mobile money services namely MTN, Airtel, Tigo and Vodafone however; there has been a merger between Airtel and Tigo now operating as Airtel-Tigo. MTN controls the market with a share of 84% followed by Airtel-Tigo with a share of 14% and Vodafone 2%.

1.3 Statement of Problem

In the recent past, banks in Ghana have mainly relied on charging exorbitant interest rates in order to maximize their profit without taking a critically look at other sources of income, which accounts for the high level of Non-performing loan (NPLs) which stood at 18.2% as at the end of December 2018. It is therefore imperative that this source of income is not sustainable and so with the introduction of modern technologies that provide clients platforms to transact without having to worry about time, it is about time banks focused on their non-funded income to remain relevant.

To revolutionize the financial services of the country to address the needs of individuals and small businesses, “Mobile Network Operators (MNOs) have made investments to create networks that reach further and deeper into rural areas (United Nations, 2012)”. These networks provide mobile money service to many Ghanaians. With the increasing growth of mobile money facilities scattered all over the country through agents and merchants, the threat of competing with retail banking institutions in Sub-Saharan Africa cannot be underestimated. The adoption of mobile money services since its inception has been remarkable. Global statistics confirm a growth of 19.8% on the registered account as at the end of

2018 whiles active 90-day account grew by 22% with transaction volumes also growing by 14.3% and values by 16.9% (GSMA 2018) as shown in the table below.

Table 1.1: Distribution of Mobile Money service

	Registered Account	Active Account	Transaction Volume	Transaction Value
2017	722,900,000.00	244,900,000.00	2,100,000,000.00	34,900,000,000.00
2018	866,200,000.00	298,700,000.00	2,400,000,000.00	40,800,000,000.00
% Growth	19.82%	21.97%	14.29%	16.91%

Source: GSMA, 2018.

This may be due to the fact that the improvements in technology within this digital age have shaped how people live and how businesses operate. Joining of queue, holding of large sums of money among others were characteristics of the traditional banking services and this led to waste of productive hours. To make banking more convenient, the Automated Teller Machine was adopted, and then the creation of internet banking followed. All these were effort to simplify banking operations. However, an eagle-view into these creations (ATM and internet banking) in Ghana revealed that there were still problems as a result of network connectivity and few ATMs that were usually located within the developed towns.

Customers prefer financial services that are reliable, convenient and affordable (Kamukama & Tumwine, 2012) and the mobile money services offer these qualities. With a simple click on the phone, several financial services can be accessed and this has created unmatched competition between the Banks and the TELCOS and hence the researcher's intent is to assess the impact mobile money has on the performance of retail banking in Ghana.

1.4 Research Purpose

The purpose of the study is “to ascertain the impact of Mobile money on the performance of retail banking in Ghana”.

1.5 Research Objectives

The general objective of the study is to ascertain the impact of mobile money services on the performance of retail banking services in Ghana with three selected banks, Ghana Commercial Bank Ecobank and Fidelity Bank in Ghana. The specific objectives of this study include the following;

- i. To determine preferences of mobile money services and/or retail banking.
- ii. To evaluate the accessibility of mobile money and/or retail banking services.
- iii. To determine the challenges of mobile money services and retail banking.

1.6 Research Questions

The following research questions emerged from the respective research objectives above-listed.

- i. Do users prefer mobile money services to the traditional banking services?
- ii. Are mobile money services more accessible to users relative to the traditional banking services?
- iii. What are the challenges that impede the accessibility of mobile money services and retail banking?

1.7 Significance of the Study

The banking industry has become very competitive and the continuity of banks in the industry depends on how relevant they are to the changing needs of their clients. This study is significant as it sought to contribute to already published research papers in this area as well as policy and practice. The content of this work would help stakeholders within the financial services industry churn out products that will meet the needs of their customers. This would be achieved because “the empirical proof gathered on the

problems of concern around mobile money would prompt policy makers in the retail banking industry to come up with products that would enhance banking services in the country”.

Secondly the findings would be relevant to students and other individuals in the field of academia by “providing empirical evidence about issues concerning the impact of mobile money on the performance of retail banking”. Since money, in any form, remains the set of assets in an economy used regularly by people as a medium of exchange, this study would be a significant endeavor in establishing “a statistical relationship between the usage of mobile money services and retail banking by clients to carry out their financial transactions and satisfy their financial needs”. The study findings would be useful in contributing to the pool of knowledge on retail banking and Mobile Money Services.

1.8 Scope and Limitation

The scope of this research covered three selected banks in Ghana namely

- Fidelity Bank Ghana Limited,
- Ecobank Ghana Limited and
- GCB Bank

The reason for this limited scope was to overcome resources and time constraints.

1.9 Outline of the Study

This project work is outlined into five chapters:

Chapter one will look at the introduction, background of the study, the statement of problem, the purpose and objective of the study and concludes with the significance and scope of the study. Chapter Two opens with an introduction and reviews theoretical and empirical literature relevant to this study and concludes with a summary on what other studies have concluded and their relevance to this study”.

Chapter Three presents the research methodology adopted for this study while Chapter Four: “Provides a presentation and analysis of data collected for the study”.

Chapter Five: “Presents the summary and conclusion, which summarize the entire study, giving recommendations to set a platform for further study to be conducted on the subject. It concludes with the list of references and appendices used for the study”.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review is intended to deliver a summary of sources that have been explored while reading on the subject of mobile money services and retail banking in Ghana to demonstrate how the current study fits within a larger field of study about mobile money services and retail banking. It opens with an introduction and discussion of the search process, and reviews both theoretical and empirical literature relevant to the study. The chapter concludes with how the literature review relates to the current study.

2.2 Conceptual Framework

The conceptual framework links the relationship between mobile money and retail banking in Ghana. Mobile money is conceptualized to include “mobile banking service, mobile money payments and mobile money transfers”. The framework rests on Muisyo, Alala and Musiega (2014) who believed that “mobile money service would impact some important pillars of bank operations in the face of low transactional costs, less time to complete financial accessibility and overall increase of mobile money services”. The framework establishes that mobile money has a positive relationship with retail banking activities with mobile money regulations and operator support conditions serving as the moderating variables.

2.3 Theoretical Framework

The theoretical framework discussed two theories namely; “Technology Acceptance Model and Diffusion of Innovation Model”. Though these theories explain how individuals accept an innovation of a technology, the underlying principles were used to explain individual’s acceptance of mobile money services and its impact on retail banking.

2.3.1 Technology Acceptance Model (TAM)

According to Mugo, Njagi, Chemwei and Motanya (2017), Fred Davis originally proposed “Technology Acceptance Model (TAM) in 1985 as a doctoral thesis at the Massachusetts Institute of Technology and it is believed to be the most cited model in Information Systems (IS) research and in other fields”. The reason for this wide use of this model is its “sound theoretical assumption and practical effectiveness” (Chuttur, 2009). In general, as opined by Ghazizadeh (2012), “TAM attempts to forecast people’s intentions towards the usage of a technology from their perception of its Ease of Use (POEU) and perceived Usefulness (PU)”. Ghazizadeh (2012) further brought to light that several researches on individual acceptance of mobile-based services employ the use of TAM.

Mugo et al. (2017) postulate that the theoretical underpinning of TAM rest on three main factors, which will likely influence an individual’s decision on patronizing a new technology. These determinants as revealed by Mugo et al. (2017) are:

Perceived usefulness (PU) of the product: Perceived usefulness (PU) of the product is defined as “the degree to which individuals believe that employing a particular system would boost their job performance”. Within the mobile money services, the perceived usefulness of the services rendered by operators is carefully calculated and individuals assess how meaningful it will be incorporating this service into their daily activities. It is from this background that more banks are integrating their products with mobile money services.

Perceived ease of use (PEOU): Perceived ease of use (PEOU) is “the degree to which an individual believes that a technology should be devoid of complexity and that it should be easier to use”. In the confines of mobile money services, perceived ease of use encompasses the accessibility of the service, the ease in registration, the ease in the payment method among others.

Attitude towards usage (ATU): The final aspect is the attitude towards use (ATU). Mugo et al. (2017) believe that “the attitude of a user towards usage of a technology is an important element in determining the acceptance of the technology”. Chen et al. (2011) as cited by Mugo et al. (2017) further state that “both perceived usefulness (PU) and perceived ease of use (PEOU) positively influence the attitudes towards usage (ATU) of a system”.

Below is an illustration of the relationship of the determinants of TAM.

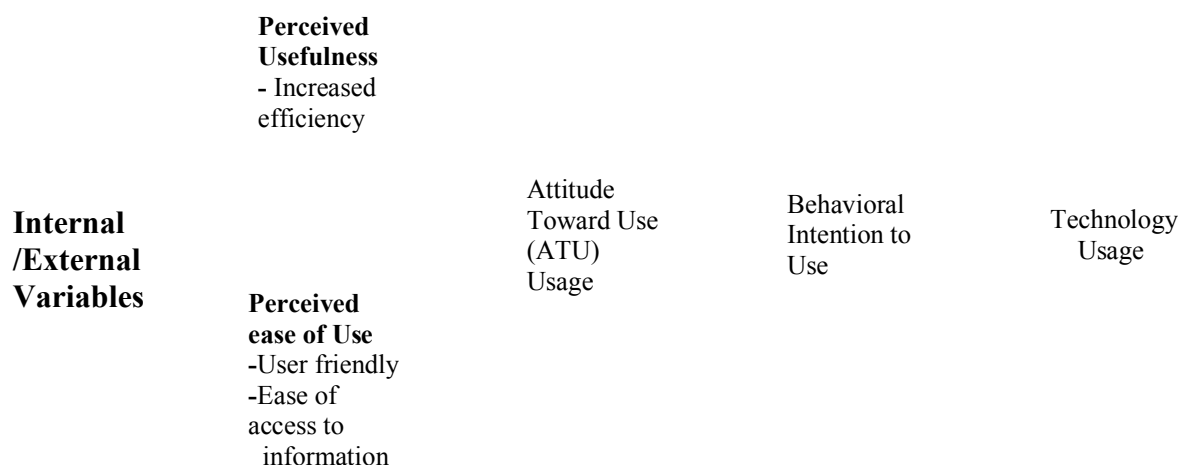


Figure 2.1: The Technology Acceptance Model (Mugo et al., 2017).

The stated qualities depict that Mobile technologies are gaining roots and as opined by Mugo et al. (2017), they concluded that “several research findings support the claim that technologies are not only useful, but also easy to use” and this clearly reveal the current happenings in Ghana with the introduction of Mobile Money Services. Several customers perceive “Mobile money services as easy to use and as such traditional banks that do not incorporate Mobile Money Services in their operations are lagging behind”.

2.3.2 Diffusion of Innovations Theory

Diffusion of innovations is a theory propounded by Everett Rogers that “attempts to describe how, why, and to what extent new ideas, systems and technology spread”. Dearing and Cox (2018) explained diffusion of innovations as “a social process that occurs among people in response to learning about an innovation”. Dearing and Cox (2018) further stated that “employing diffusion concepts to influence rate and reach entails taking additional steps early in the process of creating an innovation to increase its chances of being noticed, positively perceived, adopted, adapted, and implemented—and, thus, successfully crossing the research-to-practice chasm”.

The Theory of Diffusion of Innovations (DOI) has five major stages (Ghazizadeh, 2012) and they are:

Knowledge: “Here an individual does not have a complete knowledge of the product and is not fully familiar with the product”.

Persuasion: “At this stage, the individual familiarize him/herself with the innovation and seeks for more knowledge about the innovation”.

Decision: “At this stage, the individual now has knowledge of the innovation and is familiar with it therefor reaches the decision of either accepting or rejecting it”.

Implementation: “The usefulness of the innovation is now sought after by the individual at this stage because the individual has adopted the innovation”.

Confirmation: “Final decision declaring either the acceptance or rejection of the innovation is finally done at this stage”.

Robinson (2009) identified five features that define the success of innovation under the diffusion of innovation theory. They are:

Relative Advantage: Relative advantage refers to “individual measuring the advantages of an innovation over the existing one”. Amoh (2016) opined that by “applying Relative Advantage within the confines

of this study, advantages of using mobile money services should outweigh any existing traditional mode of payment”. According to Robinson (2009), “the greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is likely to be”.

Compatibility: Compatibility defines how tuned a new innovation is with an individual’s daily routine.

Complexity or Simplicity: This reveals the complex nature of an innovation whether it is used in its complex or very simple nature. Ghazizadeh (2012) believes that “if using a new innovation require a lot of effort from the individual, then it is more likely that the innovation will be rejected”.

Trialability: Ghazizadeh (2012) postulates that if an innovation requires less effort from the individual in testing and examining, there is a high tendency for the innovation to be adopted.

Observable results: Observable results entail the visibility of the innovation. According to Robinson (2009), “the easier it is for individuals to see the results of an innovation, the more likely they are to adopt it”. Diffusion of Innovations Theory is applicable to this project because it tries to explain how, why and the extent to which innovations are adopted and spread with its use exceeding the existing system and by extension, this theory explains how mobile money services have gained roots in Ghana and how they are affecting retail banking.

2.4 Empirical Review

2.4.1 The Concept of Mobile Money

According to Diniz, Porto and Cernev (2011) “financial services provided through digital mobile technologies have multiple goals and objectives and depending on the combination of agents, technologies may have banking features which are known as mobile banking”. They may also have transaction payment features which are recognized as mobile payment however, they may also replicate the concept of money with digital features which is then referred to as mobile money.

There is however evidence of the fact that money which is used as a medium of exchange has evolved over time and throughout this transformative stages, other objects were used as intermediate of exchange such as a metal coin, shell, or historic images, but its value has nothing to do with the physical appearance (Beattie, 2016). But in complete contrast, money today has acquired intangible properties, such as mobile money (electronic money) which has become an alternative medium of exchange, where cell phone in minutes take on the role of currency (Rao, 2014; Subramaniam, 2013). The above reveals that Mobile money “is a term that describes electronic financial services undertaken through a mobile phone”. Cash withdrawal, cash transfer, and payment of bill among others can be done through these services. Subia and Martinez (2014) opined that several literature usually use mobile banking and the general term of mobile money. They further revealed that “there are three major mobile money services: mobile banking, mobile payments and mobile transfers”.

Mobile Banking Service (MBS): The term mobile banking service (m-banking) is used to describe the range of financial services that are offered via the mobile platform including mobile money transfer. This allows customers to conduct some financial transactions remotely using a mobile device such as a mobile phone.

Mobile Money Transfer (MMT): Mauree (2013) said mobile money transfer allows sending and receiving money. In this case, electronic money can be transferred either domestically or internationally. When recounting the historical overview of mobile money transfer in Africa, Subramaniam (2013) said until 2006, countries in Africa traditionally relied on informal means of money transfer such as friends, family and bus drivers, the most commonly used formal transfer system was post offices, while private institutions like Western Union, although expensive, were also being used. Relying on these systems for transfers and payments raises obvious safety concerns – the risk of theft and loss of money being the

most important of problems. Hence, many countries in Africa lacked money transfer or payment systems that were cheap, quick and safe.

Mobile Money Payment: Is a service that permits the unbanked to “purchase or sell goods and services at a merchant shop using their mobile wallet through their mobile phone, instead of cash” (Subia & Martinez, 2014). This practice allows for a cashless trade.

2.4.2 Mobile Money Operations

The influx of cell phones in Ghana has led to an increase in the mobile money services within the country. Donovan (2012) and Lochan, Radcliffe, Sinha and Tahilyani (2010) revealed that mobile money services boost productivity and improve efficiency because long queues that are usually seen at the banking halls are totally avoided which also saves time, transaction costs stemming from leakage reduction as well as bettering security. A critical look into the Ghanaian economy revealed that mobile money services have gained roots and can be identified in almost every corner of the country. Mobile money services have allowed families and friends to send money to their loved ones at the rural areas easily. It is noteworthy that most rural areas do not get access to banks where they could have received monies from their loved ones safely if not from the intervention of mobile money operations within the country. Many scholars believe that “mobile money services can become the tool through which economies within the African sub-region can achieve growth in sectors such as commerce, health care delivery, agriculture and others”. In Ghana, the service has seen some growth over the last five years as indicated in the Table 2.1 below:

Table 2.1: Mobile money payment statistics

Indicators	2014	2015	2016	2017	2018
Registered MoMo accounts (Cumm 'million)	7.17	13.12	19.74	23.95	32.55
Active MoMo Acc('million)	2.53	4.87	8.31	11.12	13.06
Total volume of transactions ('000000)	113.18	266.25	550.22	981.56	1,454.47
Total value of trans (Gh¢'million)	12,123.89	35,444.38	78,508.90	155,844.84	223,207.23
Float balance (Gh¢'million)	223.33	547.96	1,257.40	2,321.07	2,633.93

Source: Bank of Ghana (Dec., 2018).

Mobile Network Operators (MNOs): The mobile network operators possess the entire mobile infrastructure, customer base and the mobile device application. They have a very strong branding customer trust. Lal and Sachdev (2015) reveal that MNOs own the cellular network and have a physical presence in communities they operate. They do not have experience in offering financial services and the regulatory power to undertake it as well (Lal & Sachdev, 2015).

Financial Institutions (Banks): Jenkins (2008) opines that banks see to the overall compliance of the financial sector regulations and provide banking services through mobile money. Any money that flows through the mobile money services is regulated and held in an account, which are provided by banks (Lal & Sachdev, 2015). Banks are responsible for providing accounts to merchants and oversee the flow of e-money from mobile to the merchant's main account.

Merchants and Utilities: Merchants are the retail shops, online shops, and service providers who use the mobile money platform to receive payments from their customers. Utilities according to Jenkins (2008), is a “function of ways and place in which it is possible” for the service to be used. These merchants offer mobile payments.

Regulators: Regulators within the mobile money ecosystem are responsible for creating a serene platform on which the mobile money can thrive. Regulators are the authority responsible for imposing regulations, monitoring and enforcing compliance (Jenkins, 2008).

The Customer: The customers are known as the end users of the mobile money services within the ecosystem. Their needs of the mobile money services are what spur on the operations of the mobile money services. In light of this, every effort to make them appreciate the use of the system should be undertaken by the other players within the ecosystem.

The Central Bank presented an econometric analysis report on the impact of mobile money on the payment system in Ghana in 2017 and highlighted key players within the mobile service structure in Ghana. Table 2.2 below is a summary of the players and their roles presented by Bank of Ghana.

Table 2.2: Mobile Service players and their roles

Players	Roles
Mobile Network Operators (MNOs)	<ul style="list-style-type: none"> -Provide mobile infrastructure -Provide agents networks -Have the customer base that utilizes the mobile money services
Banks	<ul style="list-style-type: none"> -Provide the platform for the transfer of funds between parties. - Provide platform to hold float for the Online Virtual Accounts (OVA)
Bank of Ghana	<ul style="list-style-type: none"> -As a regulator, Bank of Ghana supervises the activities of banks. -Ensure a serene mobile money ecosystem.
National Communication Authority.	<ul style="list-style-type: none"> -Ensures the safety of customers' data -Establishes and monitors quality service within the Mobile money companies.
Agents: Also known as the Liquidity Managers in Mobile Money Subsectors	<ul style="list-style-type: none"> -Facilitate all cash-ins and cash-outs.
Merchants and Retailers	<ul style="list-style-type: none"> -They accept Mobile money payments in exchange for a product or service.

Source: Bank of Ghana, 2017.

Modes of Operation by Providers: In the quest to provide financial system that will appeal to customers, providers of mobile money services have designed banking ideas that provide customer satisfaction. Cudjoe, Anim and Nyanyofio (2015) revealed three models that have been adopted by mobile money operators to achieve their set target. Cudjoe et al. (2015) further posit that these three models differ from each other and are “based on who established the relationship (Banks or the Non-Bank / Telecommunication Company) of account opening, deposit or withdrawal, borrowing, among others, with the customers”. These three models are; Bank-Led Model, Non- Bank-Led Model and Bank Focused Model.

Bank-Led Model: This is when transactions are done by customers using their personal phones with the help of trade partners. This system permits customers account to be created and managed by the banks. This model is created by partnership between banks and telecommunication companies.

Non-Bank-Led Model: Cudjoe et al. (2015) explained that the non-bank-Led Model is not involved until called upon to hold excess funds and this give room for Telecommunication Company to control all operations.

Bank-Focused Model: With this model, traditional banks ride on the cheap delivery channels which are non-traditional banking system in meeting the needs of their customers. They include but not limited to the usage of ATMs by banks and internet banking to provide the banking services needed by its customers.

2.4.3 Purpose of Mobile Money Services

According to USAID (2010), receiving remittances was the sole purpose for the use of mobile money services; however, mobile money services currently serve other purposes such as Cash transfer, Cash withdrawal, Cash deposits, payments of Bills and saving money. Amoh (2016) further believes that this

initiative has largely allowed the unbanked populace who are mobile money users to undertake numerous financial activities.

Cash transfer: One of the main purposes of mobile money is its usage in the transfer of remittances from one person to the other. The mobile money cash transfer according to Ivatury and Mas (2008) is the sending of funds to another mobile user(s) via their wallet within a country irrespective of jurisdiction and sometimes across the international borders (Mpiani, 2016). Here both registered and non-registered customers can receive remittances from each other. In Ghana, the adoption of the mobile money interoperability service permits the movement of funds within mobile wallets irrespective of the network operator one has by following a simple prompt and confirming payment by entering one's PIN.

Retail Payment: Mobile payment has allowed users to purchase items and pay services online. For instances, MTN mobile money services in Ghana allow its users to purchase certain applications on Google play store. Online purchasing is not the only retail payment that can be undertaking with mobile money services; there are some offline services that can be paid using mobile money. Some retail centers in Ghana accept mobile money as a form of payment for goods purchased or service rendered.

Cash Deposits, Withdrawal and Savings: Operators within the mobile money services have made it easier for people who would like to deposit funds into their bank accounts to do that easily. For instance, with the help of GCB's mobile money services, there is no need for a customer to walk to their office to deposit or withdraw money. With just the help of a phone, one can deposit, withdraw or save any amount without any stress.

Payment of Bills: Mobile money users have access to various services that can help them to pay their Bills. Electricity Bills, water bills among other bills can be paid through mobile money. Mobile money services have allowed its users not to go through the stress of getting to specific offices in payment of their bills.

Purchasing of Airtime and Data: Purchasing of airtime in Ghana via this platform is very easy and hence has become one of the greatest use of mobile money services. Customers buy airtime and data with this service. It is interesting to note that almost all the telecommunication networks in Ghana offer mobile money services and their customers do not stress in purchasing airtime for calls or buying data for browsing. With several offers on the purchase of airtime and data bundle plans available on mobile money services, customers patronize this product a lot.

2.4.4 Benefits of Mobile Money Services in Ghana

The services of mobile money in Ghana have been a blessing to the Ghanaian economy with some of benefits being

- Convenience
- Investment opportunities
- Employment opportunities

Financial inclusion: means “making affordable the banking services to the vast segment of the society whether they are poor or excluded” (Kelkar, 2010 cited by Lenka & Bairwa, 2016). Opare (2018) believes that the “growth of mobile money services in Ghana has offered financial inclusion for many Ghanaians”. Opare (2018) further posits that stakeholders are of the view that the surge in mobile money services will permit many of the unbanked populace to undertake financial transactions safely at a reduced cost in Ghana.

The Scope of Financial Inclusion: Lenka and Bairwa (2016) defined financial inclusion as “ensuring access to formal financial services at an affordable cost in a fair and transparent manner”.

Rabha (2012) expanded financial inclusion in two main ways “through state-initiated intervention by way of statutory enactments”, and “through effort by the banking sector itself to faction out various strategies to bring the unbanked within the banking sector that are excluded from the financial system”. An example

of such strategy is the introduction of the Fidelity Smart Account. The account provides the unbanked masses the opportunity to open bank account with little Know your Customer documentation. Financial inclusion is pivotal to the development of a nation and as revealed by the World Bank (2014) and cited by Besley (2018), increasing financial inclusion has become one of the biggest developmental challenges. Financial inclusion has numerous benefits and Lenka and Bairwa (2016) pointed out that financial inclusion helps to “eliminate the problem of leakages from subsidy and welfare distribution, boosts saving, increases credit availability, and breaks the vicious circle of poverty of a nation (Ellis, Lemma, & Rud, 2010)”.

Convenience: “Mobile money services offer a convenient way for customers to have access to their funds without difficulty of having to visit a brick and mortar bank branch to join long queues”.

Employment opportunity: “The Bank of Ghana payment statistics data for 2018 reveals that active Registered Agents in the mobile money services grew by 19.06%. This clearly shows that the surge in this area has equally provided employment to people within the country”.

Investment opportunity: “The Bank of Ghana approved the payment of interest on mobile money transactions in September 2016 in line with provisions of the electronic money guidelines”. This provides user the opportunity to earn interest on funds held on their wallet.

Drive towards a Cashless society: As per the payment system statistic report for the first quarter of 2019 total mobile money transactions per value as at December 2018 stood at ₵223 billion whereas that for cheques for the same period stood at ₵ 203 billion confirming the overtake of mobile money against cheque payment. With stakeholders within the financial services industry advocating for a cashless society, this mode of payment may only be the tool in Ghana to help achieve this aim.

2.4.5. Challenges of Mobile Money Services

Though the usage of these services has risen since its inception in 2009, the service still has some challenges that prevent people from patronizing it. As Frimpong (2016) opined, there are still challenges within the Mobile Money services that should be addressed by the players within this ecosystem. Sogbodjor (2015) revealed three main challenges facing Mobile Money Services. They are: trust, risk and transactional cost, network availability and security threats.

Trust, Risk and Transactional cost: Though mobile money services have gained large usage from the Ghanaian populace, there are some individuals that do not patronize this service based on the trust issues from agents, the perceive risk of losses and the transaction cost associated with this services. With a deduction of 1% of the amount of money on withdrawing and sending of money from wallet, some individuals perceive it as costly and as such do not fully use the services as required.

Network Availability: The effectiveness of this service in Ghana is based on active network coverage to aid in its operations however; this is not the situation in some areas of the country where coverage is poor and so deprives clients from transacting and enjoying the full benefit. It behooves on Mobile Network operators to make available coverage to deprived areas and this can heavily influence usage.

Security threats

Some security threats this mode of payment has been faced which include but not limited to the following:

- Telco staff conniving with potential fraudsters
- SIM swaps
- Ability of fraudsters to attack client wallet via an (Application Programming Interface (API).

Sharing of pins by subscribers has become one of the main tools that have posed a threat to the security of the services. To curb this menace, it is advised that the mobile network operators employ the services of the media to educate client on safety tips and also periodically send test messages via their short message services (SMS) to create the awareness on the usage of the service.

2.4.6 Overview of the Ghanaian Banking Sector

A bank is a “financial institution that accepts deposits and directs those deposits into lending activities by lending directly or through capital markets”. Banks serve as the “intermediary between customers that have capital deficits and customers with capital surpluses”. The Ghanaian banking sector has undergone many stages of financial deregulations all geared towards improving the sector and making it competitive. Before the 1980’s, there were many government interventions within the Ghana’s banking industry; “most of the banks in this era were government owned and restrictions were imposed on foreign entry as well as the interest rate which was controlled by the Bank of Ghana”. The implementation of the “Universal Banking License concept in 2003 as well as the re-enactment of Banking Act in 2004 led to an increase in investor interest as well as increase in merger and acquisition over this period”.

In 2017, the Bank of Ghana in its quest to improve the banking system within the country increased the minimum stated capital requirement of universal banks in the country from GHS120 million to GHS 400 million and tasked all the banks to fulfill this directive by the end of December 2018. This directive, which was largely connected to the minimum additional regulatory capital forced stakeholders of the various institutions to adopt measures to improve upon their banking operations in order to meet this requirement. The Bank of Ghana reported in their banking sector report on November, 2018 that “Key financial soundness indicators (FSIs) broadly improved in October 2018 compared with October 2017”

and they attributed these gains to the on-going reforms in the sector. Following the directive, the total number of banks in Ghana has now shrunk from thirty-four (34) to twenty-three (23).

2.4.7 Retail Banking

Retail banking is “the typical mass-market banking in which individual customers use local branches and other channels to access banking services like current account, savings accounts, insurance products, loans, pensions and investments”

Narteh and Kuada (2014) believe that policy changes that have taken place within the financial sector in Ghana have led to the proliferation of the retail-banking sector. The growth of retail banking has created competition among these banks. Addo and Kwarteng (2012) opined that since customers do not only undertake business with one bank, it is imperative for banks to competes with each other in order to gain a share of the customers money and this will help them to achieve their desired profit. In the face of this competition, Amanfo (2010) believes a bank can compete effectively by adopting a “differentiation strategy” where the bank will offer a unique product or services but Amanfo (2010) cited Ioanna (2000) who revealed that differentiation within the banking industry is nearly impossible because most banks offer the same services.

Possible threats of mobile money on Retail Banking: “The proliferation of mobile money services threatens the usage of banks as the preferred mode for transferring smaller amounts of money within the country”. Opare (2018) attributed this to a Bank of Ghana report that “disclosed that the total value and volume of mobile money transactions exceeded all other non-cash transactions in the year 2016 with the exception cheques”. Many believe that mobile money services are serving as pseudo banking with their services interfering with payment systems of banks and deposit mobilization. In a survey conducted by PWC in 2016, senior executive members in some Ghanaian banks named certain products and services

of banks that they believe the mobile money services are taking over and all these services can be found within the retail banking segment. They are;

Domestic fund transfers: transferring of money on mobile money is easier and instant. With the introduction of mobile money interoperability in Ghana, fund transfers have been more easily compared to using the traditional way of banking to send money. The problems of joining long queues, which waste time, are not encountered when using mobile money services.

Payment solutions: Mobile money services can be used to pay for bills. Currently, some local markets accept mobile money (e-money) as payment for goods purchased. Some stakeholders believe this mode of payments that mobile money services offer can be a threat to the retail-banking sector in Ghana. Ghana News Agency (2016) cited by Opare (2018) asserts, “Mobile money was significantly threatening the payment solutions offered by banks, particularly the bill payment and point of sale (POS) payment services”.

Current accounts (deposits): Mobile money services permits individuals to deposit funds into a mobile wallet make, withdrawals and transfer money serving the purpose of a current accounts and this has led to the assertion that the mobile money services are taking over the role of traditional banking.

Debit/ATM Cards: The provision of a 24-hour service provided by mobile money services and the ease of its accessibility has been a threat to the various debit/credit cards. All withdrawals from a mobile money services are easy and instant and stakeholders believe they are a threat to the retail banking system.

2.4.8 Impact of mobile money to the retail banking

Muisyo, Alala and Musiega (2014) researched on the “effects of mobile money services on the performance of the banking institutions with Kakamega town as the case study”. The researchers sampled

115 respondents from 13 financial institutions within the confines of Kakamega town and employed the usage of questionnaires, both structured and semi-structure; interviews and observation.

A qualitative and quantitative research was used in their analysis. The researchers found out that “the introduction of mobile money services contributed greatly to financial performance of banking institution”. “Convenience and reliability of mobile money services led to an increased customer satisfaction”. They admitted that “the line between mobile money service providers and banking institutions has been of great help to individuals as well as the banks”. By extension, “mobile money services have had a positive impact on retail banking activities”.

Currently, some banks have designed ways with the help of mobile money services where customers are able to request for a loan from their phone and the money requested are deposited into their mobile money account without going to the banking hall (Kunateh, 2015 cited by Opare, 2018)

PricewaterhouseCoopers (PWC) in 2016 conducted a Banking survey to “know from the bankers the degree to which mobile money affects their business through interviews and questionnaires”.

After sharing their views on the potential impact of mobile money on their business, more than half of the respondents were of the view that “mobile money services have moderately affected their business activities”. In conclusion, PWC revealed that “banks could form partnership with network operators that provide mobile money services and as such, network operators should not be seen as competitors but rather as potential partner”. This will help banks to design products and services that will be patronized by customers directly. It is noteworthy to reveal that many banks incorporated mobile money services in their retail banking and have now carved out product and services that appeal to customers directly.

Lastly, Mpiani (2016) researched on the “effect of mobile money services on savings intention of customers; using Kumasi metropolis in Ghana as the case study”. Their findings revealed that “the mobile money usage has tremendously affected the behavioral intention of customers to save with banks”. They

attributed this to the fact that “mobile money services had created an alternative way for customers to undertake all activities under retail banking by just a click from the phone”. The above evidences reveal the fact that “mobile money service is currently an evolution of the retail banking services”. Productive hours used in forming queues at banks can be eradicated with the use of these services.

The growth of this service has led to the financial inclusion of many of the unbanked populace in Ghana as discussed earlier. Mobile money services have reached out to millions and the retail-banking sector can utilize it. Below are some of the impacts of mobile money to retail banking.

Revenue Generation; Allotey (2016) as cited by Opare (2018) indicated that “banks in Ghana have in their circulation, over six hundred million Ghana cedis worth mobile money deposits; representing about 30% of total banks deposits”. This staggering figure would have not been met if it were left alone in the hands of retail banking. This increase in bank deposits helps generate revenue for the banks.

Quality Customer Service: This entails “providing efficient, quick and friendly service to clients” and banks that have incorporated mobile money services into their retail banking activities offer their customers quick and efficient products and services 24 hours a day. A good customer service will yield customer satisfaction.

Market Share: Customers do not need to walk into the banking hall to transact business. With the help of mobile money services, an individual can transfer money from an account, make payment or deposit funds into their bank account through just a touch of a mobile phone screen. These services can be a tool for the retail banking sector to gain customers within the financial market.

Return On Assets (ROA): ROA is a profitability ratio that “shows the profit a company has been able to accrue”. (ROA) measures how efficient a company has been in generating earnings. “Mobile money services will improve some important pillars of the retail banking operations due to reduced transactional

costs, reduced time to complete transactions, and increased financial accessibility which will go a long way to increase the Return On Asset". An increased Return On Asset becomes a profit to companies.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter covered the methodology utilized in the study. This comprised “the research design, the population of the study, the sample and sampling technique, the research instrument, the data collection procedure, data analysis and ethical considerations”.

3.2 Research Design

The research design used for the study was descriptive survey. The descriptive survey, according to Glass and Hopkins (2009), “involves gathering data that describes events and then organizes, tabulates, depicts and describes the data collection”. Descriptive survey provides “statistics and analysis techniques that yield reports concerning the measures of central tendency, variation and correlation”. It also helps “to organize and present data logically in order to arrive at valid and accurate conclusions by using visual aids such as graphs and charts to aid the understanding of the data distribution”. Notwithstanding the above strengths of the descriptive survey method, it is also prone to some weaknesses. It is easily susceptible to distortions through the introduction of biases in the measuring instruments. For instance, errors due to the use of questionnaires might distort the research findings. Also, the study of past events as a way to investigate certain problems makes the descriptive survey very difficult to use. As a way of reducing the weaknesses, the questionnaire was carefully worded with the help of the supervisor and also reduced to the understanding of the ordinarily bank customer.

3.3 Research Approach

The study adopted the quantitative approach to research. The purpose of a quantitative research is “to quantify data and generalize from a sample of the population of interest”. This is done by “measuring the various views and opinions of the chosen sample”. Other characteristics of a quantitative research

are: randomly selected respondents, the use of structured questionnaire, descriptive and conclusive findings and recommendation as a final course of action. In the light of the above characteristics, the study found the quantitative approach to research as the best fit for this study.

3.4 Population

The population for this study was “customers of the Fidelity Bank Ghana Limited, Ecobank Ghana Limited and GCB Bank”. The target population for this study was however, a sample customer of the selected Bank who use the various mobile banking platforms and other related applications that make banking easier. These banks were selected based on their share of industry deposit contribution as per PWC 2018 Ghana banking survey report.

3.5 Sample and Sampling Procedure

A sample size consisting of 150 individuals and customers who operate with these selected banks were selected for the study. These targeted sample size of 150 individuals consisted of clients and potential clients who walk into the banking halls of the selected banks to perform one transaction or the other most of whom are subscribers of mobile money services. Others also used mobile applications of the selected banks that help them to initiate transactions between their accounts and their mobile money account (wallet). 50 customers from each bank were selected using the purposive and convenience sampling procedures. According to Etikan, Musa and Alkassim (2015, p.2), purposive sampling technique is the “deliberate choice of a participant due to the qualities the participant possesses” it is also known as judgment sampling. Here, the researcher selected people based on the qualities needed for the topic under study. “Convenience sampling is also a sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher (Black, 1999)”. This sampling method was also used because the customers do not come to the bank in an order and therefore they enter and leave the banking hall at any hour during the bank’s working hours. Again, the researcher was only available in

the bank at certain hours of the day in order not to cause any inconveniences to the customers and other bank officials who were assisting in the collection of the questionnaires. Purposive sampling and convenience sampling were the best choice since they involved choosing the nearest individuals with qualities needed for the project under study to serve as “respondents and continuing that process until the required sample size was obtained or those who happen to be available and accessible at the time (Cohen, 2000)”. In other words, the researcher simply chose the sample from those to whom they have easy access. Notwithstanding the flexibility in the use of the convenience sampling, it does not represent any group apart from itself and therefore the findings of the study cannot be generalized (Cohen, 2000).

3.6 Research Instrument

The research instrument used in collecting data from the respondents was questionnaire. The decision to use questionnaire was based on the fact “that it is the best method by which reliable information can be obtained in a research of this kind; where the variable under investigation requires statement of fact and high level of confidentiality (Oppenheim, 1992)”. “Questionnaires are widely used and useful instrument for collecting survey information, numerical data and often comparatively straight forward to analyze (Cohen & Morrison, 2000)”. “They also enable comparisons to be made across groups in the sample (Oppenheim, 1992)”.

The researcher again deemed that the questionnaire would be the most beneficial data gathering instrument for this particular study due to its strengths of:

- (i) “Requiring less time and effort to administer”.
- (ii) “Ensuring a higher response rate as it is fully completed by respondents”.
- (iii) “Collecting information in a standardized fashion”.
- (iv) “Ability to investigate patterns, frequencies and trends (Passer, 2013)”.

The structured questionnaire was developed based on the modification to the items proposed by Brady and Cronin's (2001) hierarchical model and Behaviour-Intentions Battery by Zithaml, Berry and Parasuraman (1996) on service quality, customer loyalty, intention to switch and customer satisfaction. The questionnaire had 20 questions: Sections. The items in questions 1-3 were meant to obtain data related to the background of the customers. Questions 4 and 5 contained items that sought to gather information about the customer and his or her account. Questions 6 – 20 focused on the use of mobile money and its impact on Retail Banking. Out of 150 questionnaires administered, 133 questionnaires were retrieved which represents 88.67% of the estimated sample size of 150. The data was therefore analyzed and discussed using the 133 questionnaires.

3.7 Data Collection Procedure

With permission and clearance from the Bank Manager and the assistance of the workers in the bank, the questionnaire was administered to customers in the banking hall who were waiting to do transaction at the counter. The questionnaire was also made available at the various desks in the bank for customers to fill as and when they visit these desks to make enquiries. Customers were asked to leave the completed questionnaire at the respective desks or place it in a box as they exit the banking hall. The researcher was available in some instances to explain or provide clarification on the items in the questionnaire to the workers who assisted in the collection of the data.

3.8 Data Analysis

“Due to time constraints, no pilot test was conducted to check the reliability and validity of the instrument”. However, this was “counterbalanced by being meticulous, coherent and logical in the construction of the questionnaire, proofreading it, giving it to other researchers and finally giving it to the supervisor for vetting”. Data from the questionnaire was ‘cleaned’ by “identifying and eliminating all errors from the questions that respondents misinterpreted and other associated inaccuracies were also

eliminated”. This was followed by “data coding and data reduction, which refers to translating closed-ended answers into numbers in order to develop the meaning of each segment (Creswell, 2009)”. The output for the analysis was generated with the Statistical Package for Social Sciences (SPSS).

3.9 Ethical Considerations

The ethical principles underlying the conduction of researches were strictly applied in this study. These included ensuring the confidentiality of respondents and not tempering with the responses that the researcher received from respondents. The questionnaire was administered to respondents to be completed with the authorization of the bank manager. Thus, during data collection period, the researcher did not influence the responses of respondents. These cumulative responses were analyzed and presented in chapter five and six of this study. The overall study was conducted under strict ethical principles and as such, the results from this study are very reliable.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents the results, analysis, discussions and findings of the data collected. Analysis of responses was done according to the key research objectives and depicted in tabular form where applicable.

4.2 Profile of Respondents

The following are the attributes of the respondents to the 133 questionnaires received out of the 150 sampled. The profile of respondents includes their age, gender, occupation, name of their bank, the number of years spent in transacting business with their bank and finally the number of years of using mobile money.

4.2.1 Age Distribution of Respondents

Out of the 133 respondents, 31.6% were between the ages of 18 and 25, 40.6% which was the highest fell between the ages of 26 to 35 which happens to be our generation Y age who are predominantly confident and ambitious and so were willingly approachable to administer the questionnaire, 18.0% were also between the ages of 36 and 45 years while respondents above the age of 46 years constituted 9.8%. The results indicate that approximately 72.2% of the respondents are between the ages of 18 and 35 years. This means most respondents are youthful who use both mobile money and retail banking

Table 4.1: Age distribution of respondents

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	42	31.6	31.6	31.6
26-35	54	40.6	40.6	72.2
36-45	24	18.0	18.0	90.2
46 AND ABOVE	13	9.8	9.8	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.2.2 Gender Distribution of Respondents

In relation to the distribution of the gender of respondent, the findings as indicated in the table below shows that out of all the one hundred and thirty-three respondent, sixty nine (69) of them were females representing 51.9%. This implies that majority of the respondents who have adopted and patronize mobile money services and retail banking more are females.

Table 4.2: Gender Distribution of Respondents

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
MALE	64	48.1	48.1	48.1
FEMALE	69	51.9	51.9	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.2.3 Occupational Profile of Respondents

Most of the respondents out of the 133 from the table below own private business and are either business owners or entrepreneurs representing a distribution of 48.9% while 21.8% are Civil Servants, 15% are students. Only 14.3% stated that they are in other occupations not listed.

Table 4.3: Occupational profile of Respondents

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
PRIVATE BUSINESS	65	48.9	48.9	48.9
CIVIL SERVANT	29	21.8	21.8	70.7
STUDENT	20	15.0	15.0	85.7
OTHERS	19	14.3	14.3	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.2.4 Bank Distribution of Respondents

Respondents banking with Fidelity bank were the highest among the 133 respondents. They were 52 in total representing 39.1% of the respondents, those with Ecobank followed with a total number of 42 respondents which represent 31.6% of the respondents while respondents banking with GCB were 39 in total representing 29.3%.

Table 4.4: Bank Distribution of Respondents

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
GCB	39	29.3	29.3	29.3
FIDELITY	52	39.1	39.1	68.4
ECOBANK	42	31.6	31.6	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.2.5 Number of Years with a Bank

It was observed that out of the 133 respondents, 25.6% have spent less than a year with a bank. 30.8% of the respondents have spent between 1 and 2 years with their current bank, 10.5% of the respondents have been with a bank between 3 to 5 years. Lastly, 33.1% of the respondents have spent more than 5 years with their current bank. In all, the number of people who have spent more than 5 years with their current banks were more than any other category.

Table 4.5: Number of years spent with a bank

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
LESS THAN A YR	34	25.6	25.6	25.6
1-2	41	30.8	30.8	56.4
3-5	14	10.5	10.5	66.9
ABOVE 5	44	33.1	33.1	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.3 Mobile Money Services

4.3.1 Number of years of using Mobile Money Services

In all, 31 respondents constituting 23.3% admitted that it has been less than a year using the mobile money service. 56 respondents which form 42.1% of the respondent have used mobile money services within 1 to two years. 19 respondents which form 14.3% of respondents indicated using the mobile money services between 3 to 5 years. The data collected revealed 21 respondents have used the mobile money services over 5 years and they form 15.8%. Only 6 respondents which is 4.5% of the total respondents were not using mobile money services.

Table 4.6: Profile numbers of years respondents have used MMS

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
LESS THAN A YR	31	23.3	23.3	23.3
1-2	56	42.1	42.1	65.4
3-5	19	14.3	14.3	79.7
ABOVE 5	21	15.8	15.8	95.5
NONE	6	4.5	4.5	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.3.2 Mobile Money Services used frequently

In gathering data on the mobile money services frequently used by respondents, the data collected revealed that payment of bills (such as payment of water bills, electricity bills among others) was the frequent mobile money service used and it accounted for 51.1% of the total respondents. This was followed by the purchase of data and airtime which also was 39.1% of the respondents. The other 9.8% had other varied use of mobile money service.

Table 4.7: MMS often used by Respondents

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
PAYMENT OF BILLS	68	51.1	51.1	51.1
BUY AIRTIME/DATA	52	39.1	39.1	90.2
NONE	13	9.8	9.8	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.3.3 Mobile Money Network Used

In all 74.4% of the total respondents used MTN mobile money services. 12.8% of the respondents used Airtel-Tigo mobile money services, Vodafone Cash were used by 9.8% of the respondents while 3.0% could not identify with any of the aforementioned mobile money network.

Table 4.8: Mobile money network used

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
MTN MOMO	99	74.4	74.4	74.4
AIRTEL-TIGO MONEY	17	12.8	12.8	87.2
VODAFONE CASH	13	9.8	9.8	97.0
NONE OF THE ABOVE	4	3.0	3.0	100.0
Total	133	100.0	100.0	

Source: Field data, (2019).

4.3.4 Mobile Money Service Accessibility Ranking

Out of the 133 respondents, 63.2% ranked the accessibility of mobile money as high, 31.6% viewed the accessibility of mobile money services as moderate and lastly 5.3% ranked the accessibility of mobile money services in Ghana as low.

Table 4.9: MMS accessibility ranking

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
HIGH	84	63.2	63.2	63.2
MODERATE	42	31.6	31.6	94.7
LOW	7	5.3	5.3	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.3.5 Major frequent challenge with Mobile Money Services.

Mobile money services in Ghana faces several challenges. These challenges sometimes are from the various agents of mobile money services. Out of the total of 133 respondents, 39.8% believe network issues are the major challenge of the mobile money services in Ghana. 18.8% were also of the view that the major challenge of mobile money service is issues of fraud (safety issues). With problems of high charges involved in mobile money services, 23.3% admitted that it is a major challenge of the mobile money service. 9.8% of respondents indicated that the major challenge of mobile money service is the delay from vendors. Poor Security at the vendors area were seen as a major challenge by 6.0% while 2.3% were of the view that wrong credit reversal is the major challenge of the mobile money service.

Table 4.10: Major frequent challenges with MMS

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
NETWORK ISSUES	53	39.8	39.8	39.8
FRAUD/SAFETY ISSUES	25	18.8	18.8	58.6
HIGH CHARGES	31	23.3	23.3	82.0
DELAY FROM VENDORS	13	9.8	9.8	91.7
SECURITY AT THE VENDOR AREA	8	6.0	6.0	97.7
WRONG CREDIT REVERSAL	3	2.3	2.3	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.3.6 Ways to Make Mobile Money Accessible

On improving on the accessibility of mobile money services, 51.1% pointed out that reducing of charges can be very effective. 21.1% believed minimize of fraud within the mobile money services will be

instrumental in improving its accessibility while 27.8% of respondents saw improvement in network coverage as the effective way of making mobile money services available

Table 4.11: Ways to make Mobile money accessible

Source: Field data (2019)

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
REDUCE CHARGES	68	51.1	51.1	51.1
MINIMIZE FRAUD	28	21.1	21.1	72.2
IMPROVE NETWORK COVERAGE	37	27.8	27.8	100.0
Total	133	100.0	100.0	

4.4 Retail Banking in Ghana

4.4.1 Distribution of Bank Products used by Respondents

Out of the 133 respondents, 50.4% have savings accounts, 30.8% possess current accounts while 11.3% use credit/debit cards. Only 7.5% of respondents had loan accounts in accessing loans from retail banks.

Table 4.12: Distribution of bank products used

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
SAVINGS ACCOUNT	67	50.4	50.4	50.4
CURRENT ACCOUNT	41	30.8	30.8	81.2
LOAN ACCOUNT	10	7.5	7.5	88.7
CREDIT/DEBIT CARD	15	11.3	11.3	100.0
Total	133	100.0	100.0	

Source: Field data (2019)

4.4.2 Retail Bank accessibility ranking by Respondents

In ranking retail bank accessibility in Ghana, 33.8% of the respondents rated it high, 53.4% of the respondents believed retail bank accessibility in Ghana is moderate while 12.8% respondents viewed accessibility of retail banks in Ghana as low.

Table 4.13: Retail bank accessibility ranking

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
HIGH	45	33.8	33.8	33.8
MODERATE	71	53.4	53.4	87.2
LOW	17	12.8	12.8	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.4.3 Major frequent challenge with Retail banking according to Respondents

On outlining the major challenges of retail banking in Ghana, 52.6% of respondents believe network issues accounts for such challenges, 14.3% of respondents viewed fraud/safety issues as a challenge, 14.3% saw high charges as a major challenge while those who viewed accessibility of retail banking as a challenge form 18.8%.

Table 4.14: Major challenges with Retail banking

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
NETWORK ISSUES	70	52.6	52.6	52.6
FRAUD/SAFETY ISSUES	19	14.3	14.3	66.9
HIGH CHARGES	19	14.3	14.3	81.2
ACCESSIBILITY	25	18.8	18.8	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.4.4 Ways to Make Retail Bank Accessible According to Respondents

To improve the accessibility of retail banking, majority of the respondents constituting 52.6% called for the intensification of online applications. 24.1% also believed more ATMs will help make retail banking accessible while 23.3% were of the view that expansion of branches will be the ideal solution.

Table 4.15: Ways to make retail banking more accessible

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
EXPANSION OF BRANCHES	31	23.3	23.3	23.3
MORE ATMS	32	24.1	24.1	47.4
INTENSIFY ONLINE APPS	70	52.6	52.6	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.5 Preferences of mobile money services and/or retail banking by Respondents.

Out of the 133 respondents, 74.4% which formed majority preferred mobile money services to retail banking. 12.8% of the total respondents also preferred retail/consumer banking to mobile money services. 9.8% of the respondents claimed they preferred both mobile money services and retail banking. 3.0% were indifferent.

Table 4.16: Preference of MMS and/or Retail banking

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
MOBILE MONEY	99	74.4	74.4	74.4
RETAIL/CONSUMER BANKING	17	12.8	12.8	87.2
BOTH	13	9.8	9.8	97.0
INDIFFERENT	4	3.0	3.0	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.6 Distribution of Respondents with Mobile Money Services linked with Bank accounts.

Majority of the respondents which accounts for 72.9% of the respondents have their mobile money services linked with their personal accounts. In total 36 respondents accounting for 27.1% of respondents did not have their mobile money services linked with bank accounts.

Table 4.17: Distribution of respondents with MMS linked with bank account

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
YES	97	72.9	72.9	72.9
NO	36	27.1	27.1	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.7 Accessibility of Mobile Money and/or Retail Banking Services.

Of the total respondents, 71.4% which forms the majority believe that mobile money is easily accessible than retail banking activities while 11.3% also believe that retail banking is easily accessible than retail banking. Only 17.3% revealed that the accessibility of both mobile money services and retail banking are the same.

Table 4.18: Accessibility of Mobile money and/or retail bank

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
MOBILE MONEY	95	71.4	71.4	71.4
RETAIL/CONSUMER BANKING	15	11.3	11.3	82.7
BOTH	23	17.3	17.3	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.8 Impact of Mobile Money Services on Banking Activities

On accessing the impact of mobile money on banking activities since its introduction on banking activities, majority of the respondents which account for 82.7% admitted that mobile money services have improved banking activities while 17.3% believed that mobile money services have not in any way improve banking activities.

Table 4.19: Impact of MMS on banking activities

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
YES	110	82.7	82.7	82.7
NO	23	17.3	17.3	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

4.9 Impact of Mobile Money Services on Accessibility to Banking Activities

Respondent were asked to reveal their stand with a Yes/No answer to know whether mobile money services have improved banking activities. 80.5% of respondents claimed that mobile money services have helped in accessing banking activities since its introduction into the country while 19.5% of respondents were also of the view that the introduction of mobile money services have not in any way improved banking activities.

Table 4.20: Impact of MMS on access to banking services

Variable	Frequency	Percent	Valid Percent	Cumulative Percent
YES	107	80.5	80.5	80.5
NO	26	19.5	19.5	100.0
Total	133	100.0	100.0	

Source: Field data (2019).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings and conclusion in accordance with the objectives of the study. The chapter also offers recommendations on how Mobile Money Services can impact retail banking in Ghana as well as suggestions for future research relating to the topic.

5.2 Summary of Findings

As indicated throughout this project, the study was to determine the impact of Mobile Money Services on retail banking in Ghana using three selected banks as the case study. In all, one hundred and thirty-three (133) customers responded to the questions via a well-designed questionnaire.

The major findings of the study include:

There were female and youth dominance with regards to respondents, most of the respondents were private business owners, hence 56 out of the 138 respondents have been using mobile money between 1-2 years, and 68 respondents representing 51.1% use their mobile money account for payment of bills and other use was buying of airtime or data. Amongst the available networks, MTN was mostly used and that was 99 out of the 138 respondents representing 74.4%.

Majority of the respondent prefer mobile money over retail banking services as a result of the convenience associated with the service and the fact that it is easily accessible compared to retail banking services.

The use of mobile money has complemented retail banking and has improved the linkage between the two. 72.9% of the respondent had linked their bank account to the mobile money wallet which makes it easier to transact from their wallet to their bank account and vice versa.

Majority of respondents who had retail bank accounts were operating savings account (50.40%). A lot of these respondents have been operating retail bank accounts for about five years and moderately believe their retail bank accounts were accessible.

52.6% confirmed network related issues as a major challenge with using retail bank and believe intensifying online applications will help improve the accessibility of retail banking whereas 39.8% confirm network related issues as a major challenge affecting mobile money services and also believe that an improvement in network coverage will make mobile money services more accessible.

5.3 Conclusion

The study assessed the impact of mobile money on performance of retail banking in Ghana. Findings from the respondents established that mobile money has greatly influenced retail banking in Ghana. By comparing the score on this particular item, it was obvious that the impact of mobile money on retail banking cannot be overemphasized. It is obvious how mobile money has come to shape and broaden banking with almost everyone having a mobile money account and the flexibility/ ease to send and receive money from the comfort of their homes anytime.

With further enhancement, banks have been able to also serve their clients with the use of mobile money for many transactions by linking their bank account to their mobile wallets which hitherto was not available, and this has made banking services easier and more accessible than ever.

Despite this wonderful innovation, there is still more to be done in order to realize the full benefit of mobile money. Bad network is affecting both mobile money usage and retail banking. This issue must be tackled with urgency.

5.4 Recommendations

Based on the analysis and the findings of the study, the following recommendations are made. Despite this wonderful innovation, there is still more to be done in order to realize the full benefit of mobile money. Bad network is affecting both mobile money usage and retail banking and must be tackled with urgency as stated earlier. That notwithstanding the recommendations below is made to enhance the entire process.

- It is apparent how mobile money has positively influence retail banking in Ghana based on the study as shown with the data. It is recommended that fraudulent cases are reduced and handled with all urgency. Some of these cases must be investigated and the perpetrators brought to book. Fraudulent activities have in one way or the other dented the trust Ghanaians have in mobile money.
- The TELCOS must work at reducing the cost/charges associated with the use of mobile money services. Transactional cost discourages clients from using mobile money and as such these costs must be looked at critically and if possible reduced in order to encourage more people to use mobile money.
- Since the study was done in banks with high share of industry contribution and as such have more of their customers using mobile money, the researcher recommends that the same research be conducted in banks with very low industry contribution to determine its impact on retail banking.

REFERENCES

- Amegbe, H., Hanu, C., & Nuwasiima, A. (2017). Small-scale individual entrepreneurs (SIEs) and the usage of mobile money (M-money) and mobile commerce (M-commerce) in facilitating business growth in Ghana. *Management Science Letters*, 7(8), 373-384. and Opportunities. *ACP Observatory on Migration, Brussels*.
- Black, T. R. (1999). *Doing quantitative research in the social sciences: An integrated approach to research design, measurement and statistics*. Sage.
- Blouin, R. A., Riffée, W. H., Robinson, E. T., Beck, D. E., Green, C., Joyner, P. U., ... & Pollack, G. M. (2009). Roles of innovation in education delivery.
- Campbell, J. C., Webster, D. W., & Glass, N. (2009). The danger assessment: Validation of a lethality risk assessment instrument for intimate partner femicide. *Journal of interpersonal violence*, 24(4), 653-674.
- Chauhan, S. (2015). Acceptance of mobile money by poor citizens of India: Integrating trust into the technology acceptance model. *info*, 17(3), 58-68.
- Chuttur, M. Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions. *Working Papers on Information Systems*, 9(37), 9-37.
- Cohen, L., Manion, L., & Morrison, K. (2000). *Research Methods in Education* [5 th edn] London: Routledge Falmer. *Teaching in Higher Education*, 41, 21.
- Creswell, J. W. (2009). Quantitative methods. *Research design: Qualitative, quantitative and mixed methods approaches*, 145-171.
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*
- Cruz, G., & Touchard, G. (2018). Enabling rural coverage: regulatory and policy recommendations to foster mobile broadband coverage in developing countries. Technical Report. GSMA.

- Cudjoe, Anim & Nyanyofio (2015) Determinants of Mobile Banking Adoption in the Ghanaian Banking Industry: A Case of Access Bank Ghana Limited
- Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results* (Doctoral dissertation, Massachusetts Institute of Technology).
- Dearing, J. W., & Cox, J. G. (2018). Diffusion of innovations theory, principles, and practice. *Health Affairs*, 37(2), 183-190.
- Diniz, E., Porto de Albuquerque, J., & Cernev, A. (2011). Mobile Money and Payment: a literature review based on academic and practitioner-oriented publications (2001-2011).
- Donovan, K. (2012). Mobile money for financial inclusion. *Information and Communications for Development*, 61(1), 61-73.
- Ellis, K., Lemma, A., & Rud, J. P. (2010). Financial Inclusion, Household Investment and Growth in Kenya and Tanzania. Overseas Development Institute. *Project Briefing No, 43*, 2010.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.
- Fehske, A., Fettweis, G., Malmudin, J., & Biczok, G. (2011). The global footprint of mobile communications: The ecological and economic perspective. *IEEE communications magazine*, 49(8), 55-62.
- Fernando N. A. (2007). “Low Income Household’s Access to Financial Services International Experience, Measures for Improvement, and the Future”, EARD Special Studies, Asian Development Bank.
- Frimpong, A. N. K., & Gyamfi, S. A. (2016). Mobile Commerce: Mobile Money Transfer in Ghana (Customers’ Perspective). In *Managing Innovation and Diversity in Knowledge Society Through*

Turbulent Time: Proceedings of the MakeLearn and TIIM Joint International Conference 2016 (pp. 971-983). ToKnowPress.

Ghazizadeh, M., Lee, J. D., & Boyle, L. N. (2012). Extending the Technology Acceptance Model to assess automation. *Cognition, Technology & Work*, 14(1), 39-49.

Ivatury, G., & Mas, I. (2008). The early experience with branchless banking. *CGAP Focus Note*, (46).

Kamukama, N., & Tumwine, S. (2012). MOBILE MONEY SERVICES: A LIQUIDITY THREAT TO UGANDA's COMMERCIAL BANKS. *African Journal of Accounting, Economics, Finance and Banking Research*, 8(8), 33-46.

Kelkar, V. (2010). Financial inclusion for inclusive growth. *ASCI Journal of management*, 39(1), 55-68.

Kunateh, M. A. (2015). Ghana: Telcos Welcome New Directive to Halt Fibre Cuts. *All Africa/The Chronicle*.

Kubuga, K. K., & Konjaang, J. K. Mobile Money—A Potential Threat to Banks?. *International Journal of Computer Applications*, 975, 8887.

Lal, R., & Sachdev, I. (2015). *Mobile money services: Design and development for financial inclusion* (pp. 15-083). Boston, MA: Harvard Business School.

Lenka, S. K., & Bairwa, A. K. (2016). Does financial inclusion affect monetary policy in SAARC countries?. *Cogent Economics & Finance*, 4(1), 1127011.

Lochan, R., Mas, I., Radcliffe, D., Sinha, S., & Tahilyani, N. (2010). The benefits to government of connecting low-income households to an e-payment system: an analysis in India. *Lydian Payments Journal*, 2, 38-44.

Louis, C., Keith, M., & Lawrence, M. (2000). *Research methods in education* 5th edition.

Markoska, K., & Ivanochko, I. (2018). Mobile Banking Services—Business Information Management with Mobile Payments. In *Agile Information Business* (pp. 125-175). Springer, Singapore.

- Mauree, V., & Kohli, G. (2013). The Mobile Money Revolution-Part 2: Financial Inclusion Enabler ITU-T Technology Watch Report.
- Mpiani, C. (2017). *Effect of Mobile Money Services on Savings Intention of Customers within Kumasi Metropolis* (Doctoral dissertation).
- Mugo, D. G., Njagi, K., Chemwei, B., & Motanya, J. O. (2017). The technology acceptance model (TAM) and its application to the utilization of mobile learning technologies. *Journal of Advances in Mathematics and Computer Science*, 1-8.
- Muisyo, J. M., Alala, O., & Musiega, D. (2014). The effects of mobile money services on the performance of the Banking Institutions: A Case of Kakamega Town. *transactions*, 354(16,700,000), 4-600.
- Nations, U. (2012). United Nations Millennium Development Goals Report 2012. *New York, NY: United Nations*.
- Obimpeh, H. A. (2017). *A study on mobile money and retail banking services in Kumasi Metropolis* (Doctoral dissertation).
- Opare, E. A. Factors Affecting Technology Acceptance in Banking-A Case Study of the Ghanaian Banking Industry.
- Oppenheim, A. N. (1992). Questionnaire design. Interviewing and Attitude measurement, 24. Passer, 2013
- Amoh, S. (2016). Mobile Money Services Adoption and Customer Behavioral Intentions in Ghana
- Sogbodjor, P. O. (2016). *ASSESSING MTN MOBILE MONEY IN GHANA* (Doctoral dissertation).
- Subia, M. P., & Martinez, N. (2014). Mobile Money Services: A Bank in your Pocket—Overview and Opportunities. *ACP Observatory on Migration, Brussels*.

- Subramaniam, G. (2013). *Mobile Money: A Theoretical study of Alternative Media of Exchange, and an Empirical study with respect to M-Pesa in Kenya* (Doctoral dissertation, Master's Thesis, Toulouse School of Economics).
- Torres, E. N., & Kline, S. (2006). From satisfaction to delight: a model for the hotel industry. *International Journal of Contemporary Hospitality Management*, 18(4), 290-301.
- Williams, I. (2013). Regulatory frameworks and Implementation patterns for Mobile Money in Africa: The case of Kenya, Ghana and Nigeria. In *Aalborg University Conference Paper*.
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of marketing*, 60(2), 31-46.
- Zentner, J., Ender, T., & Ballestrini-Robinso, S. (2009, October). On Modeling and Simulation Methods for Capturing Emergent Behaviors for Systems-of-Systems. In *12th Annual Systems Engineering Conference*. (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Zhang, Y. M., Bao, S. X., Liu, T., Chen, T. J., & Huang, J. (2011). The technology of extracting vanadium from stone coal in China: History, current status and future prospects. *Hydrometallurgy*, 109(1-2), 116-124.

APPENDIX 1

QUESTIONNAIRE

The following questionnaire is part of a survey being conducted in partial fulfillment of a Master of Science in Development Finance from University of Ghana Business School on the topic, *“The Impact of Mobile Money on the Performance of Retail Banking in Ghana.”* This information is purely for academic purpose and therefore its confidentiality is highly guaranteed. You are therefore kindly requested to provide accurate answer to the ensuring questions. Your co-operation and support will be appreciated.

Please Tick where Appropriate

1. Age of respondent? a. 18-25 b. 26-35 c. 36-45 d. 46 and above
2. Sex of respondent? a. Male b. Female
3. Occupation of respondent? a. Private business b. Civil servant c. Student d. Others Please Specify.....
4. Which of the following institutions do you bank with?
a. GCB b. Ecobank c. Fidelity
5. How long have you been operating with the bank?
a. Less than a year b. one year to two years c. Three years to five years d. Above five years
6. How long have you been using your Mobile Money if any?
a. Less than a year b. one year to two years c. Three years to five years d. Above five years e. None
7. Aside receiving and sending of money from your Mobile Money account, which of the following services do you use frequently?
a. Payment of Bills b. Buy Airtime/Data c. None
8. Which of the following bank products do you use mostly?
a. Savings account b. Current Account c. Loans Account d. Credit/Debit Cards
9. Which of the following Mobile Money Services (MMS) do you use?

- a. MTN Mobile Money b. Airtel-Tigo Money c. Vodafone Cash d. None of the Above
10. Which of the following do you prefer mostly?
a. Mobile Money b. Retail /Consumer banking
c. Both
11. Has the introduction of Mobile Money improved your banking activities?
a. Yes b. No
12. Is your mobile money account linked with your bank account?
a. Yes b. No
13. How would you rank the accessibility level for your mobile money services?
a. High b. Moderate c. Low
14. How would you rank the accessibility level for your retail banking services?
a. High b. Moderate c. Low
15. Which of the following is easily accessible to you?
a. Mobile Money b. Retail/Consumer Banking c. Both
16. Has the introduction of mobile money in any way help to improve access to banking for you?
a. Yes b. No
17. What is the major challenge with mobile money that you encounter frequently?
a. Network issues b. Fraud /Safety issues c. High Charges
d. Delay from Vendors e. Security at the vendor area f. Wrong Credit reversals
18. What is the major challenge with Retail Banking that you encounter frequently?
a. Network issues b. Fraud /Safety issues c. High Charges d. Accessibility
19. What do you think can be done to ensure retail banking becomes more accessible?
a. Expansion of branches b. More ATM's c. Intensify Online Apps
20. What do you think can be done to ensure mobile money services become more accessible?
a. Reduce Charges b. Minimize Fraud c. Improve Network Coverage