

**EFFECT OF DIGITAL CREDIT ON FINANCIAL PERFORMANCE OF FINANCIAL
SECTOR IN KENYA**

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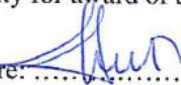
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DECLARATION

This research project is my own work and has not been presented in any other institution or university for award of a degree in any other university

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DEDICATION

This research project is dedicated to my son Ryan.

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ABBREVIATIONS AND ACRONYMS

ATMs	:	Automated Teller Machines
CBA	:	Commercial Bank of Africa
DIT	:	Diffusion of Innovation Theory
EPS	:	Earnings per share
FSD	:	Financial Sector Deepening
IT	:	Information Technology
NSE	:	Nairobi Securities Exchange
ROA	:	Return on asset
ROE	:	Return on equity
SPSS	:	Statistical Package for the Social Sciences

ABSTRACT

The financial sector is effective in mobilizing savings and distributing the finances across the board in credit form. The sector enables households and companies to well cope with uncertainties that arise at any given economy by way of pooling, sharing risks, hedging as well as pricing risks. On this regard, an efficient financial sector will minimize the risk and cost of production for goods and services, as a result improve the standard of living. However, the performance of the financial sector has for some time been at stake. The objective of the research was to determine the effect of digital credit on the financial performance of the financial sector in Kenya. The design that was used here was descriptive. The target population was the 37 financial sector players as listed in the Kenya Banking Industry Report. Sampling was not done but a census for all the 37 financial institutions was used. The research gathered quantitative secondary data. The data for the total amount of digital credit extended to customers, the total number of transactions, and the interest rates charged on the credits, was collected to address the digital credit variable while data for the capital adequacy ratio and liquidity ratio formed the intervening variables. The financial performance data was collected in form of total ROA for all the 37 financial institutions. Data collected was on quarterly basis for a period of 6 years from 2015-2020. Statistics such as standard deviation and mean were employed to examine responses provided for the variables. Trend analysis was also conducted to show how digital credit has been changing from the year 2015-2020. Further, correlation and multiple linear regression analysis was conducted to show the association between digital credit and financial performance. The findings of the study found that the number of digital credit transaction, amount of digital credit, interest rates, total capital, total assets, total deposits, total loans and ROA for the players in the financial sector in Kenya experienced an increase for all the 24 quarters in the five years under study that is 2015-2020. The correlation results established a useful correlation between the research independent variables that is total amount of digital credit, total digital credit transactions, interest rates, liquidity ratio and ROA but a negative correlation between capital adequacy and ROA. The regression analysis results further showed that the variables total amount of digital credit, total digital credit transactions, interest rates and liquidity ratio positively and significantly relate with ROA. However, the relationship between capital adequacy and ROA was negative but significant. The research suggest that the financial sector players should use the strategies that will see to it that they continue to improve the amount of digital credit they extend to customers. The study also recommended the government through the financial sector regulator to come up with polices that will help the financial players to improve their performances in terms of digital credit.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Sector of finance is among the core sector in any particular nation in matters economic development (Ayadi *et al.*, 2015). With a robust financial sector, the management of funds is done efficiently and investing financially is also made possible (Claessens & Laeven, 2015). The advancement in the technology and introduction of information technology has brought about major changes in all aspects of human being's life including the banking practices while also causing stiff competition in the financial sector (Zammuto *et al.*, 2017). Moreover, Information Technology has been working as a booster for the growth in the banking sector as it offers support in the area of the banking services and also helps in risk management (Porter & Miller, 2015). Through the help of information technology, a new way of providing short term loans have evolved, that is, digital credit (Francis, Blumenstock & Robinson, 2017). For the first time in history, a door to private and formal credit is now open to millions of adults (Costa, Deb & Kubzansky, 2015).

Several theories been developed to describe the idea of digital credit as well as the financial performance. The agency theory is used to describe how agents and principals interact. The difference that is there between principals and agents may lead to disagreement, as some agents may not want to deliver what they are expected to do. Their different goals can cause a rift among stakeholder causing losses. (Panda, & Leepsa, 2017). The diffusion of innovation theory outlines how new technological such as digital credit as well as other further progress extending all through cultures and societies, from its start to wider-adoption (Dearing, & Cox, 2018). The

theory of financial intermediation deals with the idea based on the idea that agents aid to reduce inequities in information as well as costs of transaction. Transaction costs and informational asymmetries are reduced because of information technology, deregulation, and the depth of financial markets, among other things (Scholtens, & Van Wensveen, 2003). These three theories will be used to anchor the study.

The system of finance has many stock exchange, commercial banks, range of insurance company and non-bank financial institutions. Digital credit has been instrumental for the financial sector players in giving credits that are normal in means that were not generating profit for the past ten years. Since the start of M-Shwari in 2012, the digital lenders have increased in number and this has caused an increase in loans given out. An improvement in scoring of credit, barriers that are few, and prevalent adoption of mobile phones as well as mobile money improved the digital lending sector, allowing people who want credit to have choices that are convenient. (FSD Kenya, 2019).

1.1.1 Digital Credit

In a general operation of digital crediting, a mobile network will collaborate with a financial institution to offer a credit to its clients through a mobile channel. Mostly, they offer short term loans (Donovan, 2012). This has been practiced by Safaricom and Commercial Bank of Africa (CBA) through the introduction of Mshwari. This happened in November 2012 where the two organizations partnered in rolling out the program. Mshwari is a digital crediting platform which made it possible for customers to earn interests upon saving with the platform as well as get loans financed by CBA, (Cook & McKay, 2015). Following this success other companies have started such products in various nations.

The most common scenarios of such partners exist between banks and telco's. Whereby, banks play the role of financing the loans. As for the telco's, it is their role to enable the disbursement of loans and the repayment of the credits. Mobile phones are used as the channel to interact or communicate (Francis, Blumenstock & Robinson, 2017). However, the amounts of loans are small. Consumers are only charged a facilitation fee which vary from one provider to the next (Peterson, 2013). This new way does not require any collateral. When it comes to loan repayment, some companies deduct money directly from the mobile money system. However, no company has come to place of deducting money from the airtime. For mobile and the airtime system are different (Francis, Blumenstock & Robinson, 2017).

As opposed to conventional way of credit lending, digital crediting offers unique features. The first thing to note is that the process of loan application all the way to the approval happens instantaneously. The evaluation of that application is also automatically done. This is done this way because digital lending uses historical usage of data of a client to generate credit scores. The third unique feature is that the loans can be accessed from the comfort of the clients without having to visit the lending institution. This means that crediting is done remotely (Francis, Blumenstock & Robinson, 2017). In the past, credit scores have been achieved through a credit bureau but as for digital crediting, credit scores are achieved through unconventional sources that are made up of digital data.

Of course, this is very advantageous to households in developing countries. Since, majority of such households lack credit scores. In addition, their credit bureaus are underdeveloped and also they lack a history of financial transactions which is needed in the normal verification by the lender (Mierzwinski & Chester, 2013). Just as the traditional models, digital lenders also apply

incentives to reduce loan default. Similarly, a platform like Mshwari increases the loan limits of individual who pay their loans on time (Cook, & McKay, 2015).

Other lending platforms such as Branch (an application) have interesting incentives. With Branch, the clients that timely repay their loans are promoted to qualify for larger loans. One stands an opportunity to move from \$ 2.50 to \$ 500 as their loan limit or also benefit from an extension of loan repayment periods from 2 weeks to one year. Another benefit of timely loan repayment is lowered interest rates which can move from 180% to even 15% (Francis, Blumenstock & Robinson, 2017). Precious loan borrowing behavior has also dedicated the way loans are offered by companies such Tigo Nivushe loans of Airtel Tanzania and Timiza Wakala loans by Tigo Pesa (Anderson, 2018).

Most of the common incentives that are applied by the existing money lenders to curb loan default are; being blacklisted in the national credit bureaus, denial of access to future loans and reduction of money from one's mobile money system which is done automatically.

Digital credit is majorly used to cater for the finances of a working capital and the daily consumption wants. Based on the survey conducted in 2018, an estimate of one million six hundred and twenty thousand Kenyan adults out of six million borrowers were found to have at least one digital loan (Totolo, 2018). The benefits that emanates from digital credit are many, such as; cost reduction of financial intermediation for Fintech providers and banks, increase of loan access by the poor and incline of collective expenditure by governments. At the end the benefits are experienced by digital finance providers, governments, monetary users and a nation's economy (Al Dhaheri & Nobanee, 2020).

Cook and McKay (2015) provide three benefits of digital credit. One of the benefits of digital credit is the lowering of transactions costs involved at given processing of loans. This is made

possible by the fact that mobile phones are used in disbursing the money. At the end the cash disbursed through mobile phones is made available in cash form through the available agent networks. These agents are far more readily widespread compared to banks and ATMs. Immediate vetting of the needed loans is made possible without the in-person vetting that is normally conducted by the lender. This is also a benefit of digital credit. Thirdly, loans can now reach a large amount of individuals without collateral. This is made possible by the use of airtime and mobile money as the credit scores. This is a new way of approving if an individual deserves a loan. Traditionally, collateral has been used which limits many people from getting the credits. With such benefits, digital credit as a product has become popular among a large percent of consumers.

1.1.2 Financial Performance

This is the capacity of an organization to manage and control its resources efficiently (IAI, 2016). It is more like a state of a company in its income and usage over a specific period. Financial performance can also be viewed from the point of a company's achievement measure between the collection of funds and the allocation of those funds (Fatihudin & Mochklas, 2018). Five measures of financial analysis are recommended, that is, repayment capacity, solvency, profitability, financial efficiency and liquidity (Fatihudin, & Mochklas, 2018).

Liquidity weighs the company's ability to meet needs that are due without disrupting the normal undergoing's of the company (Maaka, 2013). Second, solvency measures the total borrowed capital comparatively with the capital initially put in business by the sole proprietor (Durand, 2015). To make it clear, solvency weighs and shows the ability that a company has if it was to clear all the debts by way of selling all the business assets. Solvency can predict the ability of a company to survive even in a case of a drastic financial misfortune (Menor & Roth, 2018).

Profitability is a measure that shows the extent a company reaches in making profit under the influence of factors such as capital, labor, and management as factors of production. Therefore, analysis of profitability deals with relationship that exist between a company's expenditure and income relative to the whole amount invested in the business. Profitability can be determined through four ways, that is, rate of return on farm equity, and rate of return on farm assets, income and operating profit margin (Payne & Talbott, 2017).

Repayment capacity was also part of measuring financial performance. Such capacity is the ability of a company to repay a debt. The question of whether the company can finance additional debt is answered by the repayment capacity. The moderations of repayment capacity are favorably built upon an increased net income figure (Langemeier, 2018). On the other end, the efficiency monitored in the use of labor, management and capital is known as financial efficiency. Such an analysis of efficiency looks at the associations that exist between outputs and inputs. On this regard, the measures used in financial efficiency are; expenditure ratio, net wages from operation ratio, asset gross revenue ratio, the expense operational ratio and the expenditure interest ratio (Firer & Williams, 2013).

1.1.3 Digital Credit and Financial Performance

A major portion of banks financial performance is greatly dependent on the interest rate charged on loan extended to individuals, businesses and organizations (Collier et al., 2015). Firms that have successfully adopted digital credit have been able to greatly increase their financial performance. Banks that have effectively used digital credit to enhance service delivery to their clients emerge as the best banks. As a result, they gain a booming edge in the market place and this has a direct enhancement towards their financial performance (Okuttah & Wasuna, 2014).

Studies on digital credit and financial services have generated findings related to benefits on the financial performance. Some researchers have attempted to find out how digital credit has affected financial performance of firms in the many sectors that exist. Okiro (2016) in the study among SMEs established that digital loans increase the needed data for the qualification of future loan lending requirement. This means that with an overtime data details, the chances of getting higher loans are increased. Kemboi (2018) and Ibrahim (2018) also found positive impact of mobile, internet and online lending practices on bank's financial performances.

Misati et al (2015) however gave a different view where large banks performance of finance was seen to be usefully and remarkably impacted by digital credit always but medium banks only enjoyed the benefits only when there is interest rate capping. As for digital credit their impact on financial performance was only negative, which was observed among small banks. Scott, Van Reenen and Zachariadis (2017) discovery was different where he asserted that the digital financing vice effects were greater on small banks than they were on large banks and influenced profitability over long term periods. They however asserted that adoption of digital financing has huge effect on long term profitability.

1.1.4 Financial Sector in Kenya

The section of finance in Kenya has grown. It has forty registered banks. A state that demonstrates overbanking. This market has 12 commercial banks which are listed and they own eighty-nine percent of the accumulative assets, as of 2018 (Cytonn, 2019). The operation of the Kenyan banking is heavily reinforced by the relationship between the economic state, the policy in the macroeconomic environment and its relationship to the market outcomes as well as the regulatory advancements that affect the stability of the market (Kenya Bankers Association, 2019).

An estimate of eighty percent of the adult population are now accessing financial services through a mobile channel. In Kenya, there are more than twenty credit financiers that lend digitally and with the increasing demand of loans and promising digital credit venture more financiers are emerging overtime. The leading mobile money services comprise of; Airtel Money, Mpesa, Mshwari, Telkom money, Tangaza and Mobicash and Equitel Money. Out of all these mobile money services. In 2018, the aggregate transaction reached \$ 38.5 billion. While the total amount of the mobile money accounts was 45.43 million in that year (Kenyan Banking Industry Report 2019).

1.2 Research Problem

The importance of any indirect effect on economic performance caused by financial institutions cannot be undermined. It is extraordinarily important. The financial sector is effective in mobilizing savings and distributing the finances across the board in credit form. The sector enables households and companies to well cope with uncertainties that arise at any given economy by way of pooling, sharing risks, hedging as well as pricing risks. On this regard, an efficient financial sector will minimize the risk and cost of production for goods and services, as a result improve the standard of living (Herring & Santomero, 2015). Therefore, any unsteadiness experienced in the financial sector causes an unfavorable effect on the growth of the economy of any country while good performance plays the role of strengthening the economy (Ahmad, *et al.*, 2020).

However, the performance of the financial sector has for some time been at stake. Due to the introduction of interest rate capping. With such induction of capping, savings were discouraged. As well as reducing the accessibility of credit among SME and the private sector. By of way reducing the profitability of small banks also competition in the bank sector was impeded.

Although the interest rate capping has been removed, the performance of the financial sector has been gaining momentum at quite a slower rate (Kenya Bankers, Association, 2019). In 2019 for example, the Return on Average Equity decreased to 19.3% from 19.5% in 2018.

The growth in deposits also recorded a slower rate of 8.6% than 10.0% in 2018. Although the interest income increased by 3.7%, the increase was slower than 7.9% recorded in 2018 which resulted in 3.8 net interest income increase lower than 6.4% in 2018. Additionally, the net interest margin was at 7.7% which was lower than 8.1% in 2018. The financial sector therefore had a slower growth in performance compared to the performance recorded in a similar period last year (Cyttonn, 2019). The financial sector therefore has to set up strategies that will aid in enhancing the performance to the desired levels. This investigation delved to assess the digital credit effect on performance financially of the financial sector players.

Researchers have attempted to research on mobile banking and performance of finance. Mohamed (2019) assessed the effect of banking on a mobile platform on the Kenyan bank's financial performance. Okiro (2016) researched on how digital access to finances affected the growth of SMEs. This was done in the county of Nairobi as the target populace. Another research was conducted by Ozili (2018) determining how stability and financial inclusion was being affected by digital financing. The above studies although they were on digital financing failed to capture how it affects the performance of the financial sector players. This research thus addressed this gap by examining the impact of digital credit on the financial performance of the financial sector in Kenya.

1.3 Research Objective

The objective of the research was to determine the effect of digital credit on the financial performance of the financial sector in Kenya.

1.4 Value of the Study

The research would be of benefit to financial sector players. These may include the financial sector players that might find the discoveries of the research and recommendations helpful and as a result adopt approaches that will help boost their performance. The study would also provide recommendations that would guide the financial sector on digital credit based on the study findings. The financial sector could then use the guide to effectively adopt digital credit practices.

The study would also be relied upon by the government. The government together with the financial sector regulators, may also find the study beneficial since from the study they can come up with sector policies that will guide and drive digital credit adoption so that it will be beneficial in terms of boosting the sector players' performance.

The research would assist managers. Financial sector managers would be able to come up with decisions linked to the use of innovations that are advanced in terms of technology by getting to bear the conclusion from this research. The management by understanding this research would be in a position to understand to know better the setbacks linked with digital lending and methods of curbing them.

Finally, future academicians and scholars may find the study useful in that they can use it in review of studies. The study findings may also form a theoretical basis for future researchers who could also use the findings to compare and contrast the findings from different sectors. The study would also provide recommendations for future studies which other scholars can adopt.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part highlights literature on digital lending, presents a theoretical review, financial performance, and determines the empirical literary work, conceptual framework and at the end, a recap of literature review.

2.2 Theoretical Review.

Diverse theories have been developed to explore mobile lending which included, diffusion of innovation theory (Layman,2006), bank focused theory (Mitchell, 1990) and financial intermediation theory, (Medoff, 2007).

2.2.1 Agency Theory

Developed by Smith (1937), describes the association between agent and principal as a contract that official whereby the agents are hired by the principal to do the interest of principal.

Smith (1937) stated that if a company is run by people who are not the owners that are not are real there is a possibility they will work to benefit the principal. The theory explains the setbacks that come up when there is separation of managers and owners and is interest on ways of mitigating

the problem. It helps in putting in practice different mechanisms of governance to restrain actions of agents in corporations that are owned jointly (Panda & Leepsa, 2017).

The difference in interest between agents and principals causes disagreement, as most agents will not work towards achieving the interests of the owner. Their different goals can cause a rift among stakeholder causing losses (Panda & Leepsa, 2017). Digital lending is managed and accomplished by managers motivated to maximize own interest (Mitnick, 1986). In most cases, the management does care less in regard to the well-being of its shareholders (Maximization of Wealth). They focus on awarding themselves huge salaries and bonuses for that reason they may be reluctant to exhibit hard work to maximize shareholders' wealth especially if they feel there will not be fair share in the benefits. Shareholders hence have a responsibility to manage activities of managers to ensure their actions are for benefit of the shareholders.

This will be applied in this investigation to describe the association between digital credit performance of finance. The decision by financial sector management to adopt digital credit may be at their interest as agents which may not go along with the interests of the sectors shareholders. Therefore, considering the way to solve agency problem is important to maximize on the benefits of digital credit. The decision to adopt digital credit should be agreeable by both the managers and shareholders with the aim of improving the profits for the institutions.

2.2.2 DIT (Diffusion of Innovation Theory)

It was modelled by Rogers (1962). The theory outlines how new technological such as digital credit and other advancements spread throughout (Dearing, & Cox, 2018). It is interested to describe the way and why concept that are new and activities are applied and with time they spread out.

The main actors in this theory are innovators who are ready to take risks and try to adopt new concepts. Early adopters who are focused in using the Technology that is new and determining their use.; Early majority who prepare the way for the application of a give innovation within a given society and the general population; Late majority are those people who tend to be after the early majority into using an innovation to enhance their daily activities. Lastly, laggards who delay in using the new concepts and innovations. This is due to the risk-averse and set in their ways of doing things. Because of these, they will have no option but use it using it (Dearing, & Cox, 2018).

The phase that a person applies an innovation by thus diffusion is achieved, include the awareness the significance of the innovation, the reason to accept or turn down the innovation, the first application to see if it works, and continued application. Five determinants that affects the use of innovation and each has its own role. Second s compatibility which describes how the innovation is consistent with its value and necessity of the adopters that are potential. Finally, observability that is the degree to which the innovation provide results that are tangible (Sahin, 2006).

It will be applied to explain the variable digital lending and its adoption by financial sector players as well as their customers. Different financial sector players will adopt digital credit n different times and speed and so is the realization of the benefits of the innovation. The same will apply to customers who may fall in different categories of innovation adopters and hence financial sector players may not realize the benefits of digital credit as fast as they may prospect. It will therefore require efforts to convince both the layers in the sectors and the customers to adopt digital credit for the effect on the financial performance to be felt.

2.2.3 Financial Intermediation Theory

It was modelled by Gurley and Shaw (1960). It is based on the theory of informational asymmetry and the agency theory. In principle, the presence of agents is described by the availability of these factors that are attributable method of regulation, high transaction cost inadequate information (Allen, & Santomero, 1997).

The distinct variable factor in the research about intermediation linked to finance is established by the fact of asymmetrical information. This can of different kinds: concomitant generating the moral hazard (principal and agent relationship, ex ante generating the so called problem of adverse selection; as well as process of auditing or mandatory debtor's execution . Most of these problems generated causes the rise of some costs of transactions (Pyle, 1971).

Financial intermediaries are brought on board to reduce transaction cost in digital lending. Financial intermediaries act as middle men in business financial transactions. They provide a means for transfer of funds between several investors. Financial intermediation theory becomes a relevance to this study as it brings out importance of intermediation. The adoption of mobile lending by financial sector, is focused on decreasing costs of transactions.

2.3 Determinant of Financial Performance of Financial Sector players.

A determinant influences the nature or the outcome of certain event (Frank, 1989). Financial Performance has an objective to assess how well a company utilizes their assets. With an end goal of maximizing on profits. Financial Performance is influenced by capital adequacy, liquidity, efficiency in management and asset quality.

2.3.1 Liquidity

According to Frank (1989) liquidity is the capacity of banks to fulfill short-term payment responsibility as and when they are in arrears. Financial sector players such as Commercial Banks can be exposed to liquidity risks due to Bank-run. Bank-run is where large numbers of customers withdraw costs and transfer it to other assets for fear that the latter bank may be insecure. Liquidity management is key; as far as financial performance is concerned. Proper liquidity management helps in dealing with financial distress of a firm. In the management of liquidity, liabilities and bank assets stands as key attributes in effective management. An aggregate liquidity is positively interlinked to financial performance of a bank.

2.3.2 Asset Quality

Assets are natural resources owned by firms which bring forth profits in future (Myers, 2005). It therefore goes without saying that the cash flows experienced in the future are fruits of predicted operations. Assets in financial sector players such as Commercial Banks do include current assets, fixed assets of loans which are long term in nature. On that regard, loans are therefore a major part of the assets a bank possess. Since they largely affect the Commercial Banks' financial performance. Hence, with efficient loan management, a useful effect is experienced on performance of finance of financial sector players.

2.3.3 Capital Adequacy

This refers to assets accounted to owners of a firm (Wood, 1988). The amount is put in banks to support them during a financial crisis or distress. This is when the firm is unable to meet schedule of payments or debts. As a result of many commercial banks ending into receivership,

Central Bank set minimum capital required for commercial banks to operate so as to protect their depositors against loss of money.

2.3.4 Management Efficiency

It creates a state where resources are responsibly managed to ensure that the output levels are maximized (Johnson, 2005). Management efficiency is aimed at reducing the available resources so as to maximize returns. The management is aimed at ensuring resources are deployed efficiently and minimizing of operating cost/maximum profits. Management efficiency is moderated by proxy management ratio/operating exposure to total assets of an entity.

2.4 Empirical Review

Analysis of empirical literature dictates conflicting discoveries on impact of digital lending on performance of companies of finance. In early days, mobile lending positively impacted financial performance. Nevertheless, in other empirical analysis, there were no significant impacts in firm's financial performance due to introduction of digital lending. Omondi (2015) on his study on mobile way of banking examined its effect on commercial banks' performance listed at the NSE between years 2010 to 2014 used a sample that was made up of all commercial banks out of 17 commercial banks.

The analysis in his study was from a company website. He also did a comparative analysis by way of working measurement ratios of financial performance. He then analyzed the secondary data from a company website. His findings were that banks exhibited little significance even on adopting digital banking (lending). Gakure (2013) focused on mobile banking and its impact on financial performance. 8 commercial banks acted as a sample that was used before and after mobile banking. They concluded commercial banks' financial performance greatly increased

after application of mobile banking. Mohammed (2013) carried out a study on how banking on mobile platform influenced performance of Indian banks as far as finances are concerned between 2007 and 2010 (23 commercial banks were chosen). EPS, ROE and ROA were calculated after and before application of mobile banking for the reason of comparison. Secondary data was analyzed through SPSS software. He concluded that profitability of banks in India increased after introduction of mobile banking.

Maina (2012) did a research to assess contribution of banking the mobile way to financial performance of banks between 2010 and 2011. This was conducted in Kenya. Secondary data from published statements was used between 2010 and 2011 from the SPSS software for 10 banks out of 20 banks. In conclusion, banking via mobile affected performance of banks in a positive way. Fatma and Kiran (2011) assessed how banking on mobile platform influenced performance of commercial banks in Pakistan between 2006 and 2010, 20 banks were chosen for a research. Secondary data from annual published statements was analyzed through SPSS. Ratios were used, calculated and analyzed. They concluded that performance of the Pakistan banks improved on introduction of mobile banking.

Kigen (2010) looked into the effects caused by banking via mobile on transactions cost of year 2008 microfinance entities: In Kenya between 2008 and 2010. The population of his research was all institutions of microfinance. Because of financial challenges, 15 microfinance institutions were chosen for study. It applied secondary data in the analysis and linear regression model was adopted. From their results, mobile banking improved financial performance. Frank (2010) surveyed the influence of banking via mobile on the performance of Commercial Banks listed at New York Stock Exchange. These companies were listed at the New York stock exchange between 2001 and 2008. Secondary data was analyzed using SPSS software from a sample of 25

companies chosen and performance of finance was computed. It is found out that financial performance of the banks improved on adopting e-banking.

Bhasin and Harrison (2006) surveyed the performance of banks in Africa between the year 1999 and 2004 upon the induction of Information Technology (IT). Through a sample of 29 commercial banks in USA, they concluded that profits of commercial banks raised after application of IT on banking industry. Agboola (2006) performed a similar research, on the impact of IT on the financial performance in Pakistan banks. Secondary data was used from 21 websites from 31 commercial banks practicing mobile banking between 2001 and 2005. Financial performance ratios involved EPS, ROA and ROE were calculated and compared before and after the adoption of mobile banking. The research indicated that IT had zero effect on the financial performance.

Different research findings are of great concern as different researchers come up with different opinions. Omondi (2015), in his study never used any model in the analysis. Gakure (2013) used a limited sample size. Mohammed (2013) applied a criterion that was not elaborate. Maina (2012) did a study only on commercial banks. Fatma and Kiran (2011), in their study, there was no cross section analysis and comparison. Ngaruiya (2012), in his study the period was short. Kigen (2010) used a limited size sample. Bhasin and Harrison (2006) never applied any modern methods. In the study of Agboola (2006) he used a short period of time in his analysis. Digital lending is key in affecting the performance of Kenyan banks.

2.5 Conceptual Framework

Independent variables

Dependent variable

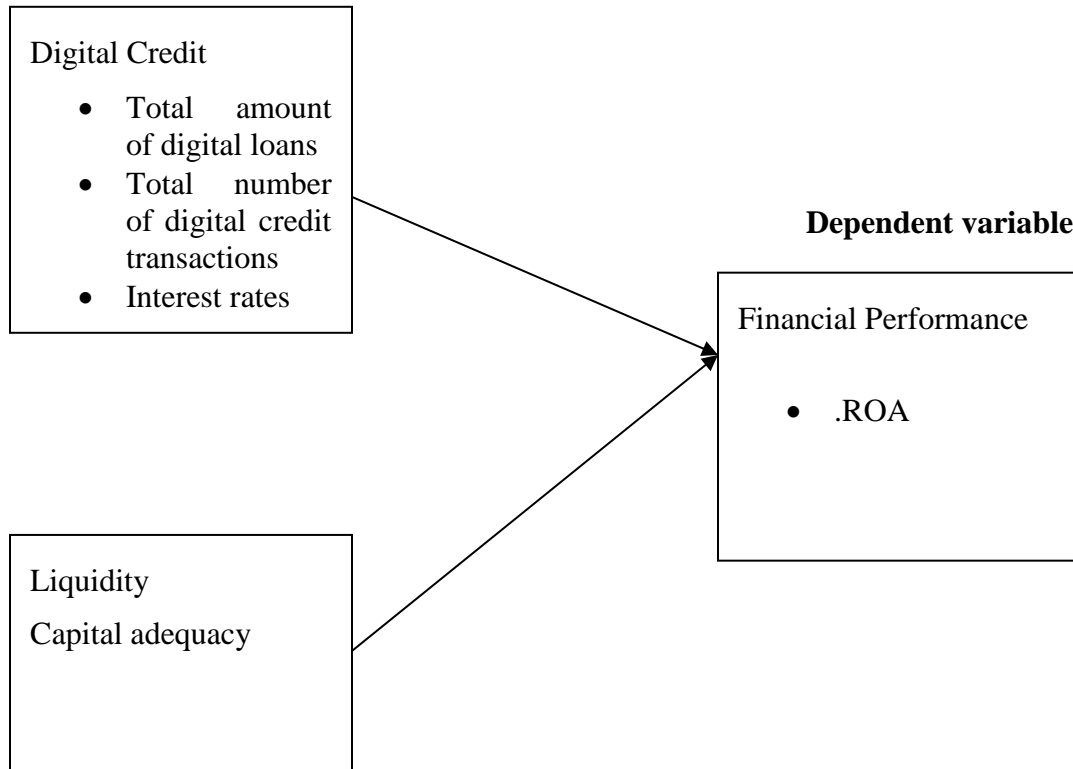


Figure 2.1 Conceptual framework

From the above diagram, independent variables were digital credit indicated by total amount of digital loans which includes the value of loans applied and approved through mobile phones. The total digital loan applicants included the total number of customers who applied and got approval of mobile loans and interest rates. On the other hand, the control facets include Capital Adequacy which is measured by Capital Adequacy Ratio, and liquidity which is measured by total loans to total customer deposits. The dependent variable was Financial Performance.

2.6 Summary of Literature Review

It therefore includes evidence on digital lending including Kigen (2010), Maina (2012), Gakure (2013), Fatima and Kiran (2010), Mohammed (2013), Shirley and Shushat (2006) and Frank (2010). Nonetheless, Omondi (2015) concluded that digital lending leads to reduction in

Financial Performance of business entities involved while the research of Ngaruiya (2012) and Agboola (2006) concluded that digital lending has zero impact on firm's financial performance: With the conduction of these diverse researches on impact of digital lending on Financial Performance of business entities involved. This research will narrow down to effect of digital credit on Financial Performance of Financial Sector players in Kenya such as commercial Banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In every study, a design is important and, in this chapter, the right one is well outlined for this research. The study population, instruments of gathering the relevant data and techniques of analysing the data and procedure are also discussed.

3.2 Research Design

Descriptive research was applied. It design delves at a generation of accurate representation of events, persons and situations (Mugenda & Mugenda, 2003). In descriptive research, the researcher is limited, in that he does not have control over variables. Therefore, he only reports

exactly what has happened (Kothari, 2004). When one gathers data to describe organisations of feelings, a descriptive research design becomes appropriate (Gichira, 2016). This design can be applied to get information that is precise and detailed concerning large heterogeneous population (Mugenda & Mugenda, 2008). It also gives the contact that is direct between the respondents and the researcher during data collection (Gichira, 2016). Descriptive research technique was the suitable design in this investigation due to geographical and cost limitations, and because it enhances reliability of the research instruments (Kothari, 2004).

3.3 Target Population

It is identified as a group that share the same features and it is usually identified as the sure audience of a study (Lavraks, 2018). The target population was the 37 financial sector players as listed in the Kenya Banking Industry Report (2019) (Appendix III). Sampling was not done but a census for all the 37 financial institutions was used.

3.4 Data Collection

The research gathered quantitative secondary data. This was done via a sheet of collecting the data. The data for the total amount of digital credit extended to customers, the total number of transactions, and the interest rates charged on the credits, was collected to address the digital credit variable while data for the capital adequacy ratio and liquidity ratio formed the intervening variables. The financial performance data was collected in form of total ROA for all the 37 financial institutions. The website of the central Bank of Kenya was utilized as the source of the data together with the individual financial institutions' websites. Data collected was on quarterly basis for a period of 6 years from 2015-2020. The data was entered into a data collection sheet.

3.5 Data Analysis

Kothari (2013) stated that examination of data requires establishing categories which are then applied to raw data either through tabulation or coding to draw statistical inferences. The raw data generated and entered into a data collection sheet was cleaned up by editing for data quality improvement. The data was then keyed in SPSS for analysis. Statistics such as mean, frequencies, standard deviation and percentages were employed to examine responses provided for the variables. Inferential statistics were then used in realizing the interconnection between digital credit and the financial performance.

Correlation coefficient was applied to test the direction of the interconnection between digital credit and financial performance. Therefore, the coefficient of Pearson product-moment correlation measured the direction of the linear linkage between the independent and dependent variables. Ranging from +1 to -1, the Pearson correlation coefficient (r) of 0 would indicate lack of relationship between the two determinants, while a value greater than or less than 0 would show a positive or negative linkage respectively. Trend analysis was also conducted to show how digital credit has been changing from the year 2015-2020. Further, multiple linear regression analysis was conducted to show the association between digital credit and financial performance. Results were illustrated through figures and tables.

3.5.1 Analytical model

The multiple linear regression model used was:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Y-Financial Performance (Return on assets)

β_0 - is the regression constant

$\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the coefficients representing the Independent variable.

X_1 is total amount of digital credit.

X_2 is total digital credit transactions

X_3 is interest rates

X_4 capital adequacy (total capital to total assets)

X_5 liquidity ratio (Total loans to total customer deposit)

ϵ is the Error term.

3.5.2 Significance Test

To test the statistical importance of the association between digital credit and financial performance, F test and t test statistics was utilized. The significance level was tested using 95% confidence level where a P value less than or equal to 0.05 was looked at as remarkable and a P value greater than 0.05 indicated no remarkable linkage.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The segment highlights a presentation of the outcome and the discussion of the research findings. The results include for descriptive the trend the correlation and regress analysis results. Data was collected for six years from 2015 to 2020. The findings are illustrated in forms figures and tables.

4.2 Descriptive Statistics

The descriptive statistics for the investigation which included the minimum maximum mean and standard deviation for the research variables were shown in Table 4.1.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Number of digital credit transaction	888	878	322942	104982	86840
Amount of digital credit (million)	888	8.6551	38.9892	23.54739	8.418281
Interest Rates (%)	888	8.3088	18.62	12.94857	3.289211
Total capital (million)	888	6889.229	25150.91	14058	6052.406
Total Assets (million)	888	401.6397	17295.32	7199.915	5908.423
Total loans (billion)	888	0.3512	1.0467	0.39099	0.365594
Total deposits(billion)	888	0.1976	0.3797	0.291239	0.042344
ROA (billion)	888	0.0073	0.1865	0.09208	0.043883

The results established that the number of digital credit transaction for the six years ranged between 878 and 7161811 with an average of 322942. The findings further revealed that the amount of digital credit was highest at 38 billion and lowest at 8 million and also averaging at 23 billion. Further according to the findings the rates of interest for the years was ranging from 8.3 percent to 18.62 percent and averaged at 12.9 percent. Furthermore the total capital in the six years was ranging between 6 billion and 25million with a mean of 14 billion. The total assets were slightly below the capital at a minimum of 401 million and a maximum of 17 billion and had a mean of 7 billion. Additionally the total amount of deposits was highest at 379 million and lowest at 197 million averaging at 291 million. Loans were lowest at 351 million and highest at 1 billion. Finally the Return on Assets was ranging between 7 million and 186 billion and averaging at 920 million.

4.3 Trends

This part shows the trends for the research determinants

4.3.1 Number of digital credit transaction

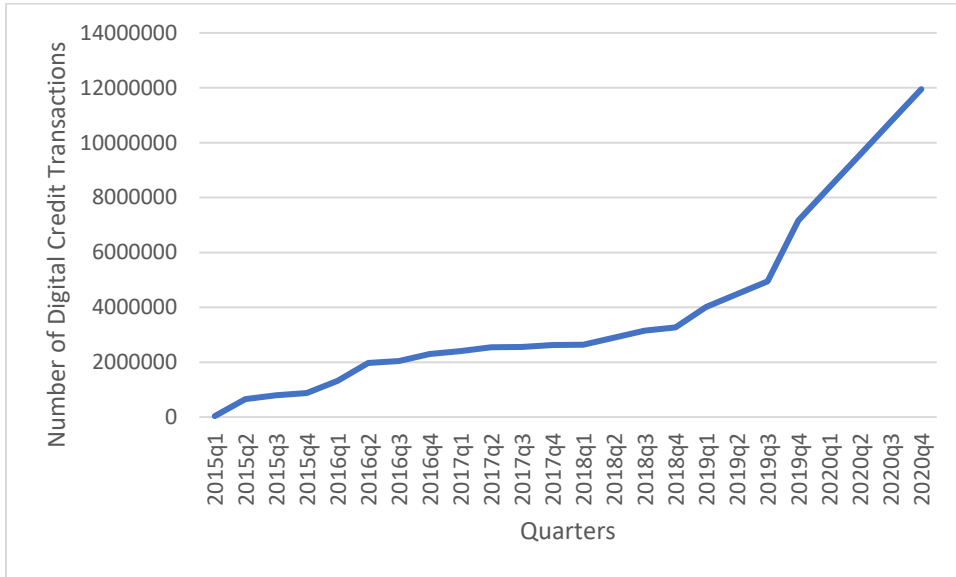


Figure 4.1: Trend for the Number of Digital Credit Transaction

The trend for the number of digital credit transaction showed that the number of digital credit transaction for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing number of digital credit transaction for the financial sector.

4.3.2 Amount of digital credit

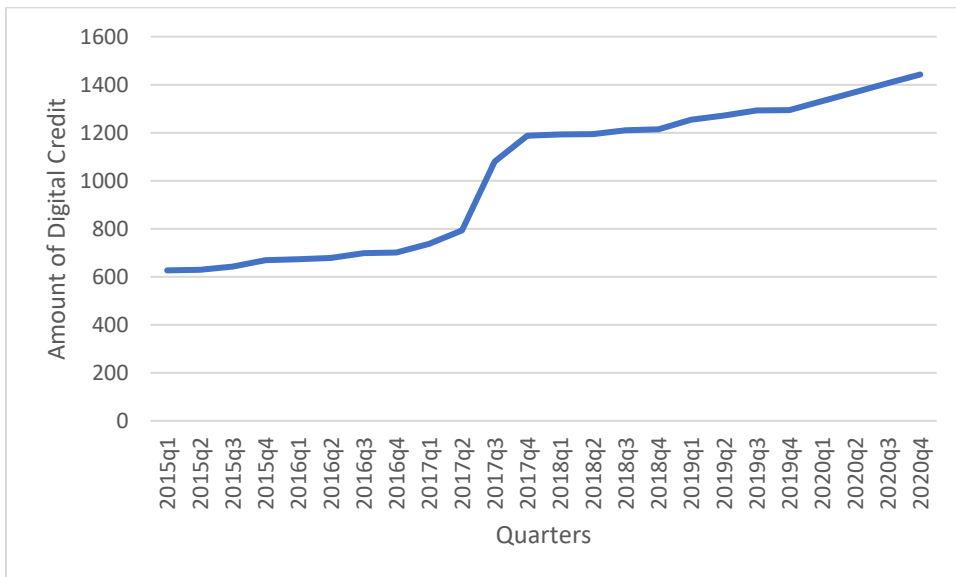


Figure 4.2: Trend for The Amount of Digital Credit

The trend for the amount of digital credit showed that the amount of digital credit for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing amount of digital credit for the financial sector. However the rate of change was not even with the section between the second quarter of 2017 and the fourth quarter of the same year having a sharp increase.

4.3.3 Interest Rates

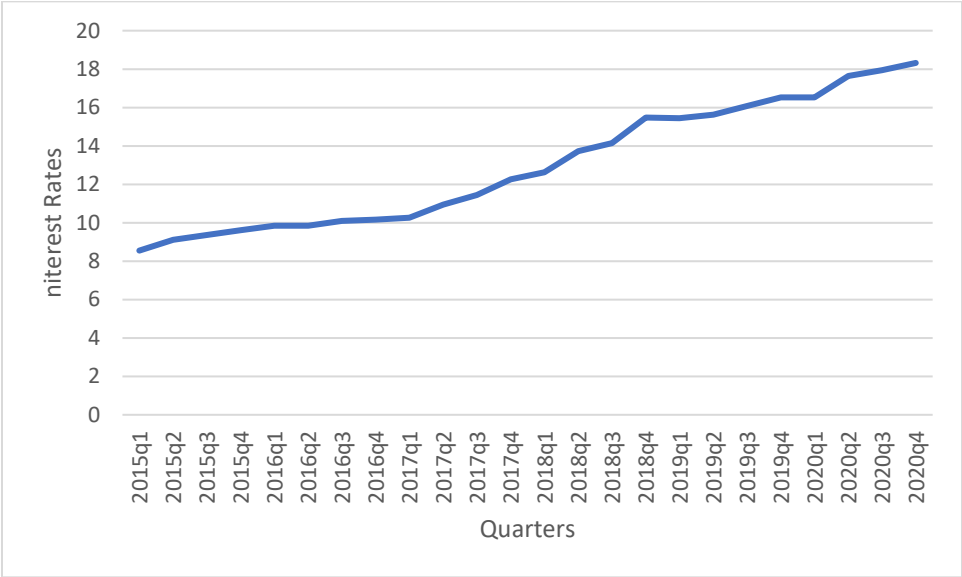


Figure 4.3: Trend for the Interest Rates

The trend for the interest rates showed that the amount of digital credit for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing interest rates for the financial sector.

4.3.4 Total capital

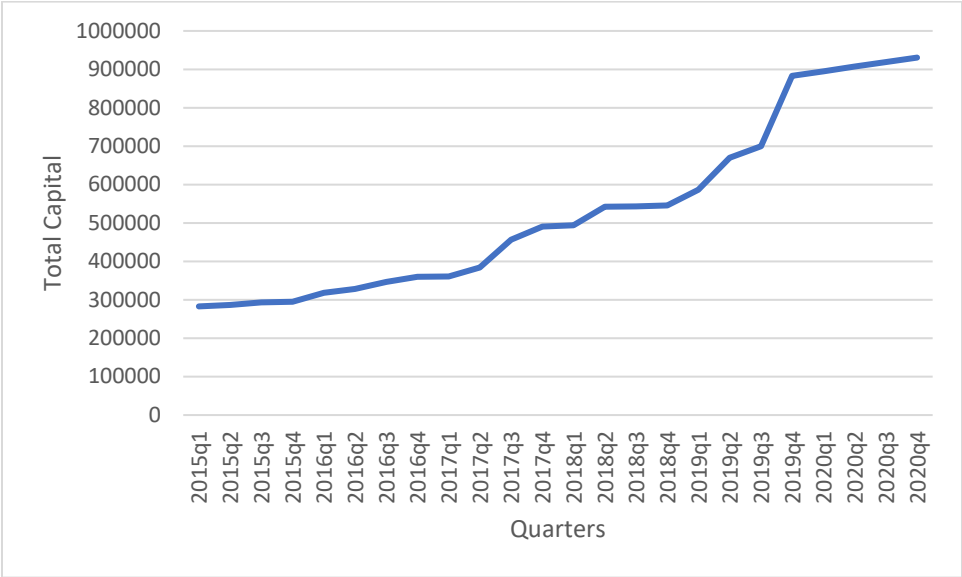


Figure 4.4: Trend for the Total Capital

The trend for the total capital showed that the total capital for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing amount of total capital for the financial sector. The last two quarters of 2019 experienced a sharp rise for 700 million to close to 900 million.

4.3.5 Total Assets

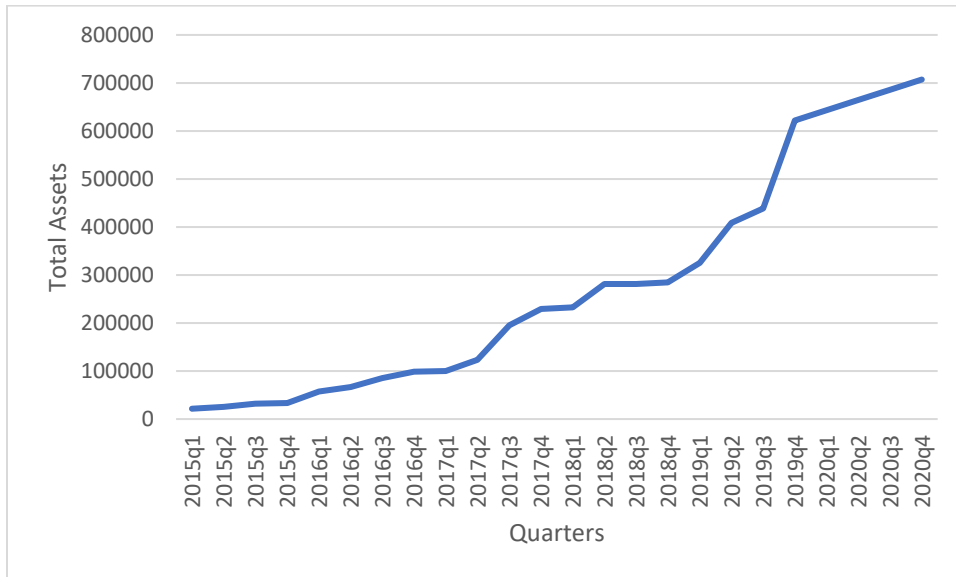


Figure 4.5: Trend for the Total Assets

The trend for the total assets showed that the total assets for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing amount of total assets for the financial sector. There was however a sharp rise experienced between the 3rd and fourth quarters of 2019 where the total amount of assets from 400 million to over 600 million.

4.3.6 Total Loans

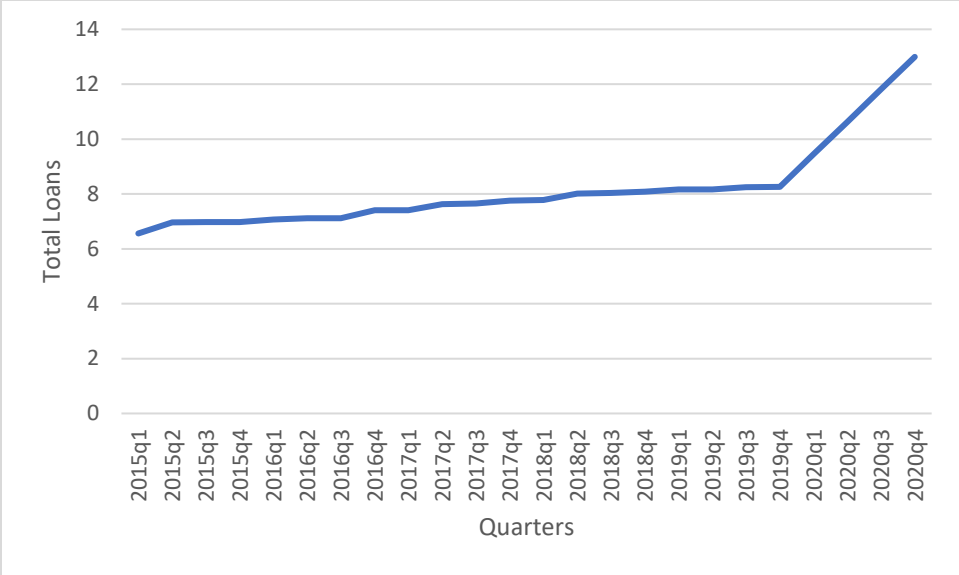


Figure 4.6: Trend for the Total Loans

The trend for the total loans showed that the total loans for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing amount of total loans for the financial sector. There was trend was however slow until the first quarter of 2020 where a drastic increase was observed up to the last quarter of the same year.

4.3.7 Total Deposits

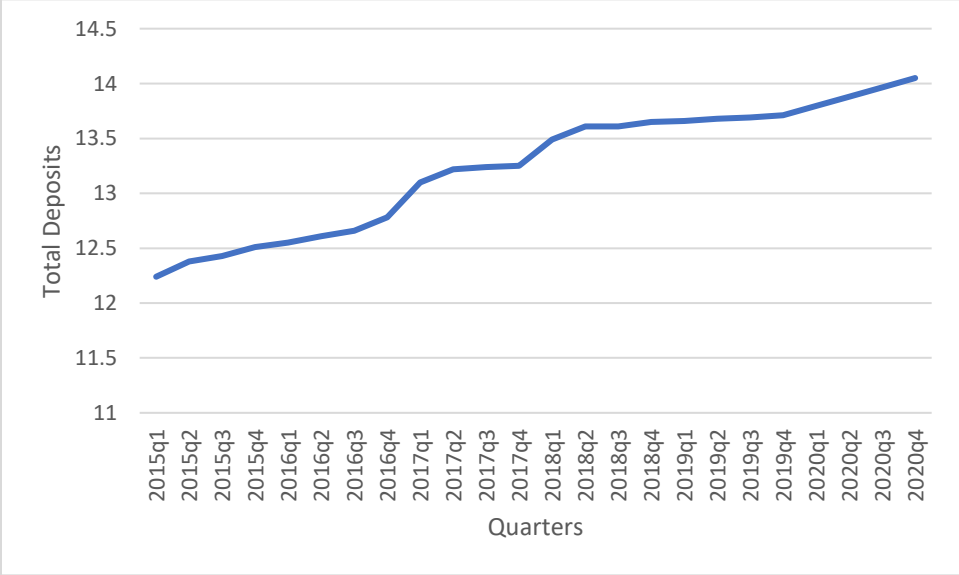


Table 4.7: Trend for the Total Deposits

The trend for the total deposits showed that the total deposits for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing amount of total deposits for the financial sector.

4.3.8 Return on Assets

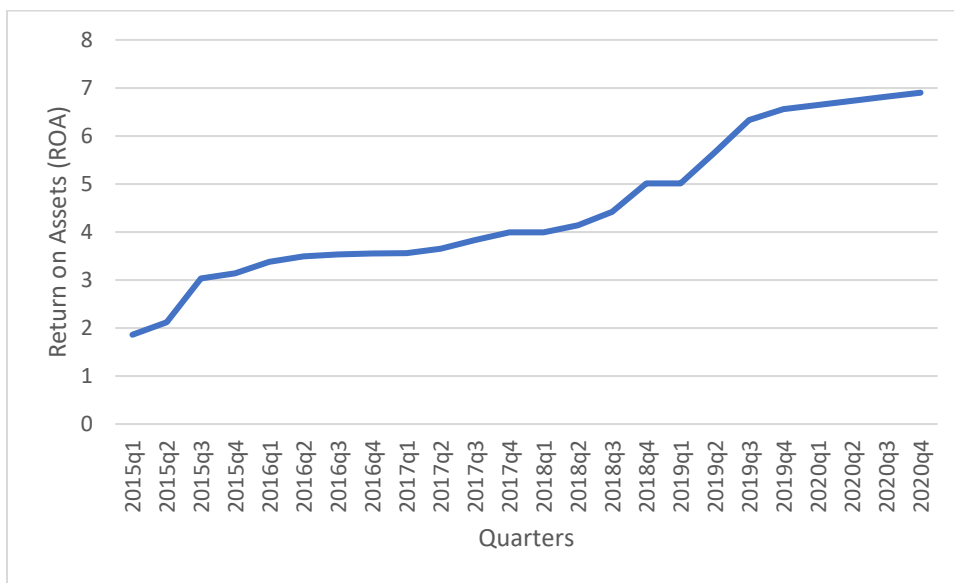


Table 4.8: Trend for the Return on Assets (ROA)

The trend for the return on assets (ROA) showed that the ROA for the 24 quarters in the six years for 2015 to 2020 was moving upward hence showing an increasing amount of ROA for the financial sector.

4.4 Correlation Analysis

The correlation analysis results for the study variables was as in Table 4.2.

Table 4.2: Correlation Matrix

		digital credit transactions	digital credit	Interest Rates	capital adequacy	liquidity ratio	ROA
digital credit transactions	Pearson Correlation						
	Sig. (2-tailed)						
digital credit	Pearson Correlation	.721**					
	Sig. (2-tailed)	0.000					
Interest Rates	Pearson Correlation	.796**	.883**				
	Sig. (2-tailed)	0.000	0.000				
capital adequacy	Pearson Correlation	-.899**	-.768**	-.717**			
	Sig. (2-tailed)	0.000	0.000	0.000			
liquidity ratio	Pearson Correlation	.121**	.426**	.159**	-.137**		
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		
ROA	Pearson Correlation	.784**	.870**	.899**	-.702**	.504**	
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	

The findings for the correlation analysis indicated that the number of digital credit transaction correlates positively with Return on Assets (ROA) ($r=0.784$ $p=0.000$). The findings also showed that the correlation between the amount of digital credit and ROA is useful and remarkable ($r=0.870$ $p=0.000$). This was in line with the findings by Maina (2012) that banking via mobile affected performance of banks in a positive way. Further the correlation between Liquidity ratio and ROA was established to be useful and remarkable ($r=0.899$ $p=0.000$). Furthermore, the findings established that there's a useful and remarkable correlation between interest rates and ROA ($R=0.504$ $p=0.000$). However, the correlation between capital adequacy and ROA was established to be negative and significant ($r=-0.702$ $p=0.000$).

4.5 Regression Analysis

This part highlights the findings for the multiple regression analysis which was applied to determine the effect of digital credit on financial performance of financial sector in Kenya.

Table 4.3: Model of Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.983a	0.966	0.966	0.008111

The findings established that the R square was 0.966 which revealed that the variables total amount of digital credit total digital credit transactions interest rates capital adequacy and liquidity ratio explain 96.6% of the variation in the Return on Assets in the financial sector.

Table 4.4: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.65	5	0.33	5015.934	0.000
Residual	0.058	882	0		
Total	1.708	887			

The results for ANOVA showed that the model for the study was statistically significant (p=0.000).

Table 4.5: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.032	0.012		2.665	0.008
digital credit transactions	0.008	0.002	0.096	4.921	0.000
digital credit	0.089	0.006	-0.355	-15.38	0.000
Interest Rates	0.013	0.000	0.968	46.094	0.000
capital adequacy	-0.002	0.000	-0.131	-6.712	0.000

liquidity ratio	0.014	0.000	0.472	52.566	0.000
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The results for the coefficients showed that the number of digital credit transaction has a useful and remarkable linkage with ROA ($\beta=0.008$ and $p=0.000$). The findings for the relationship between the amount of digital credit also showed a useful and remarkable linkage ($\beta=0.089$ and $p=0.000$). This concurred with the findings by Gakure (2013) that commercial banks' financial performance greatly increased after application of mobile banking and Mohammed (2013) who found that profitability of banks in India increased after introduction of mobile banking. Results also agreed with those by Kigen (2010) who found out that financial performance of the banks increased on application e-banking.

Further it was established that the linkage between the interest rates and ROA was useful and remarkable ($\beta=0.013$ and $p=0.000$). Furthermore, the findings indicated that there is a useful and remarkable linkage between liquidity ratio and ROA ($\beta=0.014$ and $p=0.000$). However, the results for the relationship between capital adequacy and ROA showed a negative and remarkable linkage ($\beta=-0.002$ and $p=0.000$).

The model was confirmed as:

The multiple linear regression model used was:

$$Y = 0.032 + 0.008 X_1 + 0.089 X_2 + 0.013 X_3 - 0.002 X_4 + 0.014 X_5$$

Y-Financial Performance (Return on assets)

X_1 is total amount of digital credit.

X_2 is total digital credit transactions

X_3 is interest rates

X_4 capital adequacy

X₅ liquidity ratio

4.6 Discussion of Findings

It was found that the number of digital credit transaction, amount of digital credit, interest rates, total capital, total assets, total deposits, total loans and ROA for the players in the financial sector in Kenya experienced an increase for all the 24 quarters in the six years under study that is 2015-2020. The rate of change was however not even for all the quarter with some quarters experiencing a slow increase while some others experienced a drastic rise. The rate of change for most of the variables under study showed a slow rise in the first quarters and a sharp rise in the last quarters. This however contrasted with the findings by Omondi (2015) who established that banks exhibited little significance even on adopting digital banking.

The correlation results established a useful correlation between the research independent factors that is total amount of digital credit, total digital credit transactions, interest rates, liquidity ratio and ROA. This implied that a positive change in any of the study variable that is total amount of digital credit, total digital credit transactions, interest rates and liquidity ratio would result into a useful change in the ROA of the players in the sector of finance. The correlation between capital adequacy and ROA was however negative implying that a unit change in capital adequacy would cause a negative change in ROA of the players in the sector of finance.

The regression analysis results further showed that the independent variables that is total amount of digital credit, total digital credit transactions, interest rates, capital adequacy and liquidity ratio would explain 96.6% of the variations in ROA. This implied that there are other determinants not discussed in the research that would describe the remaining variation of the ROA of players in the financial sector. Furthermore, the regression results revealed that the variables total amount of digital credit total digital credit transactions interest rates and liquidity ratio positively and

significantly relate with ROA. This implied that total amount of digital credit, total digital credit transactions, interest rates and liquidity ratio have a useful impact on ROA of the players in the financial sector of finance. However, the linkage between capital adequacy and ROA was negative and significant hence the effect of liquidity ratio to ROA would not be negative.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In this section a summary of the investigation variables is provided. The section also gives the conclusions of the research as well as the recommendations. Further the limitations and also the suggestions for more study are discussed.

5.2 Summary of Findings

The results established that the number of digital credit transaction, amount of digital credit, interest rates, total capital, total assets, total deposits, total loans and ROA for the players in the financial sector in Kenya experienced an increase for all the 24 quarters in the six years under study that is 2015-2020.

The correlation results established a useful correlation between the research independent factors that is total amount of digital credit, total digital credit transactions, interest rates, liquidity ratio and ROA but a negative correlation between capital adequacy and ROA. The regression analysis results further showed that the independent variables that is total amount of digital credit total digital credit transactions interest rates capital adequacy and liquidity ratio would explain 77.1% of the variations in ROA. Furthermore, the regression results revealed that the variables total

amount of digital credit, total digital credit transactions, interest rates and liquidity ratio positively and significantly relate with ROA. However, the relationship between capital adequacy and ROA was undesirable but significant.

5.3 Conclusions

According to the research it is concluded that the financial sector players in Kenya have been experiencing an upward trend in terms of the change in the amount of digital credit interest rates total capital total assets total deposits total loans and ROA. This means that the financial sector has been experiencing improved performance in terms of the amount of digital credit interest rates total capital total assets total deposits total loans as well as ROA.

Also, the number of digital transactions of credit has useful effect of the performance of finance of the financial sector players. The research also concludes that the amount of digital credit also has a useful impact on the performance of sector finance players. performance of the financial sector players. Further the study makes a conclusion that the interest rates charged on loans by the financial sector players has a useful influence of performance of the financial sector players. Furthermore, the study concludes that has a useful impact of liquidity ratio on the performance of finance of the financial sector players. Finally, the study concludes that there is an undesirable influence of capital adequacy on the performance of the financial sector players.

5.4 Recommendations

The recommendations for policy and also for practice that are drawn from the study conclusions are discussed herein.

The study recommends that the financial sector players should adopt the strategies that will see to it that they continue to improve the amount of digital credit they extend to customers. They

should see to improve the digital lending platforms by for example by reducing the transaction charges on customers involved while accessing digital loans. They should also improve the platform by offering improved processes that area also easy for customers to navigate through.

The study also recommends the government through the financial sector regulator to come up with polices that will help the financial players to improve their performances in terms of digital credit. They should provide polices that will encourage more financial players to adopt the use of digital credit. Further the government through the financial sector regulator should provide guidelines that the players may use when it comes to digital lending. They may also provide trainings on the best techniques to use in digital lending.

5.5 Limitations of the Study

The research was limited in terms of the methodology that was adopted. The application of secondary data for the research limited the study in terms of the information obtained from the secondary sources. The limitation was addressed by making recommendations that future studies can adopt other methods of data collection that would provide primary data. The study was further limited n the duration covered as it only covered five recent years. The limitation was addressed by many suggestion for future studies to extend the duration.

5.6 Areas for Further Research

The research recommends that more studies be done in other segments apart from the financial sector in order to assess the similarity or the contrast in the findings. Future studies may also consider adopting methodologies that were not used in this study. The future scholars may want to collect primary data as this would give more valid data regarding the study variables. Researches where primary data is collected make the primary consumers by application of

interviews or questionnaires may give more relevant knowledge that may have left out in this research.

More scholars may consider using other techniques that may lead to sampling of a number of respondents that would may be lead to a better representation of the population. Future research may apply other elements may curb the gap in the remaining R square. Future research may also think determining other determinants linked to digital credit but which may have an impact on performance of sector finance in Kenya. This way the policies set on digital credit will think other determinants that may have an impact therefore be more operative on curbing the problem. Other studies may also extend the duration of years covered.

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APPENDICES

Appendix I: Sheet of Data Collection

Year	Quarter	Number of digital credit transaction	Amount of digital credit	Interest Rates	Total capital	Total Assets	Total loans	Total deposits	ROA
2015	1 st Quarter								
	2 nd quarter								
	3 rd quarter								
	4 th quarter								
2016	1 st quarter								
	2 nd quarter								
	3 rd								

	quarter								
	4 th quarter								
2017	1 st quarter								
	2 nd quarter								
	3 rd quarter								
	4 th quarter								
2018	1 st quarter								
	2 nd quarter								
	3 rd quarter								
	4 ^t quarter								

2019	1 st quarter								
	2 nd quarter								
	3 rd quarter								
	4 th quarter								

Appendix II: List of Financial Sector Players

1. Central Bank of Kenya
2. NIC Group PLC
3. Barclays Bank of Kenya Ltd
4. Stanbic Bank Kenya Ltd
5. Co-operative Bank of Kenya Ltd (The)
6. Diamond Trust Bank Kenya Ltd
7. Ecobank Kenya Ltd
8. KCB Group PLC
9. Standard Chartered Bank Kenya Ltd
10. National Bank of Kenya Ltd
11. UBA Kenya Bank Ltd

12. I&M Bank Ltd
13. Family Bank Ltd
14. Equity Bank (Kenya) Ltd
15. Sidian Bank Ltd
16. Bank of Africa Kenya Ltd
17. Commercial Bank of Africa Ltd
18. Bank of Baroda (Kenya) Ltd
19. Citibank N.A.
20. HFC Ltd
21. Prime Bank Ltd
22. Bank of India
23. Gulf African Bank Ltd

24. African Banking Corporation Ltd
25. Victoria Commercial Bank Ltd
26. Guaranty Trust Bank Kenya Ltd
27. Kenya Women Microfinance Bank PLC
28. KEY Microfinance Bank PLC
29. Sumac Microfinance Bank Ltd
30. Uwezo Microfinance Bank Ltd
31. Caritas Microfinance Bank Ltd
32. Faulu Microfinance Bank Ltd
33. SMEP Microfinance Bank Ltd

34. BM Bank (Kenya) Ltd
35. Vehicle and Equipment Leasing Ltd
36. ~~RentWorks~~ East Africa Ltd
37. Simba Corporation Ltd

Source; Kenya Banking Industry Report 2019