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AN EXAMINATION OF THE CONTRIBUTION OF MOBILE MONEY TOWARDS AN INCLUSIVE FINANCIAL SYSTEM IN KUMASI METROPOLIS

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DECLARATION

I hereby declare that this submission is my own work toward the award of the Master of Business Administration in Finance and that to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this work to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout this program and on His wings only have I soared. I also dedicate this work to my parents and my wife who have encouraged me all the way and whose encouragement has made sure that I give it all it takes to finish that which I have started.

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ABSTRACT

The importance of an inclusive financial system is widely recognised in policy circles and recently financial inclusion has become a policy priority in many countries. Access to appropriate financial services can significantly improve the day-to-day management of finances. The study examined the extent to which mobile money service helps improve financial inclusion in Ghana, providing evidence from Kumasi Metropolis. The study adopted the quantitative approach and the survey research design to examine the phenomenon. Using the convenience sampling technique, 200 mobile money users were sampled in the Kumasi Metropolis. Primary data specifically questionnaire was the main data collection instrument in this study. Data was analysed quantitatively using descriptive statistics including frequencies, mean analysis, and cross tabulation. The findings of the study suggest a positive effects of mobile money services on savings behaviour of users and that mobile money services helps to improve the welfare of users in Ghana. Nonetheless, we found some challenges mobile money users in Ghana face including high level of fraud, higher interest rate, high costs of transaction and inadequate loan amounts. We recommend that laws should be enacted to guide the mobile money service from fraud and other dubious activities to encourage an extensive use of the facility to improve financial inclusion and social welfare in Ghana.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The importance of an inclusive financial system is widely recognised in the policy circles and recently financial inclusion has become a policy priority in many countries (Sarma and Pais, 2011; Kim, Yu and Hassan, 2018). An inclusive financial system has several merits. It facilitates efficient allocation of productive resources and thus can potentially reduce the cost of capital (Berger, Herring and Szegö, 1995; Rioja and Valev, 2012). In addition, access to appropriate financial services can significantly improve the day-to-day management of finances. An inclusive financial system can help in reducing the growth of informal sources of credit (such as money lenders) that are often found to be exploitative (Cojocaru *et al.*, 2016; Ouma, Odongo and Were, 2017). Thus, an all-inclusive financial system enhances efficiency and welfare by providing avenues for secure and safe saving practices and by facilitating a whole range of efficient financial services. Scholars such as Ardic, Heimann, and Mylenko (2011) and Beck, Levine, and Levkov (2010) reveal that price and non-price barriers like high cost associated with fees and minimum balances, lack of physical access, long loan processing time, and strict documentation and collateral requirements have led to voluntary exclusion of the population worldwide.

Rangarajan Committee (2008) defines "financial inclusion as a process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups at an affordable cost." Contextually, Park and Mercado (2015) refers to it as "usage of financial services provided by regulated, other formal, and informal financial institutions." The banking sector has also taken a lead role in promoting financial inclusion. The German Bankers' Association introduced a voluntary code in 1996 providing for an 'everyman' current banking account that facilitates basic banking transactions. In South Africa, a low cost bank account

called ‘Mzansi’ was launched for financially excluded people in 2004 by the South African Banking Association. In India, the Reserve Bank of India (RBI) has initiated several measures to achieve greater financial inclusion such as facilitating ‘no-frills’ accounts and ‘General Credit Cards’ for low deposit and credit. Alternate financial institutions such as micro-finance institutions and ‘Self-Help Groups’ have also been promoted in some countries in order to reach financial services to the excluded.

A large body of existing empirical evidence suggests that mobile phones can potentially serve as a tool for economic development in Africa, especially in promoting financial inclusion (Aker & Mbiti, 2010; Ggombe, 2015). Indeed, Gosavi (2017) attests that mobile money, which is a mobile-phone-based financial tool can transfer money safely and quickly across a wide geographical area. Accordingly, Duncombe (2009) observes that mobile phones have considerable potential in providing a new and rapidly developing technological means to facilitate monetary payments and transfers in under-banked and unbanked communities. In addition, UNCDF (2015) also reveals that innovations such as use of digital financing through mobile money, has led to increased access to affordable, safe, accessible, adaptable, and usable financial services by the poor. Moreover, CGAP (2009) argues that mobile phones offer the possibility of revolutionizing the traditional labour intensive banking model into a more agile, robust, and cost-effective mechanism capable of delivering small transactions that the low-income groups usually deal with.

Many scholars have researched the extent to which mobile money systems helps to improve financial inclusion in many emerging economies. Among these studies, Okello et al. (2018) found that mobile money usage and social networks have direct and significant effects on financial inclusion in rural Africa. Jonathan & Camilo (2008) observe that many lives, especially of the rural poor households have been transformed by the mobile phone revolution, which has provided not only communication but also access to basic financial services through

phone-based money transfer and storage (Demombynes & Thegeya, 2012). In another study, Lawack (2012) also indicated that mobile money usage in South Africa has helped improve financial inclusion and financial integrity among South Africans. Alexadre and Eisenhart (2012) also found that mobile money accelerates the development of accounts, which are the backbone of financial inclusion and financial integrity.

Despite these studies, Ghana has received little attention on how to improve financial inclusion through mobile money systems. Among these studies, Boateng (2018) found that mobile money services offered by mobile networks and banks has improved the rate of saving leading to improved financial inclusion among the selected sample between 2014 to 2017. Aker and Wilson (2013) also studied this phenomenon in the Northern part of Ghana and found that their access to and usage of mobile money and this technology could be used to improve households' access to financial services. Narteh and Abdulai (2017) also stated in their study that, providers must ensure that their mobile application services are simple to operate, fulfil specific consumers' needs, protect consumers' accounts to ensure trust and are affordable, hence positively influencing consumers' adoption of services. In line with the increase in the number of subscribers on mobile money services on the various networks in Ghana due to the lower cost associated with its use, this study throws more light on how this rise in mobile money service is helping to improve financial inclusion among Ghanaians living in Kumasi Metropolis. The study is designed to give updated information on this phenomenon since recent periods has seen an increase in the number of subscribers and the headway the service is making in the economy.

1.2 PROBLEM STATEMENT

It is estimated that 1.7 billion adults remain unbanked globally, yet two-thirds of them own a mobile phone that could help them access financial services (World Bank, 2018). According to the world bank press release in 2018 report, they indicated that Sub-Saharan Africa has the next-largest population of unbanked adults, at about 350 million – or 17% of the global total (World Bank, 2018). However, opportunities abound to increase account ownership: up to 95 million unbanked adults in the region receive cash payments for agricultural products, and roughly 65 million save using semiformal methods. Smith (2015) observed that only a little over 40% in the developing world have traditional/formal financial account. This is because these accounts are expensive to maintain and require credit history for which the poor is excluded thereof. Rangarajan Committee (2008) contends that use of appropriate technology such as mobile money with low-operational cost can promote outreach of financial services in remote areas. This is supported by Kochhar (2009) who observes that leveraging technology create channels beyond branch networks that helps in extending banking services to the unbanked similar to those dispersed by branches. Conclusively, the World Bank (2014) elucidates that high rates of mobile phone network penetration and adoption, lack of affordable alternatives, especially among rural communities, and lower service fees relative to conventional bank accounts have resulted into rapid use of mobile money, especially in developing economies (Mas & Radcliffe, 2010; World Economic Forum Report, 2011). Indeed, use of digital financing reduces cost associated with financial services delivery incurred by banks.

In Ghana, the rise of mobile money services has been fast. Ghana Interbank Payments and Settlements System report has shown that the movement of funds from bank accounts into mobile money wallets or accounts recorded 1224% growth in 2019. According to the report, transactions between mobile money platforms (mobile money interoperability) and services on

the e-zwich platform also contributed to the growth in transaction volumes with 317% and 39% increase respectively. The value of the transactions for 2019 was GH ¢781.6 million, compared to GH¢212.8 million in 2018, and the volume of transaction shot up massively from 2.2 million in 2018 to 9.4 million last year. The latest Economic and Financial Data from Bank of Ghana (BoG) revealed that the total value of Mobile Money transactions in the country has grown by GH₵20.7 billion. According to the data, the total value of Ghana's Mobile Money transactions increased to GH₵45.3 billion in June 2020. It is clear that Mobile Money popularly called (MoMo) is penetrating across the length and breadth of the country. It keeps recording significant growth in terms of number of agents and customers, since its introduction in Ghana in 2009 by MTN Ghana, a subsidiary of Scancom PLC (BOG, 2020). Despite this rise in the use of mobile money services, little research has been conducted in Ghana concerning how mobile money helps improve financial inclusion in Ghana. Among the studies, Boateng (2018), Aker and Wilson (2013), Narteh and Abdulai (2017) found evidence to show that mobile money services helps improve savings in different parts of the country. This study argues that the recent rise in mobile money services could help improve financial inclusion in the form of savings, easy access to loan services, etc. This study therefore is designed to investigate this phenomenon providing evidence from mobile money users in Kumasi Metropolis.

1.3 OBJECTIVES OF THE STUDY

The overall objective of this study was to examine the extent to which mobile money service helps improve financial inclusion in Ghana, providing evidence from Kumasi Metropolis. In order to achieve the above, the following objectives were outlined:

1. To examine the contribution of mobile money systems on savings of individuals in Kumasi Metropolis.

2. To examine the contribution of mobile money systems on welfare of individuals in Kumasi Metropolis.
3. To determine the challenges faced in accessing mobile money services.

1.4 RESEARCH QUESTIONS

In order to achieve the above objectives, the following research questions were asked:

1. What is the contribution of mobile money systems on savings of individuals in Kumasi Metropolis?
2. What is the contribution of mobile money systems on welfare of individuals in Kumasi Metropolis?
3. What are the challenges faced in accessing mobile money services?

1.5 SCOPE OF THE STUDY

The main objective of this study was to examine the extent to which mobile money system improves financial inclusion in Ghana, providing evidence from Kumasi Metropolis. For this reason, the study's scope revolves around users of mobile money services and also residents in Kumasi Metropolis. The study relies on the use of primary data as the main source of data for this study unlike other studies which have relied mostly on secondary data. Finally, the research is scoped towards the use of only registered customers of the three telecommunication networks that provide mobile money services.

1.6 SIGNIFICANCE OF THE STUDY

The findings of this study will be of relevance to researchers, practitioners and policymakers. It will add to the vast research on financial inclusion, and specifically, the impact of mobile money on financial inclusion in Ghana. This research happens to be one of the few studies that look at the linkages between mobile money and financial inclusion in Ghana. Secondly, government, financial institutions and mobile money service providers, particularly Telecoms,

have a share in applying the findings of the study in fashioning out modules on how to capitalise on the rise in mobile money patronage to influence financial inclusion. This will, to a large extent, aid in government of Ghana's aim to have 75 per cent of Ghanaians being financially inclusive by 2023. Moreover, the findings of this study will be useful for policymaking concerning financial development and financial inclusion in Ghana, with development organizations such as the World Bank, International Monetary Fund and African Development Bank.

1.7 LIMITATION OF THE STUDY

The study relies solely on quantitative data and the findings are based specifically on cross-sectional research design, thus, ignoring qualitative data and longitudinal survey design. The study is further limited to mobile money users in Kumasi Metropolis and not mobile money users across the entire country.

1.8 ORGANISATION OF THE STUDY

Five main chapters are organized in the research. In Chapter One, which is the introduction, the study focuses on the background, the problem to be researched, the objectives, the research questions, the significance, the limitations and the way the study is organised. Chapter Two, which is the Review of Related Literature, explores the concepts used in the study. It also explores theories underpinning the relationship between the variables used in the study. Chapter Three, Methodology describes the research design and strategies adopted in carrying out the research. It identifies the population, the study population and how the sample was drawn. It explains how data would be collected ensuring validity and reliability and also how this data would be analysed. Chapter Four, Results and discussions, presents the data obtained by the researcher and discusses the results of the study in the light of results obtained in other similar studies. Chapter Five, Summary, Conclusions and Recommendations, concludes the

study by summarizing, drawing conclusions and making recommendations in the light of results obtained from the analysis of the data.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter reviews the various concepts used in this study, in addition, the chapter focuses on the theories that explains the relationship between the variables in the study and further presents empirical literature on the relationship between the variables in accordance to the objectives of the study.

2.1 THEORETICAL LITERATURE

This part of the review presents a number of theories that help explain mobile money activity. The theories cover the social resource theory and the learning theory.

2.1.1 Social resource theory

The social resources theory cogitates the structural factors of social networks. This theory posits that social resources, in the form of wealth, socioeconomic status, power, etc., is embedded in a person‘s social network; and it is believed to positively influence the access of information (Song & Chang, 2012). Lin (1998) found out that the education of network members is positively associated with the frequency of health information seeking in the U.S. Lai (1998) also revealed that contact resources positively influence the finding of a job for men in the U.S. Households with more connections to network members with rich socioeconomic resources are more active in financial information seeking. Song and Chang (2012) found out the mechanisms through which social resources influence the frequency of health information seeking and diversity. Drawing on this analogy, two of the mechanisms may also be applied to financial information seeking: increased exposure to financial information and enhanced seeking abilities. Therefore, once connected to network members with higher socioeconomic status, individuals are more likely to be exposed to financial information and products from their network members, which can motivate them to utilize the respective products.

2.1.2 The learning theory

The social learning theory stipulates that social networks should be connected to the exchange of information, material and services (Bandiera & Rasul, 2006). Households may know someone in their social network group but may not necessarily communicate with them about the use of mobile money. Without information exchange on mobile money, simply knowing a social network member may not produce the learning externalities of social networks, especially for mobile money which is highly unobservable (Maertens & Barrett, 2013). Additionally, Bandiera and Rasul (2006) used the number of adopters among family and friends to capture the impact of social learning on technology adoption in India. They therefore asked respondents whether they would approach a specified progressive farmer for advice in case of problems with their biotechnology cotton crop. In addition, they asked respondents whether they pass by the social network members' fields when going to their own fields. The assumption is that households would observe the biotechnology cotton crop in the fields of social network contacts and this likely influenced their adoption decision.

The social network benefits may emanate from specific type of network connections such as strong and weak ties. The strength of a tie is a combination of the amount of time, emotional intensity and reciprocal services that characterize a relationship (Granovetter, 2005). Granovetter further explained that the strength tie, among actors in a network, has an impact on the quality of information transferred and shared. The weak tie contacts know other contacts outside the household's circle of friends and possess diverse and heterogeneous information that overlap less with what one already knows (ibid). While weak ties convey heterogeneous and more diversified financial information, Zhang, Lin and (2012) accentuated that the social influence flowing through strong tie contacts can increase a household's capacity to mobilize the actual financial resources possessed through contacts. Within the context of the developing economy, strong ties are often used as referrals when seeking credit from both formal and

informal institutions. This serves as a risk mitigating factor; for the reason that the lenders feel reassured lending money to borrowers referred by a close contact. The strength of a tie can be measured by the type of relationship, acquaintanceship and the frequency of contact (Zhang et. al., 2012). Chen (2013) reported that the classification based on the type of relationship highlights the number of acquaintances (weak tie contacts) in one's social network relative to close friends and relatives (strong tie contacts). Chen (2013) defined the strength of network ties based on the frequency of contact. The frequent interactions between contacts represent a strong tie whereas infrequent contact captures weak ties; and that people with strong ties may meet regularly and in varying settings, while people with weak ties often meet irregularly and exchange diverse and often crucial information.

2.1.3 Townsend model of financial deepening and growth

Financial deepening and growth are intertwined and these could help Ghana increase gross domestic product over time. Early empirical contributions focusing on growth and financial structure were undertaken by Shaw (1973), McKinnon (1973), and King and Levine (1993). These bodies of empirical studies established that financial deepening is at least an intrinsic part of the growth process and may be causal; that is, repressed financial systems harm economic growth. Models have posited expensively bilateral exchange or intermediation costs, for instance a fixed cost to enter the formal financial system, and marginal costs to subsequent transactions. Other theoretical contributions such as Bencivenga and Smith's (1991) turned intermediation on and off exogenously and have an external effect that makes growth with intermediation higher.

Acemoglu and Zilibotti (1997) revealed that capital accumulation is associated with increasing intermediation and that better diversification, which comes with higher levels of wealth, reduces the variability of growth. Likewise, well-known are seminal contributions on growth and inequality. A paper by Forbes (2000) confirmed previous regression studies that high

(initial) inequality is associated with low subsequent long-run growth but found that the relationship is the opposite for the medium term. Resting separately from this strand of the empirical literature are the deservedly well-known theoretical contributions more motivated by other studies‘ assertion that growth may bring increasing, and eventually decreasing inequality; namely, Banerjee and Newman (1993), and Lloyd-Ellis and Bernhardt (2000).

2.2 CONCEPTUAL LITERATURE

2.2.1 Concept of financial inclusion and financial exclusion

Financial inclusion targets bringing the unbanked masses onto the official financial systems, affording them the chance to access financial services like savings, payments, and transfers to credit and insurance institutions. Financial inclusion does not suggest that everyone must make use of formal financial services, or that suppliers should neglect risks and additional costs when planning to provide services. On the other hand, deliberate exclusion and adverse risk-return features may prevent a household or a minor firm, notwithstanding uncontrolled access, from using one or extra services. Such consequences do not essentially permit policy involvement. Relatively, a course of action ingenuities ought to be targeted to address market disappointments and remove non-market obstacles, to gain access to an extensive variety of financial services (Demirguc-Kunt et al, 2008). Financial inclusion can help make financial services more accessible to all including the poor, by ensuring that there is a robust financial market which is an element for economic growth.

Prevailing works on financial inclusion have altered definitions of the term. Several analyses ascertain financial inclusion in relations to financial exclusion, which transforms to a bigger framework of social exclusion. For instance, Leyshon (1995) defines it as exclusion of some entities and humans from having admission to official financial systems, whereas Sinclair (2001) emphasizes it as a failure to have access to needed financial services in a suitable

system. Alternatively, Amidžić, Massara, and Mialou (2014) and Sarma (2008) outlined financial inclusion. Amidžić, Massara, and Mialou (2014) define financial inclusion as economic behaviour where individuals and businesses are not denied access to basic financial services. An all-inclusive financial system has several benefits. An inclusive financial system enables the effective administration of advantageous funds and can possibly abate the cost of capital. Moreover, admission to acceptable financial services can advisedly advance the everyday administration of finances.

The significance of financial system is well known in the policy sphere and lately financial inclusion has turned out to be a policy tool in several nations. Openings for financial inclusion have emanated from the financial controllers, the regimes and the banking industry. Legislative accomplishments have been achieved in certain economies. For instance, in the United States of America, the Community Reinvestment Act (1997) demands banks to provide credit all over their absolute breadth of operation and forbids them from affecting only the affluent areas. In France, the law on exclusion (1998) demands a person‘s right to have a bank account. In the United Kingdom, a Financial Inclusion Task Force was adopted in 2005 to curtail the advance of financial inclusion. The World Bank Global Financial Report (2014) describes financial inclusion as the share of individual and firms that uses financial services. The report adds on that absence of use does not mean lack of access. Some could accept admission to financial services but will not make use of certain financial services for the reason of cost, admitted barriers, and market failures or because of religious beliefs or cultural practices (World Bank, 2014). This study adopts the description by Sarma (2008) who believes financial inclusion is a process that guarantees easy access, availability, and use of financial services for all participants in an economy. Sarma‘s (2008) description forms the idea of financial inclusion

on several dimensions, comprising accessibility, availability, and usage, which can be argued independently.

A study on financial exclusion has a well-defined ambience of a bigger affair of societal segregation of some sets of individuals from the official banking structure of the people. Leyshon (1995) explains banking exclusions as any process that seeks to stop individuals, social groups and bodies from admission to the official banking system. Carbo et al. (2005) explain financial exclusion as largely the difficulty of some individuals or groups to have admission to formal financial services. However, Conroy (2005) tries to define financial exclusion as a practice that exempts deprived and underprivileged social groups from having admission to the proper financial systems in their home countries. Mohan (2006) as well explains that financial exclusion is the non-existence of admission by some sections of society to appropriate, less expensive, reasonable and harmless financial packages and services from accepted suppliers. The World Bank (2014) describes intentional exclusion as a situation where part of the population or businesses decide not to make use of financial services, the reason being that they do not need them or because of their cultural or religious motives. On the other hand, unintentional exclusion occurs when individuals are suffering from insufficient income and have high risk profile or because of selective market failures and imperfections.

2.2.1.1 Measurement of Financial Inclusion

One issue bedevilling the incumbent literature on financial inclusion has to do with measurement challenges. Until recently, and mainly due to limited data availability due to data collection efforts which began in 2004 (Demirgüç-Kunt et al., 2017), most empirical research focused on measures of financial development (Evans, 2015; Bairwa, 2016). Although the significance of a comprehensive financial system is generally accepted by policy makers, banks, and educational institutions around the globe, empirical literature on financial inclusion

does not have an agreed standard measure that can be used to evaluate the level of financial inclusion from one economy to the other (Sarma, 2008). The writer acknowledges several indicators that have been used to specify the level of financial inclusion by different researchers. Those authors make use of indicators that include substantial deposit accounts (current and savings) as a share of the grown-up population (Sarma, 2008), number of loan accounts as a part of the adult population (Samantaray, 2007), as well as the number of bank branches per million people, the number of ATMs per million people, amount of bank credit, and amount of bank deposit (Sarma, 2008).

Sarma (2008) discovered that indicators when used separately, offer only fractional evidence on the comprehensiveness of the financial system of a country. Therefore, the writer advocates a complete measure of financial inclusion that includes material on quite a lot of aspects of financial inclusion. The author maintains that a single digit measure permits cross country assessments, trends to study and assess a nation‘s improvement of policy and responding to academic problems such as relationships between economic development and financial inclusion. In partnership with the Indian Council for Research on International Economic Relations (ICRIER), Sarma (2008) established a strong and inclusive measure of financial inclusion that integrates information on several dimensions of financial inclusion, his measure is easy and not difficult to calculate, and it can be used to compare across nations. The measure is known as the Index of Financial Inclusion (IFI) which is comparable to some of the UNDP assessments for calculating well-established indices such as the Human Development Index (HDI) and the Gender-related Development Index (GDI). The IFI joins three basic dimensions of financial inclusion in its calculations, namely depth, availability, and usage. The rest of the indices include the Euro barometer Survey 60.2 (European Commission 2008) and the Patrick Honohan‘s Index of access to finance. These indices are centred on the dimension of access.

2.2.1.2 Benefits of Financial Inclusion

The significance of an inclusive financial system is extensively identified in the strategy circles (Sarma, 2008), and financial inclusion has developed as a strategy and a main concern in several countries (Sarma, 2008). The popularity of the importance of an inclusive financial system was determined by finding the important role of finance as one of the serious features for growth and development. This acknowledgement, together with the fact that growth alone cannot be viable, has encouraged an interest in financial inclusion among the academic world, public policy makers, and scholars.

A comprehensive financial system enables the effective distribution of useful funds, and this can possibly lessen the cost of capital (Sarma, 2008). Financial inclusion offers an opportunity for placing the savings of the poor into the official financial intermediary scheme and station them into investment. Financial Inclusion can aid in slowing the progress of dismissive channels of credit such as money lenders which are time and again seen to be unfair (Sarma, 2008). Financial inclusion safeguards the deprived from the controls of informal money lenders. Persons left out from formal financial system often depend on the informal sector to assist them with finance and they are frequently charged excessively high rates. It is as a result that the financially left-out individuals do not have access to more credit options. Therefore, a cruel cycle of high cost finance is customary where an individual borrows at high costs and pays out a considerable share of his/her income to money lenders.

Participation in the formal financial system can considerably advance everyday managing of finances (Sarma, 2008). In economies that promote cashless systems, for instance, Western Europe and North America, as well as those in evolution, the non-existence of admission to operate a bank account could indicate the variance between indebtedness and prosperity. Individuals without accounts have difficulty in undertaking individual commitments, like the settling of bills. Persons without a transactional bank account depend on an unsafe money

centred trade that renders such individuals open to theft and uncertainty. Generally, this is supported by certain hypothetical and experimental investigation studies that show the serious role that better access to finance has in encouraging faster and impartial growth as well as sinking income disparity (Beck & Demirguc-Kunt, 2007; Honohan, 2008). This is because a well-built financial system elevates poor individuals into the formal financial system and makes such individuals participate more energetically towards their personal economic development.

2.2.2 Mobile Telephony Technology

Kpodar and Andrianaivo (2011) defined mobile telephony technology in terms of Information and Communication Technology (ICT) characteristics. In Gates notes, mobile telephony technology was described in relation to mobile banking as it was defined as a simple digital device that allows individuals not only to communicate but transact/ access basic financial services without much difficulty (Bill and Melinda Gates Foundation, 2015). Gates Foundation (2015) has made conscious efforts to relate their respective definitions to mobile banking and by extension, financial inclusion. However, such an approach failed to recognize the extent to which mobile telephony technology relates specifically to financial inclusion, not necessarily within the formal mobile banking sector.

2.2.2.1 Evolution of mobile money

Mobile financial services are among the most promising mobile applications in the developing world. It is estimated that at least 110 mobile money systems are currently deployed with almost more than 40 million users (Donovan, 2012). The M-PESA is the commonest mobile money system. The M-PESA was started in March 2007 by Kenya‘s largest network operator, Safaricom. Its aim was to provide an innovative means of making financial services available to the unbanked. Pesa is a Swahili word for cash and M for money. Hughes and Lonie (2007)

established that M-PESA registered more than 20,000 clients within the first month of operation, far exceeding their target business plan.

The concept of the system was such that customers need not have a formal bank account to enjoy certain banking services. The M-PESA customer must register with Safaricom to be able to receive and pay money in an easy and secured way (Hughes and Lonie, 2007). Since 2007, many other countries in Africa have replicated the system. For instance, South Africa‘s WIZZIT managed to attract 250,000 customers in its four years of operation. Tanzania‘s M-PESA has attracted 100,000 registered clients (Mas & Morawczynski, 2009). In Ghana, almost all the telecommunication providers operate mobile money.

2.2.2.2 The mobile money business in Ghana

Adam and Walker (2015) posited that Mobile Money Operators (MMOs) provide mobile infrastructure, customer base and agents‘ network for the mobile money business. These MMOs are profit-maximizing entities which issue electronic-money which is held in the banks. In the same manner, banks provide infrastructure for the flow of money between two parties and therefore provide physical custody of the electronic money. Every unit of electronic money that is issued by the Mobile Network Operators (MNO) is backed by an equivalent amount of Bank of Ghana notes and coins held in a bank to ensure equilibrium in the MM market (ibid). The Bank of Ghana regulates, supervises and oversees the activities of the banks and Specialized Deposits-taking Institutions (SDIs) to ensure that the banking sector and the payment ecosystem are safe, reliable and efficient (Etim, 2012). The Bank focuses on key issues relating to Anti-Money Laundering Countering Financing of Terrorism (AML/CFT); consumer protection; promotion of competitive practices, assets quality, solvency, liquidity, earnings, systems and control and management with respect to oversight of the mobile money sub-sector. The National Communication Authority (NCA) oversees security of customers‘

data; and integrity of MM technologies. It regulates and oversees the activities of the Mobile Network Operators which own the Mobile Money Companies.

According to Ghana Social Marketing Association (2013), the Mobile Money Operators' agents facilitate cash-in (converting cash into electronic form) and cash-out (issuing cash on demand) to ensure convertibility between MM and cash. Agents are effective liquidity managers in the MM sub-sector. Merchants and retailers accept MM payments in exchange for different products and services. While fintech companies also provide a wide array of support services including mobile phone manufacturing, network equipment vendors and software, MM users are generally subscribers or non-subscribers of mobile network operators. According to Mbithi and Weil (2011), a prospective user of MM approaches an MNO and procures a SIM card which is also used for mobile money transactions. Users may be linked to bank accounts for various services such as investment, ATM and for bill payments. For convenience of the user, mobile money wallets are linked to bank accounts to provide the user with unique consumer experience in terms of providing access to a variety of financial services which are designed to meet the needs of the poor and the unbanked (ibid).

According to Perron (2017), mobile money users can access innovative and affordable financial services in the form of micro-loans and repayment schemes designed specifically to suit the needs of the poor, the unbanked and the underserved. An example is the award-winning product by Ecobank Capital Advisors TBILL4ALL which was launched in October 2016 and has since attracted international attention on account of being the first of its kind anywhere in the world. The product was nominated for the World Summit Award in 2014. Mobile money operators prefer to pay one monthly lump-sum commission to agents using the MM platform. The commissions are derived from the two-way transaction cost paid by users of MM services.

Presently in Ghana, Mobile Money is gradually becoming a key means of payment for the unbanked and the underserved population. The rapid growth of MM usage in Ghana is partly

on account of increasing penetration and application of mobile phones particularly in the rural areas (Nortey, 2014). The widespread proliferation of MM among the unbanked and underserved is premised on the recent advances in handset functionality, chip and mobile network technologies, and upgrade in Point-Of-Sale (POS) infrastructure (ibid). These developments have improved the environment for MM solutions, and brought together different industry players, such as banks and mobile money operators to establish MM businesses. The use of MM services as a means of payment brings several benefits to the user including convenience, speed, flexibility and affordability (GSMA, 2013). MM may be described as electronic cash backed by equivalent amount of the Bank of Ghana notes and coins stored using the Subscriber Identification Module (SIM) in a mobile phone as an identifier. MM is issued by Mobile Money operators (MMOs) who keep the electronic account on the SIM in the mobile phone for the users of MM.

In Ghana, the mobile money wallet is mainly used to transfer value from one person to another person (P2P), for payment of goods and services such as buying airtime, paying for utility bills, Gold and DSTV bills, salaries of some workers, taxi fares, micro-credit, savings and micro-insurance. The store of value function of MM leads to quarterly payments of interests on balances on mobile money float. Total float balance was GH¢1,257.40 million at End - December 2016, compared to a float balance of GH¢547.96 million at End - December 2015, reflecting a growth of 129.5 percent (PSD, 2016). Total interest paid to holders of electronic money wallets in 2016 amounted to GH¢24.79 million.

The MM industry creates jobs for the MM agents, service providers and users including Fintech companies, merchants, retailers, and aggregators. The number of MM agents at End - December 2016, was 107, 415; with MTN mobile money contributing 54.0 percent; TIGO Cash, 24.9 percent; Airtel Money, 11.0 percent; and Vodafone Cash, 10.1 percent (PSD Prudential Returns, December 2016). The Bank of Ghana in 2016 reported that mobile money

volume of transactions registered a growth rate of 737.4 percent from 2012 to 2016. The marked increase in mobile money usage is not unique to Ghana. Nigeria, Kenya, Uganda, and South Africa also registered significant growth in mobile money transactions (Diniz, Porto de Albuquerque & Cerney, 2011). The growth of mobile money services has been identified as one of the most significant trends in the coming years. As technology advances and the mobile money network expand, mobile phones are becoming a multi-purpose payment platform. Mobile money transactions across the globe will transform the world of finance and the world of mobile.

2.3 EMPIRICAL LITERATURE

2.3.1 Effect of Mobile Money Systems on Savings

Serge et al. (2018) investigated whether the use of mobile money can help individuals build savings to face predictable and unpredictable life events. Studying the case of Burkina Faso, they use hand-collected data from individual responses to a survey we designed and conducted between May and June 2014. Their main results show that, although it is not possible to detect any correlation between using mobile money and saving for predictable events, it seems to increase the propensity of individuals to save for health emergencies. They also found robust evidence suggestive that using mobile money increases the propensity of disadvantaged groups such as rural, female, less educated individuals and individuals with irregular income to save for health emergencies. In their further investigations, we address the mechanisms underlying individual saving behaviour. They found that safety and the possibility to transfer money within the sub-region associated with mobile money may be factors that increase the propensity of mobile money users to save for health emergencies. Overall, their results are in line with policymakers' agenda worldwide to increase financial outreach and improve financial inclusion by using mobile technologies.

To deal with unpredictable events such as health emergencies, people need adequate saving instruments that facilitate access to cash. Selling land, jewels or animals quickly in response to adverse health shocks is not easy and may not always be reliable. Similarly, in the case where individuals participate in ROSCAs, since there is a typically predetermined order, it is impossible to access the money immediately when an emergency comes up. In such circumstances some people turn to relatives for help. These relatives, however, may not have liquid savings and therefore would have to sell assets (Collins et al., 2009). Mobile money may thus be particularly prominent in this regard by providing easy access to cash for emergency purposes. This conjecture is supported by the findings of Dupas and Robinson (2013b) who show through a field experiment in Kenya that simply providing a safe place to keep money is sufficient to increase preventive health savings. This result highlights that to build savings for unpredictable events, individuals need a safe place which allows them to get back their money when the need arises. In this context, we expect that using mobile money should have a positive impact on individuals saving behaviour for unanticipated events such as health emergencies. Some caution is, however, in order. The liquid savings option provided by the mobile money, accessible anywhere and anytime, could increase family assistance and hence, it may have a negative impact on individual savings. Moreover, the withdrawal tax feature of mobile money may help people resist unneeded expenditures on the one hand but it may discourage them to put money in their account and dismiss its effects on savings on the other hand.

2.3.2 Effect of Mobile Money Systems on Financial Inclusion

Amoah, Korle and Asiama (2020) explore the determinants of mobile money as a financial inclusion instrument in Ghana and finds that the behaviour of a person, in terms of the choice and means of transaction, cannot be explained solely by utility-maximizing assumptions or rationality and that other socio-cultural and psychological factors are crucial in determining

whether a person will use mobile money. In another study, Okello, Ntayi, Munene and Malinga (2018) investigate the moderating effect of social networks in the relationship between mobile money usage and financial inclusion in rural Uganda. The findings suggest an existence of social networks of strong and weak ties among mobile money users promote financial inclusion in rural Uganda. N'dri and Kakinak (2020) assess the effects of financial inclusion and mobile money on individual's welfare in Burkina Faso and confirmed the significant role of financial inclusion in alleviating poverty. Ahmad, Green and Jiang (2020) analyse how mobile technology in general may contribute to economic development and financial inclusion in Africa and reports positive effects of mobile money on financial inclusion and economic growth.

In another dimension, Bongomin and Ntayi (2020) establish the mediating effect of digital consumer protection in the relationship between mobile money adoption and usage and financial inclusion with data collected from micro small and medium enterprises (MSMEs) in northern Uganda. The findings from the PLS-structural equation modelling (SEM) showed that mobile money adoption and usage has both direct and indirect effect on financial inclusion. Moreover, financial inclusion is influenced by both mobile money adoption and usage and digital consumer protection. Senyo and Osabutey (2020) examine the antecedents to the actual use of mobile money services towards addressing financial inclusion adopting the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the Prospect theory. The findings show that performance and effort expectancy have significant relationship with the intention to use mobile money services. However, contrary to well-established positions, price value, hedonic motivation, social influence and perceived risk do not influence intention and use of mobile money services.

Peruta (2018) investigates the patterns of adoption of mobile money in emerging and developing countries. Mobile money is a mobile-based service, which provides access to low-cost financial services for people excluded from the banking system. It is designed to overcome the difficulties related to entering the banking system and the unavailability of banking infrastructure. Drawing on macroeconomic comparative and case study analysis conducted by practitioner experts, this study takes a wide macroeconomic approach to the adoption of mobile money adoption in 2011 and 2014, based on the alternative strategy of cluster analysis. They exploit the new technology diffusion frameworks to evaluate dissimilarity among groups of countries with similar levels of adoption of mobile money. They investigated whether adoption of mobile money services are highest in countries where access to formal banking services is lowest. Their analytical results support the predictions in the technology diffusion literature and nuance the potential of mobile money as a tool to counter banking exclusion.

Lashitew et al. (2019) argued that mobile money innovations are expanding rapidly in developing countries, where they appear to be on track to extend financial services to billions of unbanked populations. However, adoption rates differ significantly across countries, and the success of innovations is also radically different within countries. To understand the factors that affect the development and diffusion of mobile money services, this study uses a mixed research method that combines cross-country data of adoption rates and an in-depth case study of a successful mobile money innovation. Quantitative analysis of adoption rates across countries indicates the varying role of institutional and economic factors on the adoption and usage of mobile money innovations. They undertake an in-depth study of M-Pesa in Kenya, one of the world's most known mobile money innovations, to gain nuanced understanding of the development and diffusion of the innovation. Analysis using the functional innovation system approach reveals the key role of the lead firm in guiding the innovation process, and

the importance of a supportive regulatory environment that sought to advance financial inclusion. The results further reveal how the power and interest dynamics of key actors in the innovation system can shape the emergence of inclusive innovations that aim to address social issues.

Abiona and Koppensteiner (2020) estimate the effect of mobile money adoption on consumption smoothing, poverty, and human capital investments in Tanzania. They exploit the rapid expansion of the mobile money agent network between 2010 and 2012 and use this together with idiosyncratic shocks from variation in rainfall over time and across space in a difference-in-difference framework. They find that adopter households are able to smooth consumption during periods of shocks and maintain their investments in human capital. Results on time use of children and labor force participation complement the findings on the important role of mobile money for the intergenerational transmission of poverty. Sosu (2017), in his study "Mobile money in Ghana: financial inclusion enabler", the regression and correlation analysis of the study pointed out that there is relatively strong relationship between financial inclusion and mobile money. Nevertheless, it wasn't the only significant determinant of financial inclusion as inflation rate has also been showed to be a major determinant of financial inclusion in Ghana.

Grootenhuis (2019) investigated the influence of mobile money on financial inclusion in Myanmar. Furthermore, this study aims to identify the factors that influence the potential of mobile money. This study employs a binary logistic regression as the methodological approach, using data from the Global Financial Inclusion and the FinScope Myanmar Consumer Survey databases. The results show that mobile money significantly increases the likelihood of receiving remittances, whereas it finds no statistically significant effect on the likelihood to save. Notably, the results reveal the adoption of mobile money by both banked and unbanked individuals. In spite of, the results show an overall low adoption rate of mobile money services

and suggest education, income, distance to the closest mobile money agent, and age as the largest obstacles to adopting and using.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 INTRODUCTION

In this chapter, the study discusses the methodology adopted to undertake this research. The chapter provides information on aspects such the population, scope, sample, data collection methods of the study, among others. The chapter has seven sections, section 3.1 presents the research design adopted for the study, section 3.2 presents the population of the study, sections 3.3 provides information on the study sampling technique and sample size. Section 3.4 highlights the data collection method used for this study whiles 3.5 and 3.6 presents information on the analysis techniques used for the study and the profile of the organisation. And finally, section 3.7 talks about the ethical consideration in the research data gathering process.

3.1 RESEARCH DESIGN

Research design is described as the blue print or the road map that the researcher follows in conducting the research (Malhotra & Birks 2006). A research design also provides both a framework and road map for the research (Kuada, 2015). Thus, Teyi (2014) concludes that the design of research sets the basis for piloting the project. According to Saunders et al. (2009), a study method usually classifies research purpose into three, namely: exploratory, descriptive and explanatory (Saunders et al., 2009). The research approach to this study is the quantitative approach and the survey research design was used to examine the phenomenon. Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular

phenomenon. According to Saunders et al. (2009) survey research designs are procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population. This study adopts the use of the quantitative research design in order to be able to statistically examine the phenomenon while the survey research design was chosen to allow the research use a sample mobile money users to represent the entire population.

3.2 POPULATION OF THE STUDY

A population is a complete group of persons or individuals, objects, or units from which sample is taken for measurement (Saunders et al., 2009). Target population is the total group of individuals about whom information are gathered. To design a useful research project, there is the need to be specific about the size and location of your target population. All individuals or objects within a certain population usually have a common, binding characteristic or trait. For this study, the target population are all mobile money users in Kumasi Metropolis. Checks from the National Communications Authority webpage reveal that there were a little over 20 million individuals registered on mobile money service across the country however, 15 million active mobile money users. There was however no specific mention of the number of mobile money users on regional bases.

3.3 SAMPLE SIZE AND SAMPLING TECHNIQUE

A sample can also be defined as the definite group of individuals who are selected to help answer the research questions (Gentles, Charles, Ploeg, and McKibbon, 2015). This means that the sample is a small unit of the total number of people that comprised the research population. This means that the sample is a small unit of the total number of people that comprised the research population. In this study non-probability sampling was used throughout. More

specifically, the convenience sampling technique was employed where the study issues questionnaires to respondents who would be readily available to answer the questionnaires during the period of the study. This sampling method does not give all elements in the population of study an equal chance of being selected hence some elements may or may not be selected (Creswell & Clark, 2017). This sampling technique would give individuals who uses the mobile money services equal chances of being selected for the study. This was chosen because the number of mobile money users in the municipality exceeds 1 million according to data from the municipality.

The sample size for the study includes 200 mobile money users. It is difficult to ascertain the sample size (Malhotra, 2012) as a result, Tabachnick and Fidell (2007) proposed a formula for determining the sample size in undertaking regression analysis. The Tabachnick and Fidell (2007) formula was used to calculate the sample size for the study. The formula is $N > 50 + 8m$. Where N represents the number of respondents in a study and the number of independent variable is represented by m. The independent variables for this research comprised of two constructs that is; financial inclusion and savings (therefore, $N > 50 + 8(2) = 66$). For this reason, the sample size of 200 is deemed appropriate for this research since it is greater than 66.

3.4 DATA COLLECTION METHOD OF THE STUDY

The main source of data for this research is the primary data which would be collected directly from the mobile money users. In order to collect quantitative data, a questionnaire is considered the best tool to collect the data. According to Kumekpor (2002), a questionnaire is less expensive when respondents are not stationed at one particular place. The questionnaire was made up of closed-ended research questions where respondents were asked to select the appropriate alternatives from possible responses provided. A self-administered survey provides

respondents the ability to fill the questionnaire on their own. The benefits inherent in self-administered surveys are the ability to eliminate bias of the interviewer as well as the ability to reach large study populations and achieve satisfactory response rate (Denscombe, 2010; Burns & Bush, 2012; Haydam & Mostert, 2013). The major disadvantage of self-administered questionnaires is the low level of response if it is distributed through post mail, e-mail or online (Bhattacherjee, 2012). The questionnaire composed of a five-point Likert scale ranging from (5=Strongly Agree), (4=Agree, 3), (2=Uncertain) (2 = Disagree) and (1= Strongly Disagree) were used code the responses. Respondents were asked to choose the number, from 1 to 5, that best represents how they feel about a statement. Mobile money usage was measured using the items of intention to use and user satisfaction as stipulated by Venkatesh, Morris, Davis, and Davis (2002). These items were used as standard measures under the UTAUT model for study of mobile technologies in promoting access to financial services (Ggombe, 2015; Ssonko, 2010; Ndiwalana et al., 2010; Mas & Morawczynski, 2009). The concept of financial inclusion was measured using the dimensions of savings and welfare, which were adopted from previous scholars such Čihák, Demirgüç-Kunt, Erik, and Levine (2012); Claessens (2006); Kempson (2006); Beck, Demirguc-Kunt and Martinez Peria (2008); ACCION (2011); AFI (2011). These constructs were found to be reliable and valid in measuring financial inclusion, especially in developing countries.

3.5 DATA ANALYSIS

The data collected from the questionnaire distribution were analysed using statistical package for social sciences v.22. The main analysis for the study was descriptive statistics, frequency distribution, mean analysis, and cross tabulation.

3.6 PROFILE OF THE STUDY AREA

Kumasi is located in the transitional forest zone and is about 270km north of the national capital, Accra. It is between latitude 6.35o – 6.40o and longitude 1.30o – 1.35o, an elevation which ranges between 250 – 300 metres above sea level with an area of about 254 square kilometres. The unique centrality of the city as a traversing point from all parts of the country makes it a special place for many to migrate to. Figure 3.1 is the administrative map of Ghana showing Kumasi in the Ashanti region. The Kumasi metropolis is the most populous district in the Ashanti Region. During the 2000 Population Census it recorded a figure of 1,170,270. It has been projected to have a population of 1,625,180 in 2006 based on a growth rate of 5.4% p.a and this accounts for just under a third (32.4%) of the region's population. Kumasi has attracted such a large population partly because it is the regional capital, and also the most commercialised centre in the region. Other reasons include the centrality of Kumasi as a nodal city with major arterial routes linking it to other parts of the country and also the fact that it is an educational centre with two State Universities, a Private University, a Polytechnic, two Teacher Training Colleges, Secondary Schools and a host of Basic Schools.

Ashanti Region is currently the second most urbanised in the country, after Greater Accra (87.7%). The large urban population in the region is mainly due to the fact that the Kumasi metropolis is not only entirely urban but accounts for a third of the region's population. The growth of industries and the large volume of commercial activity in and around Kumasi as well as the high migrant number may account partly for the relatively high urban population. It has been estimated to have a daytime population of about 2 million. The population has grown rapidly over the inter-censual periods from 346,336 in 1970, 487,504 in 1984 to 1,170,270 in 2000. Based on these the census reports the estimated population growth rate as 5.47 per cent. The city of Kumasi has been planned with about twenty seven (27) markets to serve as trading centres and places of exchange within various communities. The city encompasses 10 sub-

metropolitan areas— Manhyia, Tafo, Suame, Asokwa, Oforikrom, Asawase, Bantama, Kwadaso, Nhyiaeso and Subin —Asawasi, Asokwa, Bantama, Kwadaso, Manhyia, Nhyiaeso, Oforikrom, Suame, Subin, and Tafo. Below is a map of the Metropolis:

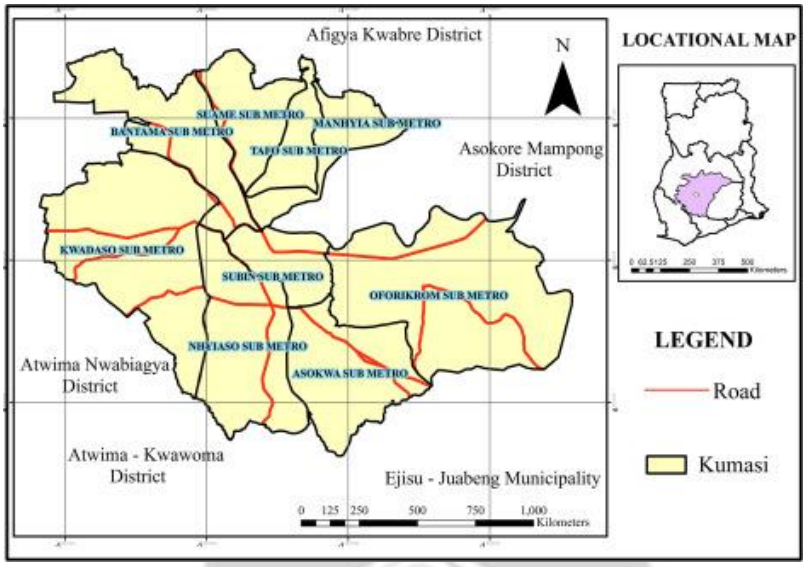

Figure 2. 1: Map of Kumasi Metropolis

3.7 ETHICAL CONSIDERATION

Most of the ethical issues arise when planning the research, seeking access to organizations and individuals, gathering, analysing and reporting the data. This implies that the researcher must ensure that the design of the studies is both methodologically sound and ethically justifiable for all engaged. In order to address this, the conduct of this studies is driven by the School of Graduate School's handbook for conducting postgraduate thesis to guarantee that ethical problems are fully resolved. The consent of voluntary participants was sorted before administering the questionnaires. The respondents were also assured of their responses being kept confidential and hence the researcher took reasonable steps in maintaining the confidentiality of the data given by the respondents.

CHAPTER FOUR

PRESENTATION OF DATA, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 INTRODUCTION

In the previous chapter, the study set out the research methodology and data description. In this chapter, the study presents and analyses the findings of the research. The results are presented in tables. The analysis covers the descriptive statistics of the data, and the various objectives are analysed in the subsequent sections.

4.1 PRESENTATION OF DATA

4.1.1 Demographics of Respondents

The table 4.1 below presents the demographic characteristics of the respondents used in this study:

Table 4. 1: Demographic of Respondents

Variable	Item	Frequency	Percentage
Gender	Male	91	52.9%
	Female	81	47.1%
Age	18-28	59	34.5%
	29-38	48	28.1%
	39-48	39	22.8%
	49-60	23	13.5%
	Above 60	2	1.2%
Marital Status	Single	77	45.8%
	Married	76	45.2%
	Divorced	7	4.2%
	Widowed	4	2.4%
	Separated	4	2.4%
Highest Level of Education	JHS	11	6.4%
	SHS	36	20.9%
	Diploma	27	15.7%
	Degree	64	37.2%
	Master's Degree	33	19.2%
	PhD	1	0.6%
Employment Status	Unemployed	28	16.6%
	Employed (accounting, administration, banking or finance related)	69	40.8%

	Employed (other sectors)	72	42.6%
Income Level	Below 500	28	16.8%
	501-1000	42	25.1%
	1001-1500	43	25.7%
	1501-2000	22	13.2%
	2001-3000	19	11.4%
	Above 3000	13	7.8%

Source: Field Study, 2020

4.1.1.1 Gender

From the table 4.1 above, it was observed that relative to the gender of the respondents, 52.9 percent of the respondents were males and 47.1 percent were females respectively. This indicates that majority of the respondents were males.

4.1.1.2 Age

In terms of age, it was observed that 34.5 percent of the respondents fell between the ages of 18 to 28 whiles 28.1 falls between the ages of 29 to 38 years. 22.8 percent of the respondents fell between the ages of 39 to 48 years and 13.5 percent of the respondents also fell between the aged of 49 to 50 years. A few of the respondents representing 1.2 percent were above the age of 60 years.

4.1.1.3 Marital Status

In terms of marital status, majority of the respondents were found to be single and this represented 45.8 percent of the respondent customers. This was followed by 45.2 percent of the respondents who were married and 4.2 percent who were divorced. The study also found that 2.4 percent of the respondents were widowed whiles 2.4 percent of the respondents were separated.

4.1.1.4 Highest Level of Education

From the table 4.1 above, it was observed that relative to the highest level of education of the respondents,6.4 percent of the respondents have JHS certificate whiles 20.9 percent of the respondents also have SHS certificate. The study also found that 15.7 percent of them have Diploma certificate and 19.2 percent of the respondents having Master's Degree certificate. This is followed by 0.6 percent of the respondents who have PhD certificate.

4.1.1.5 Employment Status

From the table 4.1 above, it was observed that, relative to the employment status of the respondents, 16.6 percent of the respondents were unemployed whiles 40.8 percent of the respondents were employed in Accounting, Banking or finance related. This was followed by 42.6 percent of the respondents who were employed in other sectors.

4.1.1.6 Income Level

From the table 4.1 above, relative to the income level it was observed that 16.8 percent of the respondents earns below 500 cedis whiles 25.1 percent of the respondents earn between 501 to 1000 cedis. It was also observed that 25.7 percent of the respondents earn between 1001 to 1500 cedis and 13.2 percent of the respondents earns between 1051 to 2000 cedi. This was followed by 11.4 percent of the respondents that earns between 2001 to 3000 cedis and7.8 percent of the respondents that earns above 3000 cedis.

4.1.2 Descriptive Statistics of Mobile Money

The descriptive statistics of the various dimensions of mobile money used in this study are presented in this section of the study.

4.1.2.1 Descriptive Statistics of Intention to Use

The descriptive statistics of the variable intention to use the mobile money system is provided in Table 4.2 below:

Table 4. 2: Intention to Use

	N	Min	Max	Mean	Std. Deviation
I expect to use mobile money services in the next few weeks	170	1	5	3.7647	1.25124
I intend to use mobile services in the coming months	168	1	5	3.7857	1.2291
I intend to use mobile money for services beyond money transfer	169	1	5	3.9172	1.0143
I intend to continue using mobile money services in the next coming years	168	1	5	4.2024	0.8995
I have strong positive perception toward use of mobile money services	169	1	5	4.0237	1.02326
My attitude toward use of mobile money services is always positive	169	1	5	4.071	0.9733
Opinion Index	164			3.960783	

Source: Field Study, 2020

From the table above, it is evident that the first item "I expect to use mobile money services in the next few weeks" recorded a mean of 3.7647 (SD=1.25124) whiles the item "I intend to use mobile services in the coming months" recorded a mean of 3.7857 (SD=1.2291). The item "I intend to use mobile money for services beyond money transfer" and "I intend to continue using mobile money services in the next coming years" both recorded means of 3.9172 (SD=1.0143) and 4.2024 (SD=0.8995) respectively. The next items "I have strong positive perception toward use of mobile money services" and "My attitude toward use of mobile money services is always positive" recorded means of 4.0237 (SD=1.02326) and 4.071 (SD=0.9733) respectively. The overall opinion index of the variable was 3.960783which indicates majority of the respondents agrees to the items on these variable.

4.1.2.2 Descriptive Statistics of User Satisfaction

The descriptive statistics of the variable user satisfaction to the mobile money system is provided in Table 4.3 below:

Table 4. 3: User Satisfaction

	N	Min	Max	Mean	Std. Deviation
I enjoy using mobile money services for my transactions	169	1	5	4.1479	0.88406
My mobile money system meets my financial needs well	168	1	5	3.6905	0.98463
My mobile money system meets my expectations regarding financial services	169	1	5	3.6864	1.00113
I usually have no complaints about my mobile financial service provider	167	1	5	3.1078	1.21749
I am content with the costs incurred in using mobile money financial system	164	1	5	2.7134	1.11743
I do not find mobile money costly in terms of interest	167	1	5	3.1317	1.12234
Mobile money services is always reliable to me	168	1	5	3.744	1.09979
Opinion Index	154			3.460243	

Source: Field Study, 2020

From the table above, it is evident that the first item "I enjoy using mobile money services for my transactions" recorded a mean of 4.1479 (SD=0.88406) whiles the item "My mobile money system meets my financial needs well" recorded a mean of 3.6905 (SD=0.98463). The item "My mobile money system meets my expectations regarding financial services" and "I usually have no complaints about my mobile financial service provider" both recorded means of 3.6905 (SD=1.00113) and 3.1078 (SD=1.21749) respectively. The next items "I am content with the costs incurred in using mobile money financial system" and "I do not find mobile money costly in terms of interest" recorded means of 2.7134 (SD=1.11743) and 3.1317 (SD=1.12234) respectively. The item "Mobile money services is always reliable to me" recorded a mean of 3.744and SD of 1.09979. The overall opinion index of the variable was 3.460243 which indicates majority of the respondents agrees to the items on these variable.

4.1.2.3 Descriptive Statistics of Access to Loans

The descriptive statistics of the variable access to loan on the mobile money system is provided in Table 4.4 below:

Table 4. 4: Access to Loans

	N	Min	Max	Mean	Std. Deviation
The mobile money provider makes available easily accessible loans to customers.	170	1	5	3.4588	1.13109
The interest on the loan motivates me to take up the loan provided by the service provider	169	1	5	3.071	1.08876
Acquiring the loan by this service provider is simple and easy	169	1	5	3.574	1.03316
The mobile money service provider approves the loans on time and effectively	157	1	5	3.8089	0.9749
The mobile money loans provided are useful to my overall wellbeing	169	1	5	3.3077	1.11803
The company also provides flexible terms of payment which motivates me to take the loans	170	1	5	3.4294	0.99005
Opinion Index	153			3.441633	

Source: Field Study, 2020

From the table above, it is evident that the first item "The mobile money provider makes available easily accessible loans to customers." recorded a mean of 3.4588 (SD=1.13109) whiles the item "The interest on the loan motivates me to take up the loan provided by the service provider" recorded a mean of 3.071 (SD=1.08876). The items "Acquiring the loan by this service provider is simple and easy" and "The mobile money service provider approves the loans on time and effectively" both recorded means of 3.574 (SD=1.03316) and 3.8089 (SD=0.9749) respectively. The next items "The mobile money loans provided are useful to my overall wellbeing" and "The company also provides flexible terms of payment which motivates me to take the loans" recorded means of 3.3077 (SD=1.11803) and 3.4294 (SD=0.99005) respectively. The overall opinion index of the variable was 3.441633which indicates majority of the respondents agrees to the items on these variable.

4.1.3 Descriptive Statistics of Welfare of Customers

The descriptive statistics of the variable welfare are provided in Table 4.5 below:

Table 4. 5: Welfare of Customers

	N	Min	Max	Mean	Std. Deviation
The products/services provided by the financial institution has improved our standard of living	171	1	5	3.5088	1.15996
The products/services provided by the financial institution has increased our income	170	1	5	3.0471	1.15031
The products/services provided by the financial institution has enabled us acquire more assets	169	1	5	2.9763	1.14929
The products/services provided by the financial institution has led to improved literacy in this household	170	1	5	3.2	0.97665
The products/services provided by the financial institution has led to increased consumption in this household	171	1	5	3.1228	1.0912
The products/services offered by the financial institution has provided self-employment to this household members	171	1	5	3.5673	1.06819
Opinion Index	167			3.23705	

Source: Field Study, 2020

From the table above, it is evident that the first item "The products/services provided by the financial institution has improved our standard of living" recorded a mean of 3.5088 (SD=1.15996) whiles the item "The products/services provided by the financial institution has increased our income" recorded a mean of 3.0471 (SD=1.15031). The item "The products/services provided by the financial institution has enabled us acquire more assets" and "The products/services provided by the financial institution has led to improved literacy in this household" both recorded means of 2.9763 (SD=1.14929) and 3.2 (SD=0.97665) respectively. The next items "The products/services provided by the financial institution has led to increased consumption in this household s" and "The products/services offered by the financial institution has provided self-employment to this household members" recorded means of 3.1228 (SD=1.0912) and 3.5673 (SD=1.06819) respectively. The overall opinion index of the

variable was 3.23705 which indicates majority of the respondents agrees to the items on these variable.

4.1.4 Descriptive Statistics of Savings Behaviour

The descriptive statistics of the variable savings behaviour are provided in Table 4.6 below:

Table 4. 6: Savings Behaviour

	N	Min	Max	Mean	Std. Deviation
The mobile money services provided by the financial institution helps me to easily transfer funds to my bank account	167	1	5	3.9341	1.05361
The mobile money service provided by this financial institution provides access to save money for future use	167	1	5	3.7186	1.08042
The mobile money service provided by this financial institution helps me invest better	165	1	5	3.303	1.17091
The mobile money service provided by this financial institution helps me to easily access the funds kept in my account	165	1	5	4.0424	0.89273
Overall, my savings habit has improved with the use of the mobile money service of this financial institution	167	1	5	3.5569	1.14389
The mobile money services provided by the company enables me to meet unexpected expenses	165	1	5	3.6121	1.01566
The mobile money services has helped me increase the amount of money I save on monthly bases	167	1	5	3.2096	1.07453
The mobile money service provided by the financial institution enables me to hold money in my wallet without any charges	167	1	5	3.6946	1.05118
The financial institution pays appropriate interest on the funds in my mobile money which encourages me to save more.	166	1	5	3.2229	1.31369
Opinion Index	161			3.588244	

Source: Field Study, 2020

From the table above, it is evident that the first item “The mobile money services provided by the financial institution helps me to easily transfer funds to my bank account” recorded a mean

of 3.9341 (SD=1.05361) whiles the item “The mobile money service provided by this financial institution provides access to save money for future use” recorded a mean of 3.7186 (SD=1.08042). The item “The mobile money service provided by this financial institution helps me invest better” and “The mobile money service provided by this financial institution helps me to easily access the funds kept in my account” both recorded means of 3.303 (SD=1.17091) and 4.0424 (SD=0.89273) respectively. The next items “Overall, my savings habit has improved with the use of the mobile money service of this financial institution” and “The mobile money services provided by the company enables me to meet unexpected expenses” recorded means of 3.5569 (SD=1.14389) and 3.6121 (SD=1.01566) respectively. The item “The mobile money services has helped me increase the amount of money I save on monthly bases” recorded a mean of 3.2096 and SD of 1.07453 whiles “The mobile money service provided by the financial institution enables me to hold money in my wallet without any charges” recorded a mean of 3.6946and SD of 1.05118and “The financial institution pays appropriate interest on the funds in my mobile money which encourages me to save more” recorded a mean of 3.2229and SD of 1.31369. The overall opinion index of the variable was 3.588244 which indicates majority of the respondents agrees to the items on these variable.

4.2 ANALYSIS OF DATA

The data obtained from the respondents are analysed in this section of the study in accordance with the objectives of the study

4.2.1 The Contribution of Mobile Money Systems On Savings of Individuals

The first part of the overall objective of the study was to examine the contribution of mobile money systems on the savings behaviour of individuals in Kumasi Metropolis. To perform this analysis, the study uses the descriptive statistics on the questions asked on savings behaviour

of the customers and also this was confirmed using the correlation analysis between the various measures of mobile money and savings behaviour. The findings of the descriptive statistics are presented in Table 4.7 below and the findings of the correlation analysis are presented in Table 4.8 below:

Table 4. 7: Analysis on Mobile Money Systems and Savings Behaviour

	N	Min	Max	Mean	Std. Deviation
The mobile money service provided by this financial institution helps me to easily access the funds kept in my account	165	1	5	4.0424	0.89273
The mobile money services provided by the financial institution helps me to easily transfer funds to my bank account	167	1	5	3.9341	1.05361
The mobile money service provided by this financial institution provides access to save money for future use	167	1	5	3.7186	1.08042
The mobile money service provided by the financial institution enables me to hold money in my wallet without any charges	167	1	5	3.6946	1.05118
The mobile money services provided by the company enables me to meet unexpected expenses	165	1	5	3.6121	1.01566
Overall, my savings habit has improved with the use of the mobile money service of this financial institution	167	1	5	3.5569	1.14389
The mobile money service provided by this financial institution helps me invest better	165	1	5	3.303	1.17091
The financial institution pays appropriate interest on the funds in my mobile money which encourages me to save more.	166	1	5	3.2229	1.31369
The mobile money services has helped me increase the amount of money I save on monthly bases	167	1	5	3.2096	1.07453
Opinion Index	161			3.588244	

Source: Field Study, 2020

With respect to the contribution of mobile money to the savings behaviour of customers, the study found that the item "The mobile money service provided by this financial institution

helps me to easily access the funds kept in my account" recorded a mean of 4.042 and SD of 0.892 which implies that with the mobile money services being offered, customers are able to easily access the funds they keep in their accounts. The next contribution was the item "The mobile money services provided by the financial institution helps me to easily transfer funds to my bank account" which recorded a mean of 3.93 and SD of 1.05 which implies that majority of the respondents agrees that mobile money service helps them to easily transfer funds to their bank account. The item "The mobile money service provided by this financial institution provides access to save money for future use" recorded a mean of 3.718 SD of 1.08 which implies that the mobile money providers gives avenue to majority of the respondents to save money for future use. Furthermore, majority of the respondents (mean=3.69, SD=1.05) agrees that "The mobile money service provided by the financial institution enables me to hold money in my wallet without any charges".

Also, majority of the respondents agrees that "The mobile money services provided by the company enables me to meet unexpected expenses" (mean=3.61, SD=1.01), "The mobile money service provided by this financial institution helps me invest better" (mean=3.03, SD, 1.17). Majority of the respondents further indicated that "The financial institution pays appropriate interest on the funds in my mobile money which encourages me to save more" (mean=3.22, SD=1.31) and "The mobile money services has helped me increase the amount of money I save on monthly bases" (mean=3.20, SD=1.07). The respondents indicated that "Overall, my savings habit has improved with the use of the mobile money service of this financial institution" (mean=3.55, SD=1.14), and the overall opinion index of the study was 3.588 which indicates that majority of the respondents agrees to these contributory importance of mobile money to their savings behaviour.To confirm the findings of the analysis above, the correlation analysis was performance between the various measures of mobiles money and saving behaviour and the findings are presented in Table 4.8 below:

Table 4. 8: Correlation Analysis Between Mobile Money and Savings Behaviours

		ITU	US	AL	SB
ITU	Pearson Correlation	1	.550**	.374**	.385**
	Sig. (2-tailed)		0	0	0
	N	171	171	171	166
US	Pearson Correlation	.550**	1	.576**	.472**
	Sig. (2-tailed)	0		0	0
	N	171	171	171	166
AL	Pearson Correlation	.374**	.576**	1	.507**
	Sig. (2-tailed)	0	0		0
	N	171	171	172	167
SB	Pearson Correlation	.385**	.472**	.507**	1
	Sig. (2-tailed)	0	0	0	
	N	166	166	167	167

** Correlation is significant at the 0.01 level (2-tailed). Source: Field Study, 2020

From table 4.8 above, it is evident that the correlation between mobile money intention to use and savings behaviour was 0.385 and significant at .05 level with a p-value of (0.000). This shows that intention to use is agreed by the respondents to have significant effect on their savings behaviour. Furthermore, between user satisfaction and savings behaviour, a correlation of 0.472 was recorded and this also indicates that the respondents agree that user satisfaction as a mobile money construct would have positive impact on savings behaviour of mobile money users. With access to loans, there was a correlation of 0.507 which indicates that access to loans from mobile money operators improves savings behaviour by 50.7 percent. Coupled with the overall mean of the descriptive statistics, it can be concluded that mobile money contributes positively to improving the savings behaviour of customers in Kumasi Metropolis.

4.2.4 The Contribution of Mobile Money Systems On Welfare of Individuals

The second part of the overall objective of the study was to examine the contribution of mobile money systems on welfare of individuals in Kumasi Metropolis. To perform this analysis, the study uses the descriptive statistics on the questions asked on welfare of the customers and also this was confirmed using the correlation analysis between the various measures of mobile

money and welfare of customers. The findings of the descriptive statistics are presented in Table 4.9 below and the findings of the correlation analysis are presented in Table 4.10 below:

Table 4. 9: Analysis on Mobile Money Systems and Welfare of Customers

	N	Min	Max	Mean	Std. Deviation
The products/services offered by the financial institution has provided self-employment to this household members	171	1	5	3.5673	1.06819
The products/services provided by the financial institution has improved our standard of living	171	1	5	3.5088	1.15996
The products/services provided by the financial institution has led to improved literacy in this household	170	1	5	3.2	0.97665
The products/services provided by the financial institution has led to increased consumption in this household	171	1	5	3.1228	1.0912
The products/services provided by the financial institution has increased our income	170	1	5	3.0471	1.15031
The products/services provided by the financial institution has enabled us acquire more assets	169	1	5	2.9763	1.14929
Opinion Index	167			3.23705	

Source: Field Study, 2020

From the findings above, it is evident that the first item "The products/services offered by the financial institution has provided self-employment to this household members" recorded a mean of 3.56 (SD=1.06) which implies that majority of the respondents agrees that mobile money has helped create some form of self-employment in their households. The next contribution of mobile money to welfare could be observed in the item "The products/services provided by the financial institution has improved our standard of living" which recorded a mean of 3.50 (SD=1.15) indicting that the respondents agrees that mobile money products and services has improved their standard of living. The third item "The products/services provided by the financial institution has led to improved literacy in this household" recorded a mean of 3.2 (SD=0.97) indicating that majority of the respondents agrees to this item. also, "The products/services provided by the financial institution has led to increased consumption in this

household" recorded a mean of 3.12 (SD=1.09) implying that mobile money has helped to increase the consumption of these households. The overall opinion index was 3.2 which implies that majority of the respondents agrees to the items on the scale.

The correlation analysis was conducted to confirm the responses received from these respondents in terms of the contribution of mobile money to their welfare, the findings are presented in Table 4.10 below:

Table 4. 10: Correlation Analysis on Mobile Money and Welfare

		ITU	US	AL	SB
ITU	Pearson Correlation	1	.550**	.374**	.301**
	Sig. (2-tailed)		0	0	0
	N	171	171	171	170
US	Pearson Correlation	.550**	1	.576**	.420**
	Sig. (2-tailed)	0		0	0
	N	171	171	171	170
AL	Pearson Correlation	.374**	.576**	1	.413**
	Sig. (2-tailed)	0	0		0
	N	171	171	172	170
SB	Pearson Correlation	.301**	.420**	.413**	1
	Sig. (2-tailed)	0	0	0	
	N	166	166	167	170

Source: Field Study, 2020

From table 4.10 above, it is evident that the correlation between mobile money intention to use and welfare was 0.301 and significant at .05 level with a p-value of (0.000). This shows that intention to use is agreed by the respondents to have significant effect on their welfare. Furthermore, between user satisfaction and welfare, a correlation of 0.420 was recorded and this also indicates that the respondents agree that user satisfaction as a mobile money construct would have positive impact on welfare of mobile money users. With access to loans, there was a correlation of 0.413 which indicates that access to loans from mobile money operators improves welfare by 41.3 percent. Coupled with the overall mean of the descriptive statistics, it can be concluded that mobile money contributes positively to improving the welfare of customers in Kumasi Metropolis.

4.2.5 The Challenges Faced in Accessing Mobile Money Services

This section of the study analyses the challenges faced by mobile money users in accessing mobile money services. Respondents were presented with some list of possible challenges and were asked to indicate the extent to which they encounter these challenges when using the mobile money service. Beyond the closed ended questions, an open-ended question was posed to allow the respondent indicate other challenges they face which were not captured in the list. A 5-point Likert scale was used where 1= Never, 2= Rarely, 3= Sometimes, 4= Often and 5= Always."

Table 4. 11: Analysis on Challenges Faced by Mobile Money Users

	N	Min	Max	Mean	Std. Deviation
The mobile money services characterised by high level of fraud	167	1	5	4.0539	0.99552
The mobile money service provider charges higher amounts on transactions.	167	1	5	3.3952	1.14575
The mobile money service provider makes it difficult to transfer funds to other networks	165	1	5	2.7879	1.13044
The mobile money service lacks adequate number of agents in the municipality	164	1	5	2.5915	1.18173
The service is generally difficult to use.	162	1	5	2.3333	1.10335
The interest rates on the mobile money loans are high	165	1	5	3.0485	1.23864
The terms of payment on the mobile money loans are not flexible	166	1	5	2.8735	1.09639
The loans receive from the company are not up to my expectations	167	1	5	3.3653	1.09961
The methods of applying for the loans are rigorous and stressful	166	1	5	2.494	1.09404
Opinion Index	155			2.993678	

Source: Field Study, 2020

From the table 4.11 above, an overall mean of 2.99 can be observed. This is an indication that majority of the respondent agreed that they sometimes encounter most of the challenges listed on the table. From the table, it is observed that "The mobile money services characterised by high level of fraud" recorded the highest mean of 4.05 and standard deviation of 0.995. This implies that fraud in the mobile money services was a challenge that mobile money users face

when using the mobile money service. Again, it is seen that the item "The mobile money service provider charges higher amounts on transactions" a mean value of 3.395 has been recorded and a standard deviation of 0.1.14. This indicates that majority of the respondents agrees that the high charges that these mobile money operators' charges are a challenge they face when using the service. The respondents further indicate that "The interest rates on the mobile money loans are high" is a challenge they face since it recorded a mean of 3.048 and SD of 1.23. Finally, the item "The loans receive from the company are not up to my expectations" recorded a mean of 3.365 and SD of 1.099 which indicates that majority of the respondents agrees the this is a challenge they often face with the mobile money service. The other items on the scale recorded means below 2.9 which implies that these are challenges they rarely face with their mobile money service.

4.3 DISCUSSION OF FINDINGS

The main objective of this study was to examine the role of mobile money system to improve financial inclusion in Ghana. The first part of the overall objective of the study was to examine the contribution of mobile money systems on the savings behaviour of individuals in Kumasi Metropolis. Relative to this objective, the study found that mobile money systems have helped improve the overall savings behaviour of the respondents. Specifically, the study found that intention to use mobile money, user satisfaction from the use of mobile money and also access to loan has helped improve their savings behaviouir. This is shown in the significant correlation between savings behaviour and these three conceptualisations of mobile money systems. These findings are consistent with the findings of Ky, Rugemintwari and Sauviat (2018) who investigate whether the use of mobile money can help individuals build savings to face predictable and unpredictable life events and found robust evidence suggestive that using

mobile money increases the propensity of disadvantaged groups such as rural, female, less educated individuals and individuals with irregular income to save for health emergencies.

The second part of the overall objective of the study was to examine the contribution of mobile money systems on welfare of individuals in Kumasi Metropolis. From the analysis, the study found that mobile money services have improved welfare of the users. This is evident in the significant correlation between intention to use, user satisfaction and access to loan on welfare of the respondents. This is consistent with the findings of Peprah, Oteng and Sebu (2020) wo found that adoption of m-money was also seen to have an enhancing effect on the household outcome variables (farm output, welfare, and wealth) of smallholder farmers. Their results further showed that mobile money can help enhance some of the smallholder economic outcomes that are relevant for rural development and poverty reduction.

The final objective analyses the challenges faced by mobile money users in accessing mobile money services. From the analysis, the study found that some of the challenges faced by the mobile money users includes: high level of fraud, higher amounts on transactions, interest rates on the mobile money loans are high, and loans receive from the company are not up to user expectations. This is confirms the findings of Akomea-Frimpong et al. (2019) who showed that fraud in mobile money services is caused by weak internal controls and systems, lack of sophisticated information technology tools to detect the menace, inadequate education and training and the poor remuneration of employees and these factors disrupt the growth, and the smooth-running of the services.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 INTRODUCTION

In this chapter, the findings of the study are summarised, conclusion are made based on the findings of the study, in addition to recommendation for investors, countries and policy makers. The chapter is divided into four main sections, Section 5.1 presents a summary of the findings of the findings of the study, and Section 5.2 is dedicated to conclusion that can be made based on the findings of the study. Sections 5.3 provides recommendations for policy makers, investors, governments, and future studies based on the findings of the study.

5.1 SUMMARY OF FINDINGS

The study examined the extent to which mobile money service helps improve financial inclusion in Ghana, providing evidence from Kumasi Metropolis. The study adopted the quantitative approach and the survey research design to examine the phenomenon. Using the convenience sampling technique, 200 mobile money users were sampled in the Kumasi Metropolis. Primary data specifically questionnaire was the main data collection instrument in this study. Data was analysed quantitatively using descriptive statistics including frequencies, mean analysis, and cross tabulation. The study examined three objectives and the summary of findings from each objective is presented below.

The first objective of the study examined the contribution of mobile money systems on the savings behaviour of individuals in Kumasi Metropolis. Relative to this objective, the study found that majority of the respondents agrees that mobile money systems have helped improve their savings behaviour (opinion index = 3.588244). Specifically, the respondents indicated that the mobile money service provided by the companies helps them to perform tasks related to savings such as “easily access the funds kept in their account”, “easily transfer funds to their

bank account", "provides access to save money for future use", "institution enables them to hold money in my wallet without any charges", "helps them invest better", and "helped increase the amount of money save on monthly bases". These were further confirmed in the correlation analysis which showed that various aspects of mobile money such as intention to use, user satisfaction, and access to loans correlates positively and significantly with savings behaviour of customers.

The second objective explored the contribution of mobile money systems to the welfare of individuals in Kumasi Metropolis. From the analysis, the study found that mobile money services have improved welfare of customers in the following ways: "self-employment to household members", "has improved standards of living", "has led to improved literacy in households", "has led to increased consumption in households", and "has increased incomes". This is further confirmed by the correlation analysis which showed that user satisfaction, intention to use and access to loans has positive correlations with welfare of the customers of these mobile money systems.

The third objective analysed the challenges faced by mobile money users in accessing mobile money services. From the analysis, the study found that some of the challenges faced by the mobile money users includes: "The mobile money services characterised by high level of fraud", "The mobile money service provider charges higher amounts on transactions", "The interest rates on the mobile money loans are high", and "The loans receive from the company are not up to user expectations".

5.2 CONCLUSION

The importance of an inclusive financial system is widely recognised in policy circles and recently financial inclusion has become a policy priority in many countries. Access to appropriate financial services can significantly improve the day-to-day management of

finances. An inclusive financial system can help in reducing the growth of informal sources of credit (such as money lenders) that are often found to be exploitative. In line with the increase in the number of subscribers on mobile money services on the various networks in Ghana due to the lower cost associated with its use, this study throws more light on how this rise in mobile money service is helping to improve financial inclusion among Ghanaians. In line with the analysis and findings from the study, we can conclude that mobile money services have positive effects on savings behaviour of users and that mobile money services helps to improve the welfare of users in Ghana. Nonetheless, we found some challenges mobile money users in Ghana face including high level of fraud, higher interest rate, high costs of transaction and inability of service providers to issue users with the full amount of loans they are seeking.

5.3 RECOMMENDATION

Based on the findings of the first objective which suggest positive connection between the various aspects of mobile money (intention to use, user satisfaction, and access to loans) and savings behaviour of customers, we recommend that laws should be enacted to guide the mobile money service from fraud and other dubious activities to encourage the use of the facility to improve financial inclusion in Ghana.

Following the findings of the second objective which depicts positive effects between aspects of mobile money (intention to use, user satisfaction, and access to loans) and welfare of the customers of these mobile money systems, we recommend that robust internal controls should be ensured to monitor transactions and bring out the dubious ones. Anti-malware application on mobile phones should be encouraged, and collaboration between the mobile money operators and the e-crime bureau of the government should be strengthened to arrest and deal with the menace of mobile money fraud. This may encourage an extensive use of the facility which will in the long run improve the social welfare of Ghanaians.

In line with the findings from the third objective which suggest some challenges faced by the mobile money users including high level of fraud, high transaction cost, high interest rate, and inadequate loan amounts, we recommend that mobile money service providers should review their charges with respect to transaction cost and interest rate to encourage customers to use the service. We also recommend that government and policy makers should put in measures that could help tract borrowers of mobile money loans in order to help reduce default rates. This way, the mobile money operators would be confident of giving the full amount of loans requested by customers to them since these can be retrieved later.

Finally, we recommend that future studies in the subject are may consider a study on the degree of supervision of mobile money activities in improving financial inclusion in Ghana. Future studies may also replicate the current study by increasing the sample size and also the location of the study in order to ascertain if the findings of those future studies would be similar to this one.

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APPENDIX

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

SURVEY QUESTIONNAIRE

My name is Henry Stephen Asenso. I am a Postgraduate student at the Kwame Nkrumah University of Science and Technology, Department of Accounting & Finance-, Kumasi. This survey instrument has been designed to enable me carry out a research on '**THE ROLE OF MOBILE MONEY SYSTEM TO IMPROVE FINANCIAL INCLUSION IN GHANA. A CASE STUDY OF KUMASI METROPOLIS.** Any information provided will ONLY be used for general information, and it will be treated as **HIGHLY CONFIDENTIAL.**

INSTRUCTIONS: Please kindly write in ink in the box which corresponds to the statement, which in your opinion is the most appropriate answer to the related question. For the following questions, kindly select by checking (✓) all that apply.

SECTION A: DEMOGRAPHICS OF RESPONDENTS

1 Gender of respondent [ ] Male [ ] Female

2. Age of respondent [ ] 18-28 [ ] 29-38 [ ] 39-48 [ ] 49-60 [ ] above 60

3. Marital Status [ ] single [ ] married [ ] divorced [ ] widowed [] Separated

4. Highest level of education

[ ] JHS [ ] SHS [ ] Diploma/HND

[ ] Degree [ ] Master's Degree [ ] PhD

5. What is your employment status?

[ ] Unemployed [ ] Employed (Accounting, Administration, Banking or Finance related)

[ ] Employed (Other Sectors)

6. Income level

[ ] Below 500 ghc [ ] 501 – 1000 ghc [ ] 1001 – 1500 ghc

[ ] 1501 – 2000 ghc [ ] 2001 – 3000 ghc [ ] Above 3000 ghc

SECTION B: MOBILE MONEY

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Intention to Use					
I expect to use mobile money services in the next few weeks					
I intend to use mobile services in the coming months					
I intend to use mobile money for services beyond money transfer					
I intend to continue using mobile money services in the next coming years					
I have strong positive perception toward use of mobile money services					
My attitude toward use of mobile money services is always positive					
User Satisfaction					
I enjoy using mobile money services for my transactions					
My mobile money system meets my financial needs well					
My mobile money system meets my expectations regarding financial services					
I usually have no complaints about my mobile financial service provider					
I am content with the costs incurred in using mobile money financial system					
I do not find mobile money costly in terms of interest					
Mobile money services is always reliable to me					
Access to Loan/Credit					
The mobile money provider makes available easily accessible loans to customers.					
The interest on the loan motivates me to take up the loan provided by the service provider					
Acquiring the loan by this service provider is simple and easy.					
The mobile money service provider approves the loans on time and effectively.					
The mobile money loans provided are useful to my overall wellbeing.					
The company also provides flexible terms of payment which motivates me to take the loans.					

Okello Candiya Bongomin, G., Ntayi, J. M., Munene, J. C., & Malinga, C. A. (2018). Mobile money and financial inclusion in sub-Saharan Africa: the moderating role of social networks. *Journal of African Business*, *19*(3), 361-384.

SECTION B: WELFARE

	Strongly disagree	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
Welfare					
The products/services provided by the financial institution has improved our standard of living					
The products/services provided by the financial institution has increased our income					
The products/services provided by the financial institution has enabled us acquire more assets					
The products/services provided by the financial institution has led to improved literacy in this household					
The products/services provided by the financial institution has led to increased consumption in this household					
The products/services offered by the financial institution has provided self-employment to this household members					

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SECTION C: SAVINGS BEHAVIOUR

	Strongly disagree	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
The mobile money services provided by the financial institution helps me to easily transfer funds to my bank account					
The mobile money service provided by this financial institution provides access to save money for future use					
The mobile money service provided by this financial institution helps me invest better					

The mobile money service provided by this financial institution helps me to easily access the funds kept in my account					
Overall, my savings habit has improved with the use of the mobile money service of this financial institution.					
The mobile money services provided by the company enables me to meet unexpected expenses					
The mobile money services has helped me increase the amount of money I save on monthly bases					
The mobile money service provided by the financial institution enables me to hold money in my wallet without any charges.					
The financial institution pays appropriate interest on the funds in my mobile money which encourages me to save more.					

Ky, S., Rugemintwari, C., & Sauviat, A. (2018). Does mobile money affect saving behaviour? Evidence from a developing country. *Journal of African Economies*, *27*(3), 285-320.

SECTION D: CHALLENGES IN MOBILE MONEY SERVICES

	Strongly disagree	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
The mobile money services characterised by high level of fraud.					
The mobile money service provider charges higher amounts on transactions.					
The mobile money service provider makes it difficult to transfer funds to other networks.					
The mobile money service lacks adequate number of agents in the municipality.					
The service is generally difficult to use.					
The interest rates on the mobile money loans are high					
The terms of payment on the mobile money loans are not flexible					
The loans receive from the company are not up to my expectations.					
The methods of applying for the loans are rigorous and stressful					

Other Challenges: ……

……..……

……..……