

**THE INFLUENCE OF TECHNOLOGY ADOPTION, INCOME  
EXPENDITURE DISPARITY, CLIENT CHARACTERISTICS AND  
INTEREST RATES ON THE UPTAKE OF MOBILE BASED LENDING BY  
COMMERCIAL BANKS IN KENYA: A CASE OF KENYA COMMERCIAL  
BANK**

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**JULY 2020**

## DECLARATION

### DECLARATION

I declare that this research proposal is my original work and has not been presented for a degree in any other University for academic credit.


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## **DEDICATION**

This applied project research is dedicated to my parents Jabes, Rosemary, my siblings Martin, Linet and Linda.

## **ACKNOWLEDGEMENT**

I first recognize the help from the almighty God without whose grace, I would not have been able to complete this applied research project. Special thanks go to my Supervisor Dr. Gift Kimonge who has worked tirelessly to read my work, make me understand areas of correction and giving me the courage and the knowledge in doing the proposal. My gratitude extends to my parents and siblings for their support through this process and facilitating the encouragement.

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## TABLE OF CONTENTS

<b>DECLARATION</b> .....	i
<b>ACKNOWLEDGEMENT</b> .....	iii
<b>TABLE OF CONTENTS</b> .....	iv
<b>LIST OF TABLES</b> .....	vii
<b>LIST OF FIGURES</b> .....	viii
<b>ABSTRACT</b> .....	ix
<b>DEFINITION OF TERMS</b> .....	x
<b>ABBREVIATIONS AND ACRONYMS</b> .....	xi
<b>CHAPTER ONE</b> .....	1
<b>INTRODUCTION</b> .....	1
1.1 Introduction.....	1
1.2 Background of the Study .....	1
1.2.1 Global Commercial banks .....	5
1.2.2 Commercial Banks in Kenya .....	6
1.2.3 Kenya Commercial Bank .....	8
1.3 Statement of the Problem.....	9
1.5 Objectives of the Study.....	11
1.6 Research Questions.....	12
1.7 Significance of the Study .....	12
1.8 Scope of the Study .....	13
1.9 Delimitations of the Study .....	13
1.10 Limitations of the Study .....	14
1.11 Assumptions of the Study.....	14
1.12 Theoretical Framework.....	15
1.12.1 Diffusion Innovation Theory .....	15
1.12.2 Financial Intermediation Theory.....	16
1.12.3 Technology Acceptance Model .....	18
1.13 Conceptual Framework.....	21
<b>CHAPTER TWO</b> .....	24
<b>LITERATURE REVIEW</b> .....	24
2.1 Introduction.....	24
2.2 Review of Literature .....	24
2.2.1 The Role of Technology Adoption on Mobile Lending .....	24
2.2.2 The Role of Income-Expenditure Disparity on Mobile Lending.....	25
2.2.3 The Role of Client Characteristic on Mobile Lending.....	27
2.2.4 The Role of Interest Rates on Mobile Lending .....	28
2.3 Summary and Research Gap.....	30
<b>CHAPTER THREE</b> .....	32
<b>RESEARCH METHODOLOGY</b> .....	32
3.1 Introduction.....	32

3.2 Research Design .....	32
3.3 Research Site .....	32
3.4 Target Population.....	33
3.5 Study Sample .....	33
3.5.1 Sample Size .....	33
3.5.2 Sampling Procedures.....	34
3.6 Data Collection .....	34
3.6.1 Data Collection Instruments.....	34
3.6.2 Pilot Testing of Research Instruments.....	35
3.6.3 Instrument Reliability .....	35
3.6.4 Instrument Validity .....	36
3.6.5 Data Collection Procedures .....	36
3.7 Data Analysis.....	37
3.8 Legal and Ethical Considerations .....	37
<b>CHAPTER FOUR .....</b>	<b>39</b>
<b>DATA ANALYSIS AND FINDINGS.....</b>	<b>39</b>
4.1 Introduction.....	39
4.2 Response Rate.....	39
4.2.1 Demographic Characteristics.....	39
4.2.2 Age of respondents.....	39
4.2.3 Role of Respondents.....	40
4.2.4 Years of bank account operated .....	41
4.2.5 Level of education .....	41
4.2.6 Mobile loan applied.....	42
4.3 Presentation of Research Analysis and Findings.....	42
4.3.1 Technology Adoption .....	42
4.3.2 Income-Expenditure Disparity.....	44
4.3.3 Client's Characteristics .....	45
4.3.4 Interest Rates .....	47
4.3.5 Uptake of Mobile-based Lending.....	48
4.4 Regression Analysis.....	50
4.5 Qualitative analysis.....	53
4.5.1 Technology Adoption .....	53
4.5.2 Income-expenditure disparity .....	53
4.5.3 Client's characteristics .....	54
4.5.4 Interest Rates .....	55
4.5.5 Uptake of Mobile-based Lending.....	56
<b>CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS, AND</b>	
<b>RECOMMENDATIONS .....</b>	<b>57</b>
5.1 Introduction.....	57
5.2 Discussions .....	57
5.2.1 The Influence of Technology Adoption on the Uptake of Mobile-based	
Lending by Commercial Banks in Kenya.....	57

5.2.2 <i>The Influence of Income-expenditure Disparity on the Uptake of Mobile-based Lending by Commercial Banks in Kenya</i> .....	58
5.2.3 <i>The Influence of Client Characteristic on the Uptake of Mobile-based lending by Commercial Banks in Kenya</i> .....	58
5.2.4 <i>The Influence of Interest Rates on the Uptake of Mobile-based Lending by Commercial Banks in Kenya</i> .....	59
5.3 Summary of Main Findings .....	59
5.4 Conclusions.....	61
5.5 Recommendations.....	62
5.6 Areas for Further Research .....	63
<b>REFERENCES</b> .....	64
<b>APPENDICES</b> .....	73
Appendix 1: Questionnaire .....	73
Appendix 2: Research Authorization Letter .....	79
Appendix 3: Nacosti Research Permit .....	80
Appendix 4: List of Commercial Banks .....	81
Appendix 5: Map of Study Area.....	82

## LIST OF TABLES

<b>Table 3.1:</b> Population and Sample Size.....	34
<b>Table 3.2:</b> Cronbach Alpha.....	36
<b>Table 4.1:</b> Response rate.....	39
<b>Table 4.2:</b> Age of Respondents.....	40
<b>Table 4.3:</b> Total Role of Respondents.....	40
<b>Table 4.4:</b> Individual Role of Respondents.....	40
<b>Table 4.5:</b> Years of account bank operated.....	41
<b>Table 4.6:</b> Education Level.....	41
<b>Table 4.7:</b> Mobile loan applied.....	42
<b>Table 4.8:</b> Technology Adoption.....	43
<b>Table 4.9:</b> Income-Expenditure Disparity.....	45
<b>Table 4.10:</b> Client Characteristic.....	46
<b>Table 4.11:</b> Interest Rates.....	48
<b>Table 4.12:</b> Uptake of Mobile-based Lending.....	49
<b>Table 4.13:</b> Regression Model summary.....	50
<b>Table 4.14:</b> Analysis of Variance test ANOVA.....	50
<b>Table 4.15:</b> Coefficients .....	51



**LIST OF FIGURES**

Figure 1.1: Conceptual framework.....21

## ABSTRACT

The development of mobile technology has increased, causing effects in the banking sector on a global scale. Moreover, there has been an increase in the rapid technological surroundings around the world in the banking industry and the expansion of distribution channels for financial services. The study's purpose was to investigate the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya, a case of Kenya Commercial Bank. The specific objectives were to establish how technology adoption influences mobile-based lending by commercial banks in Kenya, income-expenditure disparity influences mobile-based lending by commercial banks in Kenya, client characteristic influences mobile-based lending by commercial banks in Kenya, and how interest rates influence mobile-based lending by commercial banks in Kenya. The study was grounded on the diffusion innovation theory, financial intermediation theory and the technology acceptance model. The study was conducted in Nairobi in Kencom house whose target population was 200 respondents. This study employed a stratified sampling of the population, of which a sample size of 133 was selected. Furthermore, a descriptive research design was utilized. Questionnaires were used in gather primary data, and a pilot test of the inquiry carried out to test the validity and reliability of the data. Statistical Package for Social Sciences (SPSS) Version 24 was used to analyse the primary data collected through editing involved checks for incorrectly filled questionnaires, coding by involving groupings of values from the survey. The study applied descriptive statistics as well as regression analysis. Presentation of results was done using figures, tables and charts. From the regression model, the study established the four independent variable's technology adoption  $\beta = 1.551$ , client characteristic  $\beta = 1.485$ , interest rates  $\beta = 1.442$  and income-expenditure disparity  $\beta = 0.504$ , where  $p < 0.05$ , were all significant predictors and had a positive influence in contributing to the uptake of mobile-based lending. The study recommends the following. The government should involve all stakeholders in developing policies and creating an environment favorable for all players where regulations are applied uniformly to the sectors. Secondly, the government should develop effective monitoring systems and infrastructure to mitigate fraudulent transactions by lowering infrastructure costs, so that appropriate systems are easily developed. Future research can also be done to investigate the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on small-medium enterprises and other business organisations.

## DEFINITION OF TERMS

**Client Characteristic:** These are traits of human traits that can be assigned to individuals, can be quantified and forms part of their identity.

**Interest Rates:** For the purpose of this study this is a per cent age that is charged by an institution for the use of their services in monetary value.

**Income-expenditure disparity:** This is the difference that is observed between the incomes individuals earn and their expenses that surpasses their incomes.

**Technology Adoption:** This involves the use of appropriate infrastructure to capture the market through the set strategic objectives of an organization.

**Uptake of Mobile-based lending:** This is the acceptance of a population in taking up loans that are offered at particular prices and at a set period through a digital platform where institutions have categorized the population based on their purchasing power, repayment period and spending decisions.

## **ABBREVIATIONS AND ACRONYMS**

- ANU:** Africa Nazarene University
- ANOVA:** Analysis of Variance
- CBK:** Central Bank of Kenya
- DIT:** Diffusion Innovation Theory
- ICT:** Information Communication and Technology
- IFRS:** International Financial Reporting Standards
- IT:** Information Technology
- IIT:** Information Integration Theory
- KBSC:** Kenya Banking Sector Charter
- KCB:** Kenya Commercial Bank
- MFS:** Mobile Financial Service
- MTN:** Mobile Telecommunications Network
- NACOSTI:** National Commission for Science, Innovation and Technology
- NPL:** Non Performing Loans
- SPSS:** Statistical package for Social Sciences
- SACCOs:** Savings and Credit Cooperative societies
- SMSE:** Small and Medium-Scale Enterprises

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Introduction**

This chapter presents the study's introduction and background, the statement of the problem and the objectives of the study and the research questions. The scope of the study, the significance of the study and the limitations encountered in the study are provided. Also, the presentation of limitations, delimitations and the conceptual framework.

#### **1.2 Background of the Study**

Financial institutions and banks have embraced mobile banking to cut costs, and still maintain reliable customer service. Consequently, Kenya Commercial Bank (KCB) has developed a strategy in tapping the unbanked and lends cheaper loans. In the financial year 2017/2018, the revenue stream from mobile loan disbursement to customers grew from Kenya, Shillings 76 billion to 116 billion (Oigara & Kimathi, 2017). Furthermore, Mobile banking is a channel where a customer interacts with a bank through a mobile device, such as a mobile phone or personal digital assistant (Buvaneswari, Bharathi, Babu, Venkatesh & Babu, 2014). Mobile technology enables consumers to check balances and transactions of their accounts, pay invoices and transfer funds between accounts.

Moreover, advancement in the telecommunication industry and information technology area has impacted the banking industry. The use of mobile technology has become central in an already competitive market to maintain customer base and customer satisfaction yet attempt to lower the operational costs for banks. Besides, Louis and Chartier (2017) deduce that financial exclusion, and the lack of financial inclusion especially for the poor have emerged and remained a policy and

economic challenge for many global economies. Furthermore, in South Africa, banks have tried to use financial inclusion and to have the majority of the population gain access to funding (Finmark, 2017). However, there have been numerous challenges in implementing mobile financial services (MFS). Conversely, the population has more mobile handsets than accounts in banks. However, technology infrastructure has been costly; thus the adoption of technology has become difficult.

Other African countries like Uganda has embraced mobile money's use as a platform for the exchange of funds across borders with their mobile telecommunication network (MTN) as studied by (MTN, 2016). The launch of the mobile loan platform managed to disburse up to 140,000 loan applications and thus has been on an upward growth in the mobile loan disbursement sector. Despite the numerous networks in Uganda, the two dominating loan providers are MTN and Airtel (MacMillan, Paelo & Paremoer, 2016). Furthermore, the growth rate on the mobile loan platform from 2011-2016 grew by 55%, this indicates the substantial investment the country has employed in this channel and Uganda's support in infrastructure to drive this growth.

The Kenyan banking sector is not shy of these challenges. A study by Njoroge, Muathe and Bula (2016) showed the effect of technology on the performance of mobile-phone companies in Kenya, and they gathered a positive correlation between the use of technology and firm performance. They concluded that firms that adopted better use of technology had excellent performance. Consequently, there has been the partnership with Telco's in the Kenyan industry like the Mpesa platform by Safaricom, Airtel money, and T-Cash by Telkom Kenya, enabling

interoperability leading to a broad population being captured to maintain profitability (Kuzmina, 2018).

Too and Ayuma (2016) argue that technology adoption in Kenya has taken a framework. The government has invested in infrastructure to encourage loaning through public and personal credit reference bureau and institutional methods to spur economic development reflecting the strategic vision 2030 blueprint. Kenya has been on the forefront in technology adoption and has adapted to new mobile technology to remain relevant, current, and competitive in the global market. In Kenya, banks have been struggling to compete in the mobile money market, and this is because of competitors such as micro finance and the Savings and Credit Cooperative Organizations (SACCOs) who have taken up the same space becoming competitive thus driving banks to come up with new strategies and new technology innovation (Gubbins, 2015).

Income-expenditure disparity has been a significant contributor to mobile loan uptake. Research conducted by Totolo (2018) gathers that most Kenyans are using digital credit to finance working capital, and day-to-day consumption needs. The income-expenditure disparity is a result of the income generation not matching what the population is consuming. The borrowing accounts for 35% spent on daily needs consumption, that including food, transportation and housing. Furthermore, Wamalwa (2016) gathers that small- scale industry people have many needs but have low purchasing power and result in borrowing to sustain them. Moreover, Ochieng (2019) postulates that income-expenditure disparity contributes to non-performing loans (NPL). The non-performance is a result of incomes earned not being sufficient to cover an individual's needs. With the population already living beyond their means, this leads to unpaid loans within the time frame specified or

payments foregone completely. The bank's debt collectors are unable to trace defaulters leading to banks declaring this as bad debt.

Client characteristics also play a significant role in the mobile loan borrowing. Wamalwa (2016) posits that people with some form of education level influence their need for external financing. This is because they can understand financial information such as bookkeeping. Thus, financial information requirement can be easily communicated to this group who is enlightened about financial literacy and how to acquire loans for their use. A study by Angaine and Waari (2014) gathers that another contributor is the number of dependents. The more the number that is supported, the higher the level of borrowing to sustain the household, which arises because of many needs. Additionally, spending decisions by population is a factor as some borrow to maintain a life of betting and gambling, hence they are entangled in a life of debt, which in turn becomes a cycle of repayments of incurred loans (Alushula & Omondi, 2018).

Interest rates have been a debate in the Kenyan economy in recent times. A research done by Deloitte (2017) showed that interest rates had affected how businesses operate and the level of investment because of the inconsistent policies of capping changes that come with new governments in interpreting of monetary policies. Moreover, Ngunjiri (2018) infers that the government having good intentions to cap interest rates and having a ceiling, have caused the local population to suffer from the fluctuations in the market, as costs of credit and access to loans has gone higher. As a result of these monetary policies, individuals have resulted in consolidating assets to meet the minimum threshold of acquiring investment for capital.



However, to mitigate the effect of interest rates, KCB devised new strategies of generating profits through the use of mobile money technology platform to transform lives, and also achieving their strategic vision for instance, the “*usitense* campaign” where one can borrow a loan at 0% interest rate once a week and repay by midnight (Kondo, 2019). This campaign strategy has resulted in the rise of access to loans with the allure of the 0% interest rate to the population and profitability for the bank and new customers. The terms of payments are strictly adhered to and when one defaults, then a penalty of 10% is levied on the loan, and this becomes a revenue stream for the population that may not be able to meet the requirements.

Revenue streams have been rising due to the population adopting to the uptake of mobile-based lending (Safavian & Zia, 2018). Consequently, leading to the banking sector increasing revenue streams through the use of the mobile technology platform. Moreover, the investment of appropriate technological infrastructure has given rise to the efficiency of service delivery where transactions carried out are timely and shift towards an embraced rise to technology. In addition, the population has relatively adopted to the mobile channel and has, adopted this means as a form to carry out daily transactions (Berkouwer & Dean, 2019).

### **1.2.1 Global Commercial banks**

Before banking systems were developed, people traded using the exchange of goods for goods (Kachere, 2018). Nonetheless, with time there was the disparity where goods for goods did not match. A form of system was developed where coins were used in exchange for goods and later gold for highly valuable products. A form of a system started developing, and the Roman, Greek and Babylonian

empires with their accumulating wealth had to find places to store and keep their coins and gold (Prabhavathi & Dinesh, 2018). Most people placed their coins in temples where trustworthy priests could look after them. Furthermore, Julius Cesar became the first ruler to establish banks from temples to buildings that stored coins, and gold and acted as debt collectors for high-sent rulers.

Modern banking was established by Adam Smith in the British Empire to create a self-regulating economy during the 15<sup>th</sup> century (Weingast, 2018). Additionally, the modern banking industry began in India in 1786-1947, setting a revolution in the global banking sector. The core of banks was for payments taking people's deposits and issue loans to individuals and companies. Banks developed orders, and set out mandates on the modern-day with bodies such as the World Bank established in 1944 to rebuilding Europe's economies after the world war by borrowing small loans until they were able to repay after stabilizing (Kremer & Clemens, 2015).

### **1.2.2 Commercial Banks in Kenya**

Banking in Kenya, dates back to the precolonial period. The first bank in East Africa was established in Zanzibar in 1880 Known as Jetha Lila Bankers from India and its subsidiary; the National Bank of India was inaugurated in Kenya in 1887 (Fred, 2016). The banking network grew from one branch in the town of Mombasa in 1896 to eight branches in five towns before the First World War having added Nairobi, Nakuru, Kisumu and Eldoret, moreover, by 1911 there were three banks in Kenya: The National Bank of India, Standard Bank of South Africa, Kathiawad and Ahmedabad Bank (CBK, 2019).

Mecagni (2015) points out that financial liberalization, reforms and upgrades in regulatory and supervising and technological innovation capacity in banks have

historically set the scene for the transformation of the African banking. Kenyan banks are mandated to supporting payment services, credit services and encourage a saving culture by customers to grow their deposit portfolio. Banks has had to embrace and become more user-friendly and have the best international banking practices and structures to compete on a globally. To regulate the undertakings of banks, there was the establishment of a body to regulate the financial industry in Kenya known as the Central Bank of Kenya (CBK) established in 1966, by an act of parliament and was ever-changing with the changing environment which banks have operated (CBK, 2019).

The central bank is under the ministry of National treasury responsible for proper operations and supervision of Kenyan banks in the financial sector. Additionally, CBK (2015) postulates that the central bank is mandated to regulate banks' policies, the financial risk management, and monitoring financial performance. Moreover, effective risk management involves reporting, review, and ensuring that risks are identified, assessed and mitigated. Furthermore, Cytonn (2016) observed there are forty-two commercial banks in Kenya and some of which are internationally based. CBK being the regulating body in Kenya requires all banks to submit audited annual financial reports disclosing their liquidity positions, performance and management of credit risk to protect the consumers from fraud in the banking system.

The Kenya Banking Sector Charter (KBSC, 2018) gathers that a charter was established that governs the framework of banks mandated with the adoption of customer-centric business models by the banks, risk-based credit pricing, enhanced transparency and information disclosure by entrenching an ethical culture in banks doing the right thing. All compliance and strict follow-up is also done in

conjunction with the CBK as the supervisory body in Kenya. Furthermore, the government regulations put in place have contributed to the development of the financial sector towards the Kenya vision 2030 and has dedicated a strategic plan in the support of the infrastructure and a framework for the best practices in the development of the mobile and telecommunication sector (Piot et al., 2018).

### **1.2.3 Kenya Commercial Bank**

Kenya Commercial Bank traced its establishment in 1896. It was started in Mombasa as a subdivision of the Indian National Bank. The merger of Grindlays Bank and National Bank led to the formation of KCB in 1971. Additionally, the government in 1963 acquired six percent of Grindlays and the National Bank and, further in 1970 took the rest of the shares and renamed the bank Kenya Commercial Bank. Moreover, as a financial sector, KCB met the licenses required and was licensed in 2012 and in 2015 it turned into a subsidiary. The bank has subsidiaries in Uganda, Tanzania, South Sudan, Rwanda, Burundi, and the main headquarters are based in Kenya, thus having a widespread presence in East and Central Africa on its excellent performance. The bank also has about 222 branches in Kenya and several agent networks who are agents for the bank hence offering convenient services to many of its clients.

The telecommunication industry became the front-runner in the mobile loan disbursement as a tool for financial delivery in the Kenyan economy. KCB had to be innovative to stay relevant in the market. This is because of the changing banking environment and adoption of technology used by the mobile telecommunication industry to embrace financial accessibility Codérias (2017). Moreover, Ogongo (2014) gathers that the most significant financial growth has therefore been witnessed in the mobile money transfer platform, which has been

running by the different mobile connections such as Telkom associated with T-Cash, Safaricom-Mpesa and Airtel money. The Telco's have been the pioneers regarding of mobile lending.

Mobile technology has penetrated even the unbanked and rural areas, giving rise to a channel untapped in realizing profits. For a long time, banks have depended on the number of walk-in clients and physical structures that have resulted in investment in greater technology through branchless banking such as the agents and mobile platforms, thus, reducing banking costs and improving profitability (Brendah, 2018). In addition, the results posted in the financial year 2016-2017 showed a rise of mobile loan application up to 90% as compared to branch application of 10% revealing that this channel brought an increase of 50-57% and rise from Kenya shillings 5.4 billion to Kenya shillings 12.6 billion in the same financial year (KCB, 2017). These results show the tremendous capital gained in the use of the mobile loan platform to increase the bank's profitability.

### **1.3 Statement of the Problem**

Over the last few years, there has been a tremendous increase in the number of financial institutions in Sub-Saharan Africa, offering almost the same product and service Oromo (2015). Consequently, this has resulted in increased competition for market share hence leading to declining profit margins. Moreover, the same period has seen a tremendous increase in the number of microfinance institutions and telecommunication firms offering almost similar lending products and services to the mainstream banks. A study by Bounouala and Rihane (2014) gathers that banks have formed new partnerships and alliances with Mobile network operators to remain profitable and reach the unbanked. Therefore, banks have had to be innovative to survive in this competitive financial environment. The need for

innovation has resulted in the competition by the banks. The traditional banking system of queuing for services has been reduced to a click of a button through mobile devices for efficient service delivery leading to banking transformation (Nyasimi, 2016).

Nevertheless, banks have continued performing dismally in profit-making, because of increased financial competition from technology companies (Fintechs), who have developed specialized software to provide alternative financial services from banks, thus, disrupting traditional brick, and mortar banking operates (Mersch, 2015). In addition, a banking report by Lascelles and Patel (2015) places technology adoption at the top four perceived risks in the survey of 672 top world's best regulators and banks. These indicating customers are careful on technology adoption unless they can build trust with the brand or organization which requires constant communication, usefulness and benefits that technology can provide for the customers.

Previous studies conducted including factors affecting utilization of mobile banking in selected banks in Thika town by (Githaiga, 2015) established the motivation that makes a population embrace and uses mobile banking. Wainaina (2014) studied mobile-based loan management practices and the financial performance of commercial banks in Kenya. The analysis addressed how managing loans through mobile banking contributed to the financial performance of banks. Also, studies conducted by Venza (2015) studied online banking strategies and the competitive advantage of commercial banks in Kenya. It showed how bank managers could prioritize their mobile banking initiatives and allocate adequate resources effectively to improve their mobile banking solutions.

These studies have not conclusively dealt with factors that influence the uptake of mobile-based lending by commercial banks, thereby leaving gaps in this area. The gaps in these studies include how technology adoption as a key driver as a useful tool to capture the market, knowing the levels of the income of individuals to tailor products suited to customer needs thereby increasing the customer base portfolio. In addition, understanding the customers' characteristics enables customer segmentation by the banks to effectively provide mobile lending products. Furthermore, examine how interest rates from financial institutions can be reviewed to make mobile-based lending more attractive and affordable, thus contributing to the growth in the uptake of mobile-based lending by the banks.

#### **1.4 Purpose of the Study**

The purpose of the study was to investigate the influence of technology adoption, income expenditure disparity, client characteristics and interest rates on the uptake of mobile based lending by commercial banks in Kenya.

#### **1.5 Objectives of the Study**

The study's specific objectives were;

- (i) To establish the influence of technology adoption on the uptake of mobile-based lending by commercial banks in Kenya
- (ii) To investigate the influence of income-expenditure disparity on the uptake of mobile-based lending by commercial banks in Kenya
- (iii) To determine the influence of client's characteristics on the uptake of mobile-based lending by commercial banks in Kenya
- (iv) To Investigate the influence of interest rates on the uptake of mobile-based lending by commercial banks in Kenya

## **1.6 Research Questions**

The study's research questions were;

- (i) To what extent does technology adoption influence the uptake of mobile-based lending by commercial banks in Kenya?
- (ii) To what extent does income-expenditure disparity influence the uptake of mobile-based lending by commercial banks in Kenya?
- (iii) To what extent does the client's characteristics influence the uptake of mobile-based lending by commercial banks in Kenya?
- (iv) To what extent does interest rate influence the uptake of mobile-based lending by commercial banks in Kenya?

## **1.7 Significance of the Study**

Evans, Gruba and Zobel (2014) postulate that the study's significance is where one equates the study with potential impact and where it makes a difference to current thinking. Several financial institutions have developed different strategic plans and innovations through mobile banking technology leading to make an impact and maximize profit. Furthermore, this platform has been used to reach the population that has been financially excluded in the economy that has been able to enjoy banking services and facilities such as loans and transactions without having bank accounts (Bett & Bogonko, 2017). This area of study on mobile-based lending at Kenya Commercial Bank provides important information on how to design technological innovations relevant to market needs and develop policies in the financial sector.

The management of KCB and other commercial banks can benefit from the study results by setting up a framework and infrastructure for the disbursement of funds in partnership with mobile phone operators to improve services towards



economic empowerment to parties involved. In addition, banks can be able to plan and execute reforms in the banking sector.

Furthermore, the study can be of use to the government as it enables policy formulation such as setting interest rates on loans and regulating of the transfer of funds by the banks through best practices in the financial sector. Moreover, commercial banks can take advantage of the study by avoiding the high number of non-performance of loans through the defaulting of individuals, thus, posing a risk to the business and reducing banks profitability. The study is helpful to CBK as it informs policy formulation in regulating mobile-based lending, the Sacco's regulation, and ensuring a secure monetary system. The community can benefit from the study in having quality and a sound regulated financial system geared towards competitive interest loan rates setting by banking institutions for the consumer.

### **1.8 Scope of the Study**

Scope of the study posited by Parija and Kate (2018) refers to the foundation's research covers regarding time, location, populations, and the environment. The study was conducted in Nairobi County's KCB head office branch. The subject scope was based on technology adoption, income-expenditure disparity, client characteristic, interest rates, and how they affect the uptake of mobile-based lending.

### **1.9 Delimitations of the Study**

This study was delimited to Kenya Commercial bank and the staff of the same bank. The study is limited to KCB's main branch located in Kencom House in Nairobi Central business district as a result, the convenience to the researcher concerning accessibility, represents a population of both corporate and retail

customers and has evenly distributed staff across management levels who have the relevant information useful in the study. This study sought to establish the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya. The study covered technology adoption, income-expenditure disparity, client characteristics and interest rates.

### **1.10 Limitations of the Study**

The limitation of the study as gathered by Terrell (2016) refers to restrictions outside the researchers control and that is integral to the actual study that could affect the generalization of the study results. KCB is a commercial bank, and the information may be private only to the users of the information such as managers and top leadership. To handle this, the researcher provides an introductory permit to undertake this investigation. The study was restricted to the head office in Nairobi's central business district which means that the data collected has no equal representation of all banks around the country. On the other hand, there is the generalization of findings to other banking institutions as the information collection instruments are examined for reliability by undertaking a pilot to ensure the relevant data is collected and accurate. Another limitation is respondents may not be willing to disclose information for fear of revealing bank details. This was curbed by explaining the importance of study before issuing out any questionnaire and explaining the role of confidentiality.

### **1.11 Assumptions of the Study**

Jason and Glenwick (2016) refer to assumption as attributing meaning to a phenomenon in interaction with those around them in context-specific settings. In this study, the researcher had the assumption that banking institutions in Kenya are

well-developed in advance technological infrastructure to support the uptake of mobile base lending. Another assumption was that the respondents answered the questions truthfully and understood the contents of the survey.

## **1.12 Theoretical Framework**

Theories in this study were used in establishing the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya. These theories are the diffusion innovation theory, financial intermediation theory and the Technology acceptance model. The proponent of the theories, basis, arguments for and against and how they apply to the study are also discussed.

### **1.12.1 Diffusion Innovation Theory**

The diffusion innovation theory (DIT) was developed in (1962) by Rogers Everett Mitchel. The theory explains why and at what rate ideas and technology spread through a system. Moreover, Rogers in 1983 defined innovativeness as the degree to which an individual or other unit of a population is relatively earlier in adopting new ideas than other members of a social system, which gave rise to the development of Rogers S-shaped adoption curve of innovators, early adopters, early majority, late majority and laggards (Rogers, 1995).

Kumbar (2017) refers to innovators as the first to try an available innovation, and they are always ready for potential risks as long as they have the technology. Early adopters respond to opinions, reviews about products and ideas. They are willing to adopt new technology but follow the guidelines to mitigate any risks from the innovations.

The early majority are keen on witnessing technology work and outcomes of innovation; they rely on ratings, reviews and success stories. Once they are

satisfied with the product, their influence is great within their social standings. They have an interpersonal network where they share their knowledge and, hence easily spread ideas within the system (Dube & Gumbo, 2017). Late majority are critics who only try an innovation once, it has worked. They never take risks and always point out the downfall of a product. They highly rely on the successful use and benefit of the products by other users, and embrace the products after a broad population has been successful in the testing, and results (Ali & Miraz, 2016).

Laggards on the other hand, never change with evolving innovation and are conservatives. This group requires statistics, research, change in numbers, growth and mass appeal for them to embrace technology. Nikou (2012) argues that mobile service adoption and sustainable usage has an undeniable effect on the mobile telecommunication industry and mobile technologies. He indicated that mobile banking service technology adoption is imperative for banks to carry out effective and successful lending to customers. Studies have been conducted on the (DIT), and Kee (2017) gathers a major criticism is that as information diffuses into society, individuals having higher education and socioeconomic status adapt to innovations earlier than those with lower status thereby a section benefits more than the other increasing the inequality in society. This theory was useful in this study, as it supports the argument on how the spread of new ideas happens within a social system.

### **1.12.2 Financial Intermediation Theory**

The financial intermediation theory was posited in (1960) by Gurley and Shaw. The argument is based on the theory of informational asymmetry and agency theory. The theory explains the following factors: the high cost of a transaction, lack of complete information in valuable time; and the method of regulation.

Guinigundo (2015) indicates that financial intermediaries in banks have resulted in greater banking convenience through innovation and technology by responding to market needs resulting in the provision of financial services to a broader customer base. Furthermore, there has been streamlining of banks which have resulted in strict adherence to the set guidelines by the regulatory body CBK.

According to Stroebel (2016) informational asymmetry is the imbalance of information across participants in a transaction. The seller knows more about the product they are selling as opposed to the buyer having similar information. In addition, Spread (2015) refers to informational asymmetry simply as perfect information to each party. Banks have adopted the use of technology to reach a wide population, and products have been customized to meet the population needs. However, the information on the categorization of individuals has been based on research done by banks, and the technology dissemination is done to capture the market. Banks gather information, for instance the borrowing frequency of customers and saving habits and suitable products developed that they may only be aware of its functions, and what expectations to meet regarding their financial obligations.

Moreover, the classification shows the client characteristics such as spending habits which banks are using to customize the mobile loan products. Moreover, the regulations by the Central Bank in Kenya guide the interest rates and with these banks resort to making products that would give a better yield to their performance.

Banks has appointed agents who act as collectors concerning deposits collection and provide other financial services such as balance inquiry and cheque deposits. Yusof (2016) gathers that the agency theory is where a person acts on behalf of another in dealing with other people. An agent acts on the name of the principal,

and obligates to agreements, transactions set by the principal and standards set must be adhered to. Mwaniki and Ngugi (2017) point to the heavy penalties that the banks face for non-disclosure of costs on interest on loans or other credit above the prescribed statutory maximum.

Studies carried out on financial intermediation theory has criticized the theory and have indicated that when the cost of capital is raised in an economy, it lowers a bank's ability to lend affecting the economic output. Moreover, when interest rates are high it affects the cost of the lending of banks who have to charge a higher rate in using the bank's money thus financing the customers' debts becomes expensive furthermore, banks also hold on lending as customers default on a payment as a result of the higher repayment rates and are not able to meet the banking payment expectations. When equity is increased, this is passed to borrowers who have to endure the higher cost of interest rates on loans, and thus a higher cost of financial intermediation as gathers (Zheng et al., 2017).

This theory advances the study by helping banks develop ways to attract small savers resources and use the available funds to make large loans available in the economy. Moreover, it shows various alternative revenue streams available to banks and how categories of the different population are assessed to develop the best technology innovative products that can generate additional revenue through the agency banking system to reach a wider population. Additionally, banks are to promote the use and disclosure of information to customers without hidden costs, thus, creating a sound financial environment.

### **1.12.3 Technology Acceptance Model**

Technology Acceptance Model (TAM) was developed in (1989) by Fred This is an information system theory disseminating the steps that are involved when

determining the inclusion and utilization of new technology to achieve information literacy. Furthermore, Wirtz and Gottel (2016) gather that this model consists of two factors perceived usefulness and perceived ease of use of technology. Perceived usefulness is using a specific application system that improves one's job or life performance. Banks have embraced this by eliminating the long queues in the banking halls through the mobile platform, thus offering convenience, and service delivery to customers. Deslonde and Becerra (2018) infer that perceived ease of use of technology is where the degree of use of a system is free from effort. Applications that are easy to use are generally accepted and are used by more people and products developed should be simple and easy to understand.

Conversely, a study conducted by Ajibade (2018) gathers that the technology acceptance model has a limitation on behaviour patterns changes, as different factors influence these changes from areas such as culture, values and traditions. Therefore, it is difficult to infer that friends and colleagues can easily influence one to change and adapt to a new technology through social pressure. Moreover, Roestad (2016) supposes that the model is simple, having only two variables, such as being easy to use, and perceived usefulness. On the contrary due to its simplicity, this acts as its most significant weakness. It does not incorporate other areas such as feedback and that technology can also move from down to up that is from the user creation to the broader population.

Banks in their resolve to improve profits and performance must ensure that they are creating an environment where technology use becomes a tool that improves lives and makes it easier for customers' use. This model helps this study look at how banks can make applications more comfortable to use and determine how useful the products are for the market. Furthermore, the perceived attitude towards

a particular product is understood and the products to be developed in a specific market are easy to determine.

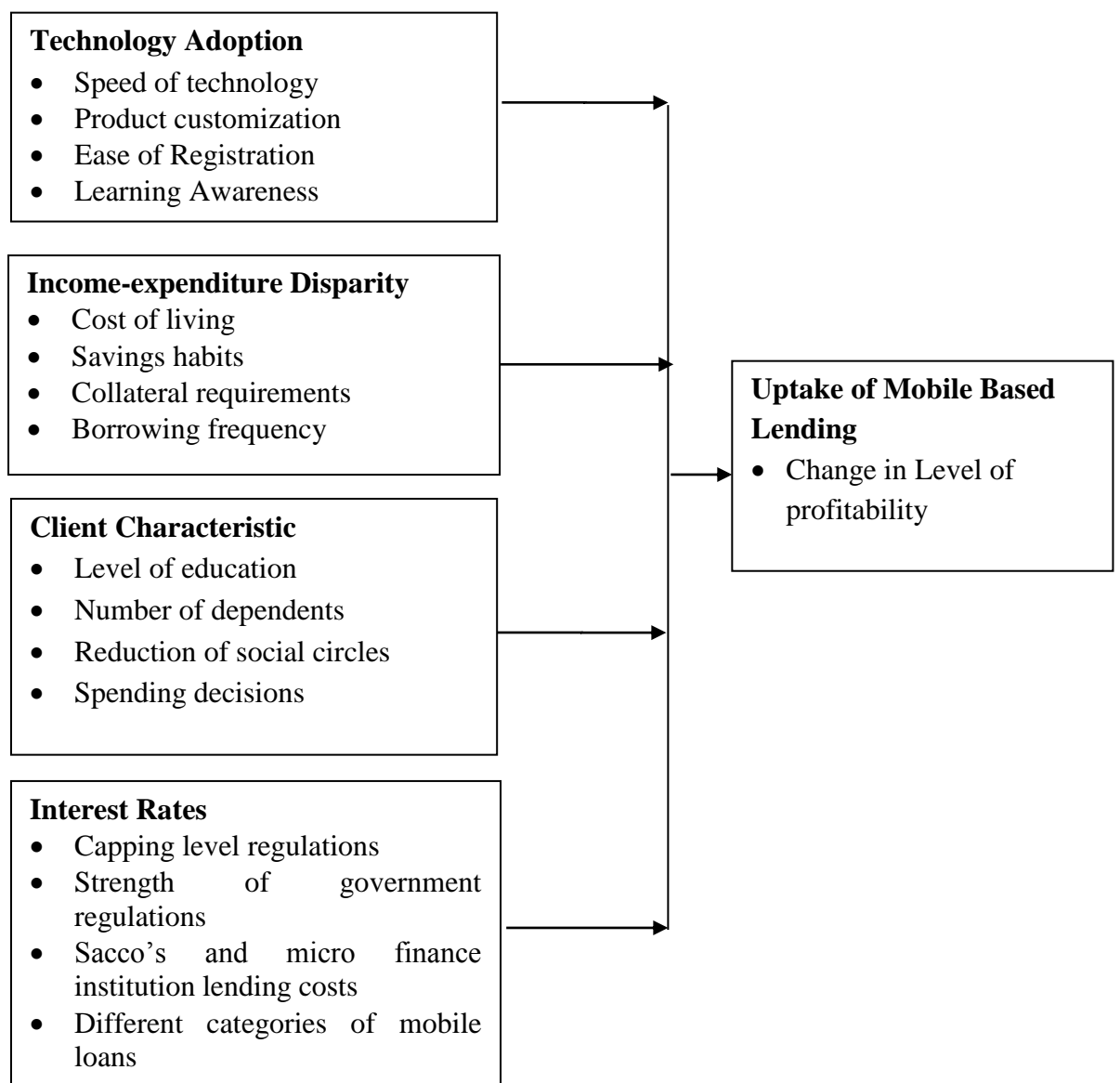


### 1.13 Conceptual Framework

The study was based on the conceptual framework presented in Figure 1.1. Which conceptualizes how the four independent variables (technology adoption, income-expenditure disparity, client characteristic and interest rates) influence the uptake of mobile-based lending.

#### Independent Variables

#### Dependent Variable



**Figure 1.1 Conceptual Framework**

**Source: Researcher (2019)**

Technology adoption involves the use of appropriate means of infrastructure to reach the market and achieve objectives. Moreover, efficient use of technology results in better productivity and more effort is directed towards other business achievements. In addition, improved technology results in convenience for the customers leading to an increased customer base and products being tailored are suited for the different market niches resulting in banks using fewer resources on operational costs and increased profitability.

Humans want to fulfil their needs; however, this has become difficult in the economy because income-expenditure disparity and the rise in the cost of living, resulting in people living beyond their needs. This escalates in the poor saving habits because resources are used to manage consumables without disposable income. However, people struggle with meager salaries and cannot afford collateral requirements such as log books or title deeds to secure loans from banks as banks assess customers' loan requirements through financial statements to determine the level of loan disbursement. In addition, clients continuously borrow from different quarters to prove creditworthiness to qualify them for loans offered by the banks.

Additionally, client characteristics help understand the reasons why individuals have to borrow; the level of education helps one access information on products that suit their needs and make informed choices. The number of dependents who rely on a person affects the lending pattern since the effort taken to sustain their dependents increases according to their spending decisions when the loans are obtained. Their spending habits come in to play and affect mobile-based lending.

Government formulates monetary policies in a country, and banks and institutions have to comply when there are capping rates. Furthermore, the cost comes down to make loans affordable to the population it affects how the financial

institutions do mobile-based lending through adherence to the set monetary policies. However, the CBKs monetary policies do not affect Sacco's and microfinance institutions because they have separate regulations. Moreover, they are expensive in comparison to banks CBK (2018). Uptake of mobile-based lending is the dependent variable in this study, and it is assessed using profitability level.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents an evaluation of empirical and theoretical literature. The empirical review is provided regarding the literature on previous research studies assessed. Finally, this chapter assesses the research gap the study is expected to fill.

#### **2.2 Review of Literature**

Theories in this study were used in establishing the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya

##### **2.2.1 The Role of Technology Adoption on Mobile Lending**

Technology adoption is the acceptance of new technology that can be used to improve and make work easier (Hu, Ding, Li, Chen & Yang, 2019). Moreover, technology adoption, if utilized well, results in efficiency at work, effectiveness where processes are made seamless and faster and convenient for the user. Mugo and Kilonzo (2017) posit that Kenya has seen a surge in the number of mobile phones from 23.4% in 2009 to 67.5% in 2015. Dutta, Geiger and Lanvin (2016) alludes there are more mobile phone subscriptions as people on the planet. Moreover, Chirchir and Juma (2016) reported that banks are laying importance on technology innovation, and Kenya is not shy of these findings. There has been an increase in mobile loans, and the allure of using mobile phones as a financial service tool, thus, laying debt traps for many borrowers (Alushula & Omondi, 2018).

A survey by Fin Access (2016) on the use of financial services in Kenya showed that 15.1% of the population has embraced the use of mobile financial services as a

way of transacting, showing the response to embrace technology usage. Furthermore, this has been made as a part of many banks' strategy, and a corporate goal to capitalize on mobile financing. These inquiries suggest that it is crucial that technology is adopted for banks to perform in their business strategies. Moreover, customer's needs have made banks innovative in their services, and products delivery (Anyanzwa & Owino, 2014).

Technology adoption, especially mobile phones have provided convenience as loan disbursements have become instant at the touch of a button creating an unbelievably heavenly experience where the customers enjoy and avoid tedious loan application process (Alushula & Omondi, 2018). Moreover, customers are also willing to give a part of their privacy, location and social media to qualify for loans. Banks have used this to segment the market and have predictive analytics about customers, and tailor loans according to customer needs.

Coderias (2017) reported that 60% of Kenyans use their phones for financial banking transactions, having embraced the use of digital banking. With the use of phones for financial transactions, banks have come up with easier registration mechanisms than before. Opening an account was a tedious process that involved certification and verification (Kahura, 2018). However, customers have now been able to access services without stringent procedures that were in place within the financial sector in account opening.

### **2.2.2 The Role of Income-Expenditure Disparity on Mobile Lending**

Income-expenditure disparity is the difference between incomes earned, and the expenditure that individuals may have within a set budget. When salaries are less, the purchasing power of the population becomes low, and lack of disposable incomes results in individuals spending incomes for necessities, however because

of lack of sufficient financing, borrowing is done to supplement which leads in more lending for banks to cater to the needs of the market. A study conducted by Perez-Arce, Amaral, Huang and Price (2016) indicates that income inequality in developed and developing countries has been on the rise, driven by increased wages for highly educated workers and higher incomes for top earners who are managers of large companies, and a few other high-paying occupations, resulting to the stagnation of incomes in the middle of the distribution portrays the income inequality by those at the top and the rest.

Wamalwa (2016) gathers that the higher the income the higher, the demand for more goods, furthermore in families where there is an increase in the concentration of wealth the distribution of assets change making society financially mobile and creating equality of opportunities the wealth can be easily transmitted across generations. Also, the more people have, the more they tend to spend, studies have however, indicated as a result of less purchasing power low-income countries adopt less to mobile telephone technology (Dutta, Geiger & Lanvin, 2015).

Research done by Kahura (2018) alludes that loans have become easier to access. Previously banks would require one to place a valuable item, such as a logbook or title deed as collateral before being granted a form of loan which acted as security in case of loan defaulting. However, with the advent of mobile technology banks only utilizes client characteristics such as spending habits and purchasing patterns through profiling, linking customers' phone numbers to their accounts and disburse the loan by determining the requested amount from the customer.

On the other hand, a study by Anglibon (2016) points to the uncollateralized lending in Kenya which has transformed the small and medium scale market. This

has resulted in many Kenyans having access to loans thereby increasing banks profitability through the mobile lending. Alushula and Omondi (2018) posit there is a large population of casual workers who borrow on a day-to-day basis. This is a result of the incomes earned not being enough for sustenance hence the frequency of borrowing resulting in a life of constant debt repayment to cater to daily needs.

### **2.2.3 The Role of Client Characteristic on Mobile Lending**

Client characteristics refer to the attributes that can be identified with individuals. Clients can possess a spendthrift character that contributes to the appetite for loans to maintain the same social status in society. Additionally, it is observed that the education level plays a vital role in the uptake of loans (Wamalwa, 2016). Besides, this is important as an understanding of disseminated information regarding products helps individuals make informed choices. Moreover, education builds human capital hence enhancing the effective use of credit. Furthermore, a study by Perez-Arce et al. (2016) gathers that Parental income is strongly related to children's human capital, less than 20 % of children born to the lowest centile of the income distribution will attend college, close to 90 percent of those in the top centile will do so. The relationship shows that parents direct investments such as school fees, higher-quality child care moving to better schools are experienced. It is evident that education plays a role in how bookkeeping is done and hence understanding information that leads to better business management skills, thus adopting technology gives an advantage in credit borrowing within this category.

Angaine and Waari (2014) suggest that the higher the number of dependents, the more likely that one will default on a loan. Larger groups of families demand more consumption hence the need for more income from loans for sustainability.

Furthermore, the study suggested that respondents supporting 1-2 persons defaulted on 50% of loans and 6-10 persons defaulted on 61.5%. The emphasis is the more the dependents, the higher the borrowing rate. Also, studies conducted by Baum and Johnson (2015) suggests that families having more dependents are likely to incur debts, depending on family income levels of the parents who result in borrowing to help their dependent children.

On the other hand, Kinuthia (2018) gathers that Kenya's poor would instead go hungry and walk to work than be short of airtime to communicate, pointing to the rise in digital mobile lending. There is a need to maintain social circles, and people choose to borrow to connect with family and friends. Furthermore, the use of the mobile platform has improved communication where most people can obtain government services with a call and confirm the status of service delivery thereby reducing travel and improving communication (Adera, Waema, Mascarhenas & Diga, 2014).

#### **2.2.4 The Role of Interest Rates on Mobile Lending**

Interest rate is a reward that is paid by a borrower (debtor) to a lender (creditor) for the use of money for a specific duration which can also be the cost of money at a particular time (Faure, 2019). Higher interest rates contribute to less borrowing, as the repayments are high, however, with the advent of mobile loans these loans are readily accessible and available. Consumers would instead borrow to make their businesses grow or for consumables and pay later this creates a cycle of borrowing to cover the deficit that was created with the previous loan borrowed.

Government regulations have been a subject of discussion since 2001. Banks were operating in a free market structure offering high cost of credit where Kenyans average interest rate stood at 14.2% in 2000 (CBK, 2018). The interest



rates were higher in comparison to its counterparts, such as Mauritius having 11.2%, Namibia 7.9% and South Africa has the lowest at 5.3%. Moreover, countries that have a greater sophistication financial sector continually have higher levels of efficiency which contribute to stable and reliable interest rate determination mechanism (Moyo, Nandwa, Oduor & Simpasa, 2014). As a result of the high interest rates charged by Kenyan banks, they have remained highly profitable in compared to other peer economies provoking a discussion on interest capping.

On the contrary, Sacco's are expensive than banks and riskier, and those who felt that the capping rates were not favorable sought loans from other institutions that are not subject to capping laws (CBK, 2018). Additionally, in as much as there are no interest rate regulations on Sacco's, they are still expensive. Because of the uncertainty at the implementation of the interest capping laws, people sought other means of acquiring loans hence turned to the expensive Sacco's. On the other hand, the uptake of mobile loans continued to increase from Kenya shillings 2.82 trillion in 2015 to Kenya shillings 3.35 trillion in 2016 (David, 2017).

Banks must use diversification for growth in to counter competition in the industry or market, and manage risks (Eukeria & Favourate, 2014). Divestiture helps banks remain competitive within the environment and remains afloat with competitors. Waruguru (2015) supports the argument that changes experienced as a result of economic liberalization and globalization, led to an increase in the number of players fighting for the same customer in the industry. Banks are fighting for the same customers, and thus, product development and innovation is paramount. Additionally, other sources of revenue stream must be generated through the use of technological channels such as the mobile platform.

### 2.3 Summary and Research Gap

This chapter presents a review of the theoretical and empirical literature. The theory review has focused on the three theories, which are diffusion innovation theory, financial intermediation theory, and technology acceptance model guided the study. The empirical review investigates the literature regarding studies in the past on factors that influence mobile-based lending. The studies are considered on global, regional, and local scales.

The empirical review looks at studies on technology adoption, income-expenditure disparity, client characteristics and interest rates. The study analyses the research gap that this study was expected to fill. The studies conducted touch on telecommunication area (Oteri, Kibet & Ndungu, 2015), IT infrastructure (MacMillan et al., 2016) and financial sector (CBK, 2018) among other various studies.

Previous researches have been done on mobile-based lending by commercial banks, including technology adoption, income-expenditure disparity, client characteristic and interest rates. Research conducted on Technology adoption by Guyo (2014) gathers that technology adoption has resulted in the removal of repetitive, time-consuming, and human error and has made it possible for many people to access related banking facilities. Likewise, technology adoption impact service delivery and facilitates connectivity and networking to access cheaper capital sources in place of bank loans (Patricio et al., 2018). This study concluded that technology has impacted on efficient service delivery to many people hence leading to efficiency.

Waithera (2017) argues that income-expenditure disparity is vital as individuals with higher income are considered valuable by the banks who use it as a basis for

issuing loans from their spending habits and previous loan repayment history. Lipton (2014) gathers over the last three decades, the Gini coefficient representing disposable income has been increasing however fiscal intervention policies in developed countries have been reduced to a rate of 0.43 and reduces by a further 10% with redistributive transfers and taxes.

Banks has used client characteristics such as loan repayment and defaulting in issuing loans, and the credit information shared by the banks, making it easier to profile customers through their repayment capability (Rizzi, Baress & Rhye, 2017). A study conducted by Chipete and Kanyumbu (2018) suggests that on average people whose education level is above primary school can read, write and can understand English, therefore, gain access to other services offered by banks. This study suggested that the education level is directly related to the understanding of information, thus the opening a financial bank account. Moreover, research done by CBK (2016) infers that interest rate capping has led to an increase in demand for credit according to 59 percent of the respondents. However, the actual credit advanced has not increased in the same proportion as the demand for credit. As a result, the rate of interest has been very high in banks which in turn makes the population unable to afford mobile loans.

Research conducted by Inganga, Njeru, Ombui and Tirimba (2014) gathered that interest rates had discouraged the increase in demand for banking facilities as they are too high and those seeking loans do so due to increasing demand for money. This study concluded that interest rates affect the need for financial services and loans to customers. Previous studies done have highlighted technology adoption, income-expenditure disparity, client characteristic and interest rates. However, it is on this basis of these earlier gaps that this research was undertaken.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter provides design and methodology, including the study design, the site of the study, the target population for the study, the sampling technique, and sample size used. Procedure for data collection, data gathering instruments, and the techniques used for data analysis, finally the ethical considerations of the study.

#### **3.2 Research Design**

The study adopted a descriptive survey design. Taylor, Bogdan and Devault (2016) gather that this is information collected without altering any of the variables described as they appear. This process investigated the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya, without altering their states. Furthermore, the descriptive design sought to clarify a sequence of steps or stages in research (Neuman, 2014).

#### **3.3 Research Site**

This study was conducted in Nairobi at Kenya Commercial Bank headquarters located at Kencom house off Moi Avenue City Hall way. The research site was selected as it is where the management offices are located, where lines of management are represented, and strategic executions, as well as the laid down procedure that should be implemented across all branches in the region are formulated. In addition, the site represented both retail and corporate customers cutting across all the branches as the services offered are a representation of the disseminated services in other branches.

### 3.4 Target Population

Target population refers to the entire group of individuals or objects to which a researcher is interested in generalizing the study results and having the same observable characteristics (Mugenda & Mugenda, 2003). The target population for this study were all the commercial banks in Kenya in the financial sector which is forty-two as shown by (Appendix II). A population of 200, forms the study's target population. Purposive sampling was employed where KCB as one of the commercial banks was selected. Additionally, a stratified random sampling method was applied to get a sample from the staff and the customers at the head office, branch.

### 3.5 Study Sample

#### 3.5.1 Sample Size

According to Assiamah et al. (2017) sample size is a proportion that is obtained from an entire group. The formula is given by Yamane as inferred by (Senam & Akpan, 2014). The confidence level is attributed at 95% to minimize the sampling error.

$$n = \frac{N}{1 + N (e)^2}$$

$n$  = is the sample size

$N$  = is the population size,

$e$  = is the level of precision (0.05)

1= is unit or a constant

$$n = \frac{200}{1 + 200 (0.05)^2}$$

= 133 sample respondents

### 3.5.2 Sampling Procedures

This study sought to have the right proportion of the population that gives accurate results. The data collected was done through an online survey questionnaire where the staff and customer's email addresses were randomly selected from a database, which ensured the right proportion captured, moreover a random sample method to obtain the respondents was used to collect the data.

Table 3.1: *Population and Sample Size*

<u>Management</u>	<u>Population</u>	<u>Sample size</u>
Directors	10	3
Senior management	11	5
Middle management	21	11
Operations management	7	4
Internal staff	28	20
Customers	123	90
Total	200	133

## 3.6 Data Collection

### 3.6.1 Data Collection Instruments

The study used an online questionnaire as a data collection tool. Each respondent was issued with one questionnaire that was to be filled. The use of questionnaires as gathers Zohrabi (2013) has several benefits such as the researcher can quickly gather data in the field, and the respondent's anonymity helps them share information more efficiently in a reliably and accurately. The questionnaire had the first part that contained the demography of respondents. The other sections included questions regarding the four variables (technology adoption, income-expenditure disparity, client characteristics and interest rates). The study collected secondary data appertaining to KCB through journals in the Kenya Bankers

Association and financial report analysis done on KCB on the uptake of mobile-based lending.

### **3.6.2 Pilot Testing of Research Instruments**

Pilot testing of the questionnaire was done before the primary data collection process. Caspar, Peytcheva, Yan, Lee, Liu and Hu (2016) posit that pilot testing involves procedures and materials involved before actual data collection and is used to achieve a specific goal by estimating response rate through estimation. Piloting included five staff members handed the questionnaire to assess the required information which was not part of the main study. Additionally, the reason was to check the instrument's length to the area of interest and check the target population familiarity with the units of measurements, and the wordings used.

### **3.6.3 Instrument Reliability**

Heale and Twycross (2015) gather that reliability is the extent to which a research instrument consistently has the same results if it were used in the same situation on repeated occasions. The study evaluated the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya through the questionnaire. Cronbach Alpha was applied as it indicated how closely a set of related items are as a group and a measure of the internal consistency, this was used to evaluate the Likert scale used, and the reliability it had in the study.

Cronbach is a measure of the consistency of test scores in a set ranging from 0-1; thus a value of 0.9 in test indicates higher reliability of tests in a given study (Namdeo & Rout, 2016). Additionally, 0.6 score is of a standardized test, and it is suitable for a descriptive research study. Furthermore, high coefficients as posits Mugenda and Mugenda (2003) indicate homogeneity of data, meaning data

measured is the same, therefore not sufficient to measure items. In addition, low coefficients indicate no homogeneity and the items are not suitable for study. The table below shows the Cronbach alphas of items measured more significantly than 0.7, which indicating the questionnaires' reliability.

Table 3.2: *Cronbach alpha*

<u>Variable</u>	<u>Cronbach's Alpha</u>	<u>Number of items</u>
Technology Adoption	0.727	4
Income-expenditure Disparity	0.630	4
Client Characteristic	0.756	4
Interest Rates	0.769	4
Uptake of Mobile-based lending	0.816	4

### **3.6.4 Instrument Validity**

Heale and Twycross (2015) suppose that validity is the measure to which a study's accuracy established. In addition, validity is the degree of truthfulness, and shows how well an idea fits with actual reality as posits (Neuman, 2014). The researcher sought to evaluate the questionnaires by the defense panel members and supervisors on the contents, and the design to establish the validity of the questionnaire. Secondary data was collected from KCB's annual financial reports, which enabled the researcher to obtain the primary information. Recommendations from the pilot testing were incorporated in the final questionnaire before testing was done in the field.

### **3.6.5 Data Collection Procedures**

Data collection involved obtaining the required information for the research questions. In this study, data was collected using an online questionnaire, as they were issued tracking and noting the number was done. The progress was tracked through telephone calls, email monitoring, and finally collected for analysis. The



non-responses were measured as a unit out of scope beyond the time frame required for the study, however, the threshold met 70% of questionnaires filled for a survey is sufficient (Brtnikova et al., 2018). The returned rate accounted for 77.4%; hence the responses were adequate for use.

### **3.7 Data Analysis**

Creswell (2014) gathers that data analysis is the intent to make sense of text and image data. It involves segmenting and taking apart the data (like peeling back the layers of an onion) and putting it back together. The data collected includes editing raw data, cleaning, and coding of responses. From the questionnaire obtained, coding was done using a five-point Likert scale where the responses represented 1 for strongly disagree, 2 for Disagree 3 for neutral, 4 for agree and 5 for strongly agree. The coding was run in a statistical software package to analyze the findings. The researcher used the Statistical Package for Social Sciences (SPSS) software version 24 to enter and interpret the results of the study.

The quantitative data analysis was done using descriptive statistics; mean, median, standard deviation and mode. Data were presented using frequency tables, percentages, and inferential statistics to determine the limits of the sample statistics. However, descriptive statistics did not give conclusions hence the use of inferential statistics where the data obtained from the sample gave the strength of independent variables in predicting the dependent variable, thus drawing conclusions and making predictions by generalizing the findings to the population.

### **3.8 Legal and Ethical Considerations**

This study involved different aspects that included confidentiality of information collected from respondents, informed consent and deception. The confidentiality of information is where the data collected is not disclosed by the

researcher as posits Taylor et al. (2016) and the identity of the respondents is protected. Informed consent, as alludes Neuman (2014) is where the researcher ensures that the respondents take part in the study after they have been informed on the need for the research and how the information gathered is used only for academic requirements.

Creswell (2014) posits that deception occurs when participants understand one purpose, but the researcher has a different goal. The researcher gives misleading information about the study and not revealing the real purpose of the study. The researcher made sure that the entirety of the research was disclosed to the respondents, biases was avoided; for instance, a study carried out to protect the sponsor of a research program. The researcher derives results only from the data available and avoids manipulating the findings. In conclusion, the researcher adheres to the set ethical guidelines set by the Africa Nazarene University ANU throughout the research process.

## CHAPTER FOUR

### DATA ANALYSIS AND FINDINGS

#### 4.1 Introduction

This study assessed the influence of technology adoption, income-expenditure disparity, client characteristics, and interest rates on the uptake of mobile-based lending by commercial banks in Kenya. This chapter presents the response rate, demographics, and the analysis of descriptive statistics on the specific objectives. Also, the regression analysis was based on the factors that influence the uptake of mobile-based lending by commercial banks in Kenya is also presented.

#### 4.2 Response Rate

According to Johnson and Christensen (2014) the percentage of people participating in a study where the response rate is 70% and higher is considered acceptable. The study targeted 133 respondents however, only 103 responses were obtained that represented a rate of 77.44, which is deemed to be adequate for the study.

Table 4.1: *Response rate*

<u>Response</u>	<u>Filled</u>	<u>Not filled</u>	<u>Total</u>
Rate	103	30	133
Percentage	77.44	22.56	100

##### 4.2.1 Demographic Characteristics

The study assessed the age of respondents, role in the organization, years of bank account operated, level of education, and mobile loan application.

##### 4.2.2 Age of respondents

The ages of the respondents are depicted in Table 4.2.

Table 4.2: *Age of Respondents*

<u>Age in Years</u>	<u>18-25</u>	<u>26-35</u>	<u>36-40</u>	<u>41-50</u>	<u>51 and above</u>	<u>Total</u>
Frequency	9	46	29	18	1	103
Percentage	8.76	44.62	28.17	17.5	0.97	100

The results showed the responses from ages 26 and 35 represented 44.62 percent, between 36 and 40 years was 28.17 percent, 41 and 50 years was 17.48 percent, between 18 and 25 years 8.76 percent and 51 years and above representing 0.97 percent. Showing there is a mixed group of people, however, the majority fall in the category of the youth between 26-35 years.

#### 4.2.3 Role of Respondents

The findings depicted in Table 4.3 indicate the role of respondents in the organization. It is observed that the majority of the responses were account holders constituting 76.7% and 23.3% as staff. The individual role of respondents is indicated in Table 4.4.

Table 4.3: *Total Role of Respondents*

<u>Role</u>	<u>Staff</u>	<u>Ac holder</u>	<u>Total</u>
Frequency	24	79	103
Percent	23.3	76.7	100

Table 4.4: *Individual Role of Respondents*

<u>Role</u>	<u>Frequency</u>	<u>Percentage</u>
Directors	1	0.971
Senior management	3	2.913
Middle management	8	7.767
Operations management	4	3.883
Internal staff	8	7.767
Customers	79	76.699
Total	103	100

#### 4.2.4 Years of bank account operated

The study sought to find out how many years the respondents held a bank account in operation. The findings are depicted in Table 4.5.

Table 4.5: *Years of Bank account operated*

<u>Operated Years</u>	<u>0-5</u>	<u>05-10</u>	<u>11-15</u>	<u>Over 15</u>	<u>Total</u>
Frequency	16	31	35	21	103
Percent	15.53	30.10	33.98	20.39	100

#### Table 4.5 Years Operated

Findings revealed that those who operated accounts between 0-5 years constituted 15.53 percent, between 5-10 years 30.10 percent, between 11-15 years of 33.98 percent and over 15 years and over 20.39 percent. These findings revealed the operation years of between 11-15 being the highest which gave a good pool of years of respondents operating a bank account thus the reliability of the information required.

#### 4.2.5 Level of education

The findings presented in table 4.6 are indicative of the level of education of the respondents.

Table 4.6: *Education level*

<u>Education level</u>	<u>Post Graduate</u>	<u>University</u>	<u>Secondary</u>	<u>Primary</u>	<u>Total</u>
Frequency	40	53	8	2	103
Percent	38.83	51.46	7.77	1.94	100

The results indicated that the majority of the respondents had university qualifications that represented 51.46 percent. In addition, those who had primary education constituted 1.94 percent of the respondents. The results indicated that the majority of the respondents could understand and give the required information.

#### **4.2.6 Mobile loan applied**

The results in Table 4.6 indicate the number of respondents who had applied for a mobile loan.

Table 4.7: *Mobile Loan Applied*

<u>Loan Applied</u>	<u>No</u>	<u>Yes</u>	<u>Total</u>
Frequency	15	88	103
Percent	14.56	85.44	100

The findings revealed that most of the respondents had applied for a mobile loan representing 85.44% percent. Those who had not applied for a loan were 14.56 percent, which indicated those in need of a loan was evident.

### **4.3 Presentation of Research Analysis and Findings**

#### **4.3.1 Technology Adoption**

The first objective of the study was to establish the influence of technology adoption on the uptake of mobile-based lending by commercial banks in Kenya. The responses were indicated on a Likert scale through the analysis of percentages, means, and standard deviations where (1- Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree). The responses were analyzed in table 4.8.

The results in Table 4.8 indicate respondents agreed that the speeds experienced in technology were important (mean = 4.7476; std deviation = 0.7504). The ease of registration was significant in the market (mean 4.4854; std deviation 0.9168).

Respondents agreed the market offered different types of product customization for individuals (mean = 4.0032; std deviation = 0.7038). Responses showed a neutral position on individuals being keen on learning about technology (mean = 3.0476; std deviation = 1.0351). This implies that banks must emphasize communicating and the need to sensitize customers on the need to use technology as an efficient tool.

Table 4.8: *Technology Adoption*

<u>Statement</u>	<u>SA%</u>	<u>A%</u>	<u>N%</u>	<u>D%</u>	<u>SD%</u>	<u>Mean</u>	<u>Std.Deviation</u>
The different speeds experienced in technology are important	87.4	4.9	3.9	2.9	1.9	4.7476	0.7504
The ease of registration process is necessary	72.8	6.8	18	1.9	1.0	4.4854	0.9168
The market has different types of product customized for individuals	10.7	80	4.9	1.9	2.9	4.0032	0.7038
Individuals are keen on learning about new technology	1.9	27.2	30.1	29.1	11.7	3.0476	1.0351
Mean of weighted means						4.0709	0.8515

The mean weighted mean was 4.0709, indicating respondents agreed that technology adoption was significant in the society indicates that society has embraced the use of technology. Moreover, the findings of Anyona (2018) posits that the populations have embraced technology adoption in the market to access services from their banks, contributing to the wide use of mobile banking platforms, which concurs with the findings that technology adoption is important in the uptake of mobile-based lending.

### 4.3.2 Income-Expenditure Disparity

The second objective of the study was to investigate the influence of income-expenditure disparity on the uptake of mobile-based lending by commercial banks in Kenya. The responses were indicated on a Likert scale of income-expenditure disparity in the analysis of percentages, means, and standard deviations where (1- Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree). The responses were analysed in table 4.9.

Findings in Table 4.9 depicted respondents agreed to the change in the cost of living experienced by the individuals (mean = 4.8350; std deviation = 0.6277). Respondents agreed that the saving patterns of the population have changed (mean = 4.8252; std deviation = 0.7061). There was an agreed position that having a form of collateral is important to the economy (mean = 4.7379; std deviation = 0.7404).

Respondents opined that to access loans, they must have a form of security that they can guarantee to institutions for loans to be disbursed. This concurred with the Breckenridge (2019) findings that posited collateral is important as banks want to minimize the risk of customers by having a form of security. Lastly respondents agreed there is a frequency in the level of borrowing (mean = 4.6019; std deviation = 0.8894).



Table 4.9: *Income-Expenditure Disparity*

<u>Statement</u>	<u>SA%</u>	<u>A%</u>	<u>N%</u>	<u>D%</u>	<u>SD%</u>	<u>Mean</u>	<u>Std.Deviation</u>
There has been change in the cost of living experienced by individuals	91.3	4.9	1.0	1.9	1.0	4.8350	0.6277
Having a form of Collateral is important	87.4	1.9	8.7	1.0	1.0	4.7379	0.7404
There is frequency in the level of borrowing within the market	75.7	18	1.0	2.9	2.9	4.6019	0.8894
The Saving patterns in the population have changed	93.2	1.0	2.9	1.0	1.9	4.8252	0.7061
Mean of weighted means						4.7500	0.7409

The mean of weighted means was 4.7500 that showed an agreed position that income-expenditure disparity within the population is on the rise both in the formal urban employment and those in the informal sector who earn incomes that do not match the expenses that they cater to daily basis (Kaffenberger, Totolo and Soursourian, 2018).

#### **4.3.3 Client's Characteristics**

The third objective was to determine the influence of the client's characteristics on the uptake of mobile-based lending by commercial banks in Kenya. The responses were indicated on a Likert scale through the analysis of percentages, means, and standard deviations where (1- Strongly Disagree, 2 – Disagree, 3 –

Neutral, 4 – Agree and 5 – Strongly Agree). The responses were analyzed in table 4.10.

Regarding client characteristic Table 4.10 indicated respondents agreed families have a different number of dependents (mean = 4.8252; std deviation = 0.5846). Moreover, the type of spending decision varies from different populations (mean = 4.7767 std deviation = 0.6992). There was an agreement that individuals have varied educational levels (mean = 4.1165; std deviation= 1.0223). Conversely, respondents were neutral that the environment experiences dynamic levels of social circles (mean = 3.0049; std deviation 1.4271).

Table 4.10: *Client Characteristics*

<u>Statement</u>	<u>SA%</u>	<u>A%</u>	<u>N%</u>	<u>D%</u>	<u>SD%</u>	<u>Mean</u>	<u>Std.Deviation</u>
Individuals have varied educational levels	46.6	29.1	14.6	8.7	1.9	4.1165	1.0223
The environment experiences dynamic levels of social circles	12.6	15.5	16.5	20.4	35.0	3.0049	1.4271
The type of spending decision vary between different populations	88.3	4.9	3.9	1.9	1.0	4.7767	0.6992
Families have different number of dependents in society	87.9	9.1	1.0	1.0	1.0	4.8252	0.5846
Mean of weighted means						4.1808	0.9333

The mean weighted mean was 4.1808, which indicated an agreed position that client characteristic was vital in the uptake of mobile-based lending. The findings showed that specific attributes contribute to the appetite for loans and to maintain certain classes of lifestyles.

#### 4.3.4 Interest Rates

The fourth objective was to investigate the influence of interest rates on the uptake of mobile-based lending by commercial banks in Kenya. The responses were indicated on a Likert scale through the analysis of percentages, means and standard deviations where (1- Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree and 5 – Strongly Agree). The responses were analyzed in table 4.11.

Results in Table 4.11 depicted respondents also agreed the central bank has implemented capping levels on interest rates (mean = 4.1505; std deviation = 0.9043). Moreover, the respondents agreed (mean = 4.0029; std deviation = 0.8913) on different categories of mobile loans in the market. The respondents were neutral to Sacco's and microfinance institutions offering a variety of tailored interest rates (mean = 3.5728; std deviation = 0.9246). This is because they offer loans at higher interest rates that are unregulated in the financial sector instead of the banking sector which is regulated and has policies. Furthermore, respondents also opined their neutrality towards strengthened government regulations enforced in the market (mean = 3.1262; std deviation = 0.8126). The Sacco's and microfinance institutions do not have policies on interest regulations that concur with the findings of (CBK, 2018).

Table 4.11: *Interest Rates*

<u>Statement</u>	<u>SA%</u>	<u>A%</u>	<u>N%</u>	<u>D%</u>	<u>SD%</u>	<u>Mean</u>	<u>Std.Deviation</u>
The central bank has implemented capping levels on interest rates	16.5	42.7	32.0	6.8	1.9	4.1505	0.9043
Sacco's and microfinance institutions offer a variety of tailored interest rates	13.6	44.7	29.1	10.7	1.9	3.5728	0.9246
There are different categories of mobile loans in the market	26.2	44.7	24.3	2.9	1.9	4.0029	0.8913
There are strengthened government regulations enforced in the market	9.7	6.8	73.8	5.8	3.9	3.1262	0.8126
Mean of weighted means						3.7133	0.8832

The mean weighted mean was 3.7133, indicating respondents were neutral that interests' rates affect the uptake of mobile-based lending. The mean was indicative that despite the high-interest rates set by the Sacco's and microfinance institutions, this would not hinder access to loans, this is because respondents will access the loans at whatever rates they are being offered provided they are accessible and readily available in the market for their use and to carry out their daily endeavors (Maina, 2018).

#### **4.3.5 Uptake of Mobile-based Lending**

Concerning the uptake of mobile-based lending by commercial Banks in Kenya. The responses were indicated on a Likert scale through the analysis of percentages, means, and standard deviations where (1- Strongly Disagree, 2 – Disagree, 3 –

Neutral, 4 – Agree and 5 – Strongly Agree). The responses were analyzed in table 4.12.

The results in Table 4.12 showed respondents agreed that measuring the rate of diffusion is important (mean = 4.7767; std deviation = 0.7131). There was an agreed position that banks have different ways of measuring the market yields (mean = 4.3689; std deviation = 1.2206). The adoption intensity is also important (mean = 4.5437; std deviation = 0.8942). Lastly, respondents agreed on there being changes in profitability (mean = 4.2039; std deviation = 1.3311).

Table 4.12: *Uptake of Mobile-based Lending*

<u>Statement</u>	<u>SA%</u>	<u>A%</u>	<u>N%</u>	<u>D%</u>	<u>SD%</u>	<u>Mean</u>	<u>Std.Deviation</u>
There has been Changes in levels of profitability	67.0	10.7	6.8	6.8	8.7	4.2039	1.3311
Measuring the rate of diffusion in the environment is essential	87.4	7.8	1.9	1.0	1.9	4.7767	0.7131
Banks have different ways of measuring market rates of yield	73.8	8.7	3.9	7.8	5.8	4.3689	1.2206
The adoption intensity of individuals is considered important by banks	69.9	23	1.0	2.9	2.9	4.5437	0.8942
Mean of weighted means						4.4733	1.0397

The mean weighted mean was 4.4733 indicative of an agreed position there was uptake of mobile-based lending in the market. The results agreed with the findings of (Makena 2018) who posited there was massive borrowing in the market of loans as the population tries to meet their basic needs.

#### 4.4 Regression Analysis

Regression was performed on the study's independent variables to predict the influence on the uptake of mobile-based lending. The findings are shown in table 4.13.

Table 4.13: *Model summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.878 <sup>a</sup>	.771	.728	.69410

Table 4.13 depicted Regression analysis to determine the effects of the four predictor variables on the uptake of mobile-based lending. In Table 4.13, the model had a coefficient of determination ( $R^2$ ) = 0.771, explaining 77.1 percent using the studies model, and that 22.9% of the variation in the uptake of mobile-based lending could be explained by other factors that are not included in the study's model.

Table 4.14: *Analysis of Variance test ANOVA.*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	139.286	16	8.705	18.069	.000 <sup>b</sup>
	Residual	41.433	86	.482		
	Total	180.718	102			

The F-statistic is significantly greater than 1 in Table 4.14.  $F(16,86) = 18.069$ ,  $P < 0.05$ . Indicating the model's appropriateness in testing the relationship between the independent variable (technology adoption, income-expenditure disparity, client characteristic, and interest rates) is significant in predicting the dependent variable. The model was appropriate for interpreting the factors influencing the uptake of mobile-based lending. The coefficients of each of the four predictor

variables and their significance in predicting the predicted variable uptake of mobile-based lending are presented in Table 4.15.

Table 4.15: *Coefficients of independent variables*

<u>Variables</u>	Unstandardized Coefficients		Standardized Coefficients		
	<u>B</u>	<u>Std. Error</u>	<u>Beta</u>	<u>t</u>	<u>Sig.</u>
(Constant)	1.384	1.394		0.993	0.323
Technology Adoption	1.551	0.484	0.969	12.53	0.000
Income-expenditure Disparity	0.504	0.615	0.530	2.556	0.025
Client Characteristic	1.485	0.582	0.964	10.39	0.003
Interest Rates	1.442	0.496	0.951	11.75	0.039

Results in Table 4.15 indicate that technology adoption had a significant effect on the uptake of mobile-based lending ( $\beta = 1.551$ ;  $P = 0.000$ ). This indicated an increase in technology adoption by one unit results in the uptake of mobile-based lending by a unit measure of 1.551. Findings also indicates income-expenditure disparity had a significant effect on the uptake of mobile-based lending ( $\beta = 0.504$ ;  $P = 0.025$ ). The findings showed that a one-unit increase in income-expenditure disparity increased the uptake of mobile-based lending by a measure of 0.504.

The study indicated that the client characteristic was significant in predicting uptake of mobile-based lending ( $\beta = 1.485$ ;  $P = 0.003$ ). One unit's change in client characteristics contributes to the uptake of mobile-based lending by a measure of 1.485. Furthermore, interest rates had a significant effect on the uptake of mobile-based lending ( $\beta = 1.442$ ;  $P = 0.039$ ). A unit change in interest rates results in an increased measure of 1.442 on the uptake of mobile-based lending.

The findings in table 4.15 Beta Coefficients depicted that technology adoption had the greatest influence standardized  $\beta = 0.969$  followed by Client characteristic

standardized  $\beta = 0.964$ , interest rate standardized  $\beta = 0.951$ . And finally income-expenditure disparity standardized  $\beta = 0.530$ .

The regression model obtained was of the form

$$\text{MBL (y)} = \beta_0 + \beta_1\text{TA} + \beta_2\text{IED} + \beta_3\text{CC} + \beta_4\text{IR}$$

Y = dependent variable,  $\beta_0$  are unknown,  $\beta_1$ =Slope of the regression line

$$\text{MBL} = 1.384 + 1.551\text{TA} + 0.5041\text{IED} + 1.485\text{CC} + 1.442\text{IR}$$

Where MBL = Mobile-based Lending, TA = Technology Adoption, IED = Income Expenditure Disparity, CC = Client characteristic and IR = Interest rates

Table 4.15, indicates the predictor variables are useful for predicting the uptake of mobile-based lending since 77.1% of the variables have a level of significance that is less than 5% confidence level. The Y-intercept 1.384, represents the unit of uptake of mobile-based lending when holding other factors constant; technology adoption, income-expenditure disparity, client characteristic, and interest rates. The gradients are 1.551; 0.504; 1.485 and 1.442 respectively, indicating that for every one unit change in the uptake of mobile-based lending, the projected change is an increase of 1.551 technology adoption, 0.5041 income-expenditure disparity, 1.485 client characteristic, and 1.442 interest rate change.

Furthermore, the results of the linear regression t-test are indicated in the table. The t-test of the linear regression is used to test the significance of regression coefficients being equal to zero. The results show that the t statistic ( $t = 12.53$ ;  $p = 0.000$ ), ( $t = 2.556$ ;  $p = 0.025$ ) ( $t = 10.39$ ;  $p = 0.003$ ) and ( $t = 11.75$ ;  $p = 0.039$ ), are all significant as they are all below p-value of 0.05 therefore, significant in predicting the uptake of mobile-based lending.



## **4.5 Qualitative analysis**

The questionnaire was used to gain an in-depth understanding of the influence of technology adoption, income-expenditure disparity, client characteristics and interest rates on the uptake of mobile-based lending by commercial banks in Kenya

### **4.5.1 Technology Adoption**

The study sought to establish the influence of technology adoption on the uptake of mobile-based lending. It was observed that most respondents agreed that speeds are essential in the uptake of mobile-based lending. The ease of registration was important, and the products are customized to meet client expectations.

However, the respondents were neutral because that they were not keen on learning on technology; this is because respondents adapt to technology at a slower pace. After all, as they embrace a new technology, and accept it at a slower pace, they avoid change and are not interested in learning a new product that is convincing in embracing. The mean of the weighted means of technology adoption was 4.0709, which was third to the four variables. The standard deviation mean was 0.8515, showing that technology adoption standard deviation was much less to random error zero showing the effectiveness in predicting the uptake of mobile-based lending.

### **4.5.2 Income-expenditure disparity**

Most respondents agreed that there had been a change in the cost of living experienced by the individuals regarding income-expenditure disparity. The agreement was based on the fact that the incomes earned are not commensurate with the cost of goods and services, so there was more borrowing to cover necessary expenses. Moreover, the respondents opined that having a form of Collateral was important for one to access a loan because financial institutions

pegged loan disbursement on a form of security, however, this changed with the advent of mobile loans that are based on predictive analytics on consumers.

Furthermore, respondents agreed there was the frequency in the level of borrowing within the market. This is because of incomes being little, thus supplementing from other sources such as loans to manage to survive. Lastly, the saving patterns in the population had changed as respondents opined there were no disposable incomes and resources are spent mostly on consumables and living on a day-to-day basis thus cannot afford to have savings. The mean of weighted means was 4.7500 the highest among the variables indicative of the strong position that income-expenditure plays in the uptake of mobile-based lending. In addition, the mean standard deviation was the lowest 0.7409 close to zero thus the accuracy of the measuring variable closer to the mean, thus, showing the precision error is very small.

#### **4.5.3 Client's characteristics**

In reference to client's characteristics, respondents mostly agreed that individuals in society have varied educational levels. The type of spending varies between the population and depends on the needs of the consumers. Moreover, families have a different number of dependents in society each with individual needs to be looked after.

However, respondents opined their neutrality to the environment experiencing dynamic levels of social circles. Most respondents attributed their neutrality to individualism created by mobile loans. Previously, meeting was a form of a social norm to support each other, however, this had been reduced to each person borrowing discreetly on the mobile platform and thus, meeting their needs, and avoiding of social welfare. The mean weighted means was 4.1808, the second

among the variables indicative of the strong position that client's characteristics play. The mean standard deviation was 0.9333 close to zero showing the precision error being minimal in contributing to uptake of mobile-based lending.

#### **4.5.4 Interest Rates**

Regarding interest rates, respondents generally agreed that the central bank had implemented capping levels on interest rates. This was evidenced by the maximum cap rate of banks by the (CBK) when banks were making high profits and were unregulated. Furthermore, the respondents agreed that there were different categories of mobile loans that one would apply for if they qualified for the amount. However, the respondents opined that banks performed dismally on strengthened government regulations. This is because the market is highly unregulated with banks having different policies from the Sacco's and microfinance institutions which set their interest rates as high as they can yet when there is a collapse, there are no measures in dealing with the rogue institutions as policies are not harmonized.

Responses were neutral to Saccos and microfinance institutions, offering a variety of tailored interest rates. This was due to lack of a framework that they operate and lack of policy formulation in guiding interest rate regulation. The mean weighted means was 3.7133, the lowest among the variables indicative of the weak position that interest rates played this was so because despite the interest rates being very high, the availability and accessibility are what was important to the customer. In addition, the mean standard deviation was 0.8832 close to one showing the lack of precision, and the error being greater thus, respondents opined despite the importance they could still take up loans despite the highly set rates.

#### **4.5.5 Uptake of Mobile-based Lending**

Concerning uptake of mobile-based lending, most respondents agreed there was a significant uptake in mobile-based lending. Moreover, this rise had been characterized by the higher numbers in changes in the level of profitability and where banks have moved to the digital channel as alternative means of revenue hence reducing the traffic in banking halls and moving to an online-based web interface. Moreover, the rate of diffusion witnessed in the environment has been great due to the investment in technological infrastructure that has enabled digital migration and access to a broader group of people. Furthermore, respondents considered the intensity of adoption important as the market had embraced the technology advancement through sensitization and constant information that has been released in the market such as security features, thus avoid carrying cash, convenience at the comfort of the house, and the instant speed of transaction processing. The weighted means was 4.4733 and the standard deviation of 1.0397.

## **CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS**

### **5.1 Introduction**

This study aimed to investigate the influence of technology adoption, income-expenditure disparity, client characteristics, and interest rates on the uptake of mobile-based lending by commercial banks in Kenya. The summary presents the study's objectives, the findings, recommendations, policies, and guidelines that can be adopted, and further areas of studies.

### **5.2 Discussions**

#### **5.2.1 The Influence of Technology Adoption on the Uptake of Mobile-based Lending by Commercial Banks in Kenya**

The study established that technology adoption influences the uptake of mobile based lending. These findings support the study conducted by Kathuo, Rotich and Anyango (2015) investigated the effects of mobile banking on the financial performance of banking institutions in Kenya. It alludes that banking institutions have invested heavily in technology based on innovation and new technology adoption which has resulted in the growth of revenues. Moreover, Anyona (2018) posits there has been a growth in the banking industry that has been revolutionized by innovations in wireless technology devices to conduct mobile commerce and business which agrees with the findings observed from the study it also underpins that technology adoption if utilized appropriately as an alternative revenue stream can result to increased profitability.

### **5.2.2 The Influence of Income-expenditure Disparity on the Uptake of Mobile-based Lending by Commercial Banks in Kenya**

The study's result indicated that income expenditure disparity influences the uptake of mobile based lending. These results concurred with the findings conducted by Brei, Ferri and Gambacorta (2018) infer that more finance results in income inequality. However, populations with lower finances develop slowly and have no purchasing power in accessing services that include access to loans for start-ups and business progression from banks and financial institutions

Moreover, the incomes earned are used in consumables; thus progress in society is not experienced. Furthermore, a study conducted by Alpesh, Shah, Roongta, Avadhani and Shah (2018) infers to tailoring products to cater to the lower-income earners who have to incur charges that they cannot afford. The mobile-based platform is the future that will revolutionize the financial sector, and is an industry that has enormous growth, and if utilized in the right manner, can result in the generation of revenues in realizing profitability.

### **5.2.3 The Influence of Client Characteristic on the Uptake of Mobile-based lending by Commercial Banks in Kenya**

Results indicated that client characteristic has a significant influence on the uptake of mobile based lending. The findings agree with the study conducted by Bjorkegren and Grissen (2018) that indicated mobile phones reveal rich data about individuals who cannot access a formal loan by walking to the bank, these patterns include phone signatures and spending habits are characteristics used in determining the creditworthiness of consumers. In addition, information such a credit depletion, and the time spent on a call predicts the purchasing power. Conversely, those who are not keen on topping up and have a poor repayment

history will have a poor credit and loan appraisal scores. Furthermore, a study by Lipman and Wiersch (2018) supposes that the social circles and family dynamics contribute to the search for loans to maintain the same status.

#### **5.2.4 The Influence of Interest Rates on the Uptake of Mobile-based Lending by Commercial Banks in Kenya**

The findings revealed there was a significant influence of interest rates on the uptake of mobile-based lending. The study indicated that there are regulations set by the monetary institutions required to maintain a sound financial system. Furthermore, according to CBK (2018) monetary policies and supervision of the market are essential in maintaining a sound financial environment. Furthermore, individuals develop trust with institutions that have a regulatory framework that can protect their interests. In addition, the financial space should be open for more players to join and offer different customized products.

#### **5.3 Summary of Main Findings**

The study results indicated that technology adoption had a significant effect on the uptake of mobile-based lending by commercial banks in Kenya. Respondents were neutral in learning about technology; therefore, banks must do much more in creating awareness when it comes to the marketing strategy and targeting of more customers. The market has products customized to meet the consumer's expectations, however. Banks must become innovative in tailoring products to meet customer expectations.

The ease of registration is an essential aspect because of the minimized regulations and stringent requirements, such as collateral or reference letters, which were a requirement. These have been eliminated, making the registration for loans easier through mobile devices, leading to easier access to loans. Technology speed

was crucial in accessing information. This was because consumers are looking for efficiency and ease of use of technology in accessing services that they require.

Income-expenditure disparity played a role in the uptake of mobile-based lending. The cost of living has been on the rise, and people are struggling to meet their daily needs because incomes are not commensurate with the value of goods and services, therefore to supplement salaries, borrowing is unavoidable. This also effected the saving patterns of the population, which had changed. Individuals could not save because they use the resources on consumables such as transportation, food, and shelter and cannot have disposable incomes. Furthermore, leading to the frequency in borrowing to supplement meager incomes, and the lack of sustainability through the incomes earned.

Conversely, having a form of collateral was necessary, this is because banks and institutions need collateral to disperse loans. However, banks have moved to customer profiling through their registry by collecting biometrics and virtual reputational as collateral stored in systems. This has made it easier for individuals to have a mobile device to request for a loan from a bank without security, such as a title deed, a logbook that was previously the case.

Spending decisions vary within the population. Consequently, people have different lifestyles and responsibilities, which contribute to access to loans, depending on the requirements. Additionally, there are varied educational levels within society; the difference in literacy levels enables one to make informed decisions through understanding financial information. The number of social circles has been reduced as individuals have been drawn towards mobile loans as a form of welfare; however, few social circles exist that individuals can choose that they keep and the benefits that arise therein. In addition, family providers who have



a number of dependents within society for different requirements may not be able to sustain them because of the incomes they earn, which results in borrowing to bridge the deficit.

In reference to interest rates, the central bank has implemented capping levels on interest rates, a concern where banks had charged high-interest rates and made super normal profits. The central bank implemented capping rates at a maximum of fourteen percent, and banks have to find alternative revenue streams to meet shareholder's expectations and profits. Hence, the digital mobile banking platform has become a competitive avenue.

Concerning respect to Sacco's and microfinance institutions offering a variety of tailored interest rates, respondents opined there is no variety as the rates are too high. Different categories within the market offer different interests, and one can check which may be viable or tailored to their specific requirements. Furthermore, on strengthened government regulations, banks have separate monetary policies, whereas other microfinance institutions have different laws. These laws create an imbalance in the system where one party may flout the regulations of the other. There is a need to harmonize the rules to provide a level playing field for all players in the market. There is a disparity in which mobile categories are not tailor-made to meet the client expectations who demand more regarding a wider base to access and a lower interest rate on the already existing loans.

#### **5.4 Conclusions**

Based on the results, it was observed that technology adoption was essential in the uptake of mobile-based lending. The results supported the theory on the technology acceptance model that supposes the ease of use, and the perceived

usefulness of the technology. Banking institutions should be aware of technological advancements to tailor products that are easier to use and that are efficient.

Regarding income-expenditure disparity, the study supported the financial intermediation theory that banks should disclose all information that appertains their products and to lower the transactional costs of operation and make access to loans cheaper for the development of the society.

In view of client characteristics, the study supported the theory on diffusion innovation theory that posits the spread of information and technology within a system. Banks can come up with better strategies for tapping in the market through product customization and developing applications that meet the consumer's needs. Interest rates presented a challenge in the study. Strict adherence to capping laws should be observed, and interest rates reviewed downwards, so that, consumers can access affordable loans, which avoid defaulting and encourage more mobile loan uptake. The government should set up monetary policies, and a framework that guides the lenders, both banks and microfinance institutions, by involving experts in the supervision and monitoring of the sector to create a sound financial system.

### **5.5 Recommendations**

From the study findings, the following recommendations may be considered to increase the uptake of mobile-based lending effectively. The government should involve all the stakeholders in the financial industry to develop favorable conditions for all players. Effective monitoring systems and technology infrastructure can be used to mitigate fraudulent transactions, anti-money laundering, and counterfeits in the market to create a sound financial environment. Legislation framework should involve all players in the industry.

Banks are mandated to provide consumers with the best in service. They may look at the product customization through more research to come with innovations to tailor products to customer needs. With the use of appropriate technological infrastructure, Banks can open up space for more players to offer similar services through partnerships with private entities to spur infrastructure advancement.

### **5.6 Areas for Further Research**

This study sought to assess the influence of technology adoption, income-expenditure disparity, client characteristics, and interest rates on the uptake of mobile-based lending by commercial banks in Kenya. Moreover, this is a new area in the market that still has untapped growth potential. Countries that have had success in the technology infrastructure, especially in the financial industry, should be studied for bench marking to improve the financial sector and have sound monetary policies to strengthen the financial system. Moreover, the understanding of key drivers, such as the client's characteristics in the adoption of mobile-based lending, can be an area for further investigation.

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## APPENDICES

### Appendix 1: Questionnaire

#### **APPENDIX 1: QUESTIONNAIRE RELATING TO MOBILE-BASED**

#### **LENDING BY COMMERCIAL BANKS**

##### **SECTION A: GENERAL INFORMATION**

1. Please tick your age bracket

Between 18-25 [ ]      Between 26-35 [ ]      Between 36-40 [ ]

Between 41-50 [ ]      51 and above [ ]

2. Please indicate your role or how you relate to this organization.

Staff [ ]      Account holder [ ]

3. How many years have you operated an account with the bank (years operated)

Less than 5 years [ ]      5 to 10 years [ ]

11 to 15 years [ ]      Over 15 years [ ]

4. What is your highest level of education qualification?

Post graduate level [ ]      University [ ]

Primary [ ]      Secondary [ ]

5. Have you used your mobile phone to apply for a mobile loan?

Yes [ ]      No [ ]

**SECTION B: TECHNOLOGY ADOPTION**

1. Please indicate your level of agreement to the statements listed in the table below in relation to how technology adoption influences uptake of mobile-based lending by commercial banks. Use the following Likert scale by ticking or crossing where appropriate. The rating is as follows

1-Strongly Disagree    2 – Disagree                    3 – Neutral

4 – Agree                                    5 – Strongly Agree

<b>Statement</b>	<b>SD 1</b>	<b>D 2</b>	<b>N 3</b>	<b>A 4</b>	<b>SA 5</b>
The different speeds experienced in technology are important					
The market has different types of product customization for individuals					
The ease of registration process is necessary					
Individuals are keen on learning about new technology					

**SECTION C: INCOME-EXPENDITURE DISPARITY**

1. Please indicate your level of agreement to the statements listed in the table below in relation to how income-expenditure disparity influences uptake of mobile-based lending by commercial banks in Kenya. Use the following Likert scale by ticking or crossing where appropriate. The rating is as follows:

1- Strongly Disagree      2 – Disagree      3 – Neutral

4 – Agree                      5 – Strongly Agree

<b>Statement</b>	<b>SD 1</b>	<b>D 2</b>	<b>N 3</b>	<b>A 4</b>	<b>SA 5</b>
There has been change in the cost of living experienced by individuals					
The Saving patterns in the population have changed					
Having a form of Collateral is important					
There is frequency in the level of borrowing within the market					

**SECTION D: CLIENT CHARACTERISTICS**

1. Please indicate your level of agreement to the statements listed in the table below in relation to how client characteristic influences uptake of mobile-based lending by commercial banks in Kenya. Use the following Likert scale by ticking or crossing where appropriate. The rating is as follows:

1- Strongly Disagree    2 – Disagree    3 – Neutral

4 – Agree    5 – Strongly Agree

<b>Statement</b>	<b>SD 1</b>	<b>D 2</b>	<b>N 3</b>	<b>A 4</b>	<b>SA 5</b>
Individuals have varied educational levels					
Families have different number of dependents in society					
The environment experiences dynamic levels of social circles					
The type of spending decision vary between different populations					



**SECTION E: INTEREST RATES**

1. Please indicate your level of agreement to the statements listed in the table below in relation to how interest rates influence uptake of mobile-based lending by commercial banks in Kenya. Use the following Likert scale by ticking or crossing where appropriate. The rating is as follows

1- Strongly Disagree    2 – Disagree                    3 – Neutral

4 – Agree    5 – Strongly Agree

<b>Statement</b>	<b>SD 1</b>	<b>D 2</b>	<b>N 3</b>	<b>A 4</b>	<b>SA 5</b>
The central bank of Kenya has implemented capping levels on interest rates					
There are strengthened government regulations enforced in the market					
Sacco's and microfinance institutions offer a variety of tailored interests rates					
There are different categories of mobile loans in the market					

**SECTION F: UPTAKE OF MOBILE-BASED LENDING**

1. Please indicate your level of agreement to the statements listed in the table below in relation to the uptake of mobile-based lending by commercial banks in Kenya. Use the following Likert scale by ticking or crossing where appropriate.

The rating is as follows

1- Strongly Disagree    2 – Disagree                      3 – Neutral

4 –Agree                      5 – Strongly Agree

<b>Statement</b>	<b>SD 1</b>	<b>D 2</b>	<b>N 3</b>	<b>A 4</b>	<b>SA 5</b>
There has been Changes in levels of profitability					
Measuring the rate of diffusion in the environment is essential					
Banks have different ways of measuring market rates of yield					
The adoption intensity is considered important by banks					

Thank you

## Appendix 2: Research Authorization Letter



**AFRICA NAZARENE**  
UNIVERSITY

5<sup>th</sup>, July 2019

E-mail: [researchwriting.mba.anu@gmail.com](mailto:researchwriting.mba.anu@gmail.com)

Tel. 0202711213

*Our Ref: 17S03EMBA005*

The Director,  
National Commission for Science,  
Technology and Innovation (NACOSTI),  
P. O. Box 30623, 00100  
Nairobi, Kenya

Dear Sir/Madam:

**RE: RESEARCH AUTHORIZATION FOR: MR. ERIC OTIENO MANYALA**

Mr. Manyala is a postgraduate student of Africa Nazarene University in the Master of Business Administration (MBA) program.

In order to complete his program, Mr. Manyala is conducting a research entitled: "**Factors Influencing the Uptake of Mobile Based Lending by Commercial Banks in Kenya: A Case Study of Kenya Commercial Bank**"


Any assistance offered to him will be highly appreciated.

Yours Faithfully,




*for* **MR. ISAAC MWANGI,**  
**AG. PRINCIPAL: NAIROBI CBD CAMPUS.**

**Appendix 3: Nacosti Research Permit**

  
**NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION**

**Date of Issue: 01/October/2019**

**RESEARCH LICENSE**




**This is to Certify that Mr.. Eric MANYALA of Africa nazarene university, has been licensed to conduct research in Nairobi on the topic: FACTORS INFLUENCING THE UPTAKE OF MOBILE BASED LENDING BY COMMERCIAL BANKS IN KENYA: A CASE STUDY O for the period ending :01/October/2020.**

**License No: NACOSTI/P/19/11**

**Applicant Identification Number 593254**

*(Signature)*

**Director General**  
**NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION**



**Verification QR Code**

**NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.**

**Appendix 4: List of Commercial Banks**

1. African Banking Corporation Limited
  2. Bank of Africa Kenya Limited
  3. Bank of Baroda (K) Limited
  4. Bank of India
  5. Barclays Bank of Kenya Limited
  6. Charterhouse Bank Limited under statutory management
  7. Chase Bank (K) Limited-under receivership
  8. Citibank N.A Kenya
  9. Commercial Bank of Africa Limited
  10. Consolidated Bank of Kenya Limited
  11. Co-operative Bank of Kenya Limited
  12. Credit Bank Limited
  13. Development Bank of Kenya Limited
  14. Diamond Trust Bank Kenya Limited
  15. DIB Bank (Kenya) Limited
  16. Eco bank Kenya Limited
  17. Spire Bank Ltd
  18. Equity Bank Kenya Limited
  19. Family Bank Limited
  20. Fidelity Commercial Bank Limited
  21. First Community Bank Limited
  22. Guaranty Trust Bank (K) Ltd
  23. Guardian Bank Limited
  24. Gulf African Bank Limited
  25. Habib Bank A.G Zurich
  26. Habib Bank Limited
  27. Imperial Bank Limited in receivership
  28. I & M Bank Limited
  29. Jamii Bora Bank Limited
  30. KCB Bank Kenya Limited
  31. Middle East Bank (K) Limited
  32. National Bank of Kenya Limited
  33. NIC Bank Limited
  34. M-Oriental Bank Limited
  35. Paramount Bank Limited
  36. Prime Bank Limited
  37. Sidian Bank Limited
  38. Stanbic Bank Kenya Limited
  39. Standard Chartered Bank Kenya Limited
  40. Trans-National Bank Limited
  41. UBA Kenya Bank Limited
  42. Victoria Commercial Bank Limited
- Source: (CBK, 2017)

Appendix 5: Map of Study Area

