CENTRAL BANK OF KENYA PRUDENTIAL REGULATIONS AND THE FINANCIAL PERFORMANCE OF DIGITAL CREDIT PROVIDERS IN NAIROBI CITY COUNTY

BY

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DECLARATION

Declaration by Candidate:

This project is my original work and has not been presented for a degree in any other University

Student's Signature ……. Date……

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I confirm that the work in this proposal was done by the candidate under my supervision.

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DEDICATION

I dedicate this work to Obote Mikatu my dad who encouraged me to pursue my MBA. Thanks for your support and advice.

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I give thanks to Jehovah Chayil, Holy Spirit & Jesus Christ for Love, providence, guidance during my MBA program. I also thank Kenyatta University for chalking on the blackboard of my heart so as to impart on me knowledge in the academic sphere of finance. Lastly, my heartfelt gratitude to Dr. Vincent Shiundu Mutswenje for his guidance, patience, support, and cooperation during this undertaking.

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OPERATIONAL DEFINITION OF TERMS

Credit information: Represents any negative or positive information focusing on a customer's credit worthiness, credit capacity, credit standing, and their history concerning assets, credit, and any financial obligation whereby it mainly focuses on a customer's Non-Performing Loans and performing loans.

CBK prudential regulations: Entails the rules and operational frameworks imposed by CBK on the DCPs in accordance with the CBK's DCP regulations Act of 2022 along with any other directives issued by CBK. Whereby CBK has powers to issue operating licenses to DCPs in Kenya, regulate their charges, supervising their activities, ensure they offer competitive and affordable interest rates, and cap NPLs at double the sum of the previously defaulted loan.

Digital loans regulation: It is a set of rules enforced by the CBK through its digital credit provider's regulation Act of 2022 that empowers CBK to determine the licensing, governance, pricing principle, pricing parameters,

and utilisation of credit information by DCPs in Kenya.

Financial performance: Financial performance of digital credit providers is the actual output of the lenders measured against certain targets such as loan revenues along with profitability within a particular timeframe, which applies to the digital loans market.

Pricing parameters: It is the pricing rules to be followed by DCPs when setting the cost of credit, which must be approved by CBK before they get implemented whereby it mainly focuses on borrowers' charges.

LIST OF ACRONYMS AND ABBREVIATIONS

APR: Annual Percentage Rate

CBK: Central Bank of Kenya

CRB: Credit Reference Bureau

DCP: Digital Credit Provider

DLAK: Digital Lenders Association of Kenya

EPAR: Evans School of Public Policy Analysis and Research

FSD Kenya: Financial Sector Deepening

KIPPRA: Kenya Institute for Public Policy Research and Analysis

MNO: Mobile Network Operator

NPL: Non-Performing Loan

ROA: Return On Assets

ROE: Return on Equity

SACCO: Savings and Credit Cooperative Organisations

SPSS: Statistical Package of Social Sciences

NACOSTI: National Commission of Science Technology and Innovation

ABSTRACT

The study problem of this research was financial performance of digital credit providers in Kenya. This was because digital lenders reaped huge profits at the expense of the borrower whom they charged usurious loan rates that pushed borrowers into deeper poverty traps. Therefore, the government regulated the digital credit sector so as to protect borrowers from exorbitant interest rates through the Central Bank of Kenya prudential regulations of 2021. The study embarked on establishing the effect of the Central Bank of Kenya prudential regulation on the performance of digital credit providers financially in Nairobi City County, which was the main objective. The three specific objectives of the study were to assess the effect of Central Bank of Kenya prudential regulations that were pricing parameter regulation, pricing principle regulation, and credit information regulation on the financial performance of digital credit providers in Nairobi City County. The study conducted an in-depth literature review on prudential regulations. The study was anchored on four theories namely micro-loan borrowing rates and default theory, bank risk management theory, loanable funds theory, & loan pricing theory. With regards to research methodology, the study adopted a descriptive research design. The target population of the study was all the 20 digital credit providers licensed by Central Bank of Kenya in Nairobi City County. Census sampling technique was applied. The study used secondary data that was quantitative, which was collected through use of a secondary data collection template. The study analysed quantitative data that was obtained through the use of Statistical Package for Social Sciences (SPSS) version 22. The study used a regression model to show the relationship between Central Bank of Kenya prudential regulations and performance of digital credit providers financially in Nairobi City County, Kenya. Financial performance was measured using Return on Equity. The diagnostic tests applied entail multicollinearity test, normality test, heteroscedasticity test, model specific test, autocorrelation, and stationarity test. The correlation results established that pricing parameter regulation and performance of Digital Credit Providers financially in terms of Return On Equity are positively and significantly related. With regards to research summary and findings, the regression results in the Return On Equity model showed that the Central Bank of Kenya prudential regulations influenced performance of Digital Credit Providers positively by 60% since the R^2 was 0.602 & adjusted R^2 was 0.599. The regression results for correlation coefficients for Return On Equity showed that pricing parameter, pricing principle, and credit information variables had r values of 0.538, 0.195, and 0.654 respectively and they all had p-values of 0.000, which proved that the three null hypotheses were true. Regression of coefficients results established that the three variables of the study and performance of Digital Credit Providers in financial terms were positively & significantly related. Additionally, the study applied hypothesis testing, which established that the Central Bank of Kenya prudential regulations had a significant effect on performance of Digital Credit Providers financially in Nairobi City County. The study concluded that three prudential regulations of Central Bank of Kenya's had a positive & significant effect on performance of Digital Credit Providers in Nairobi City County. The study recommended that Central Bank of Kenya can implement interest capping for Digital Credit Providers to protect borrowers from being charged usurious interest rates that pushes them into deeper poverty traps. The study also recommended that Central Bank of Kenya to incorporate risk-based lending approach in their credit information regulation.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Financial performance of digital credit providers is the actual output of the lenders measured against certain targets such as loan revenues along with profitability within a particular timeframe, which applies to the digital loans market. Financial performance of DCPs depends on the APRs that they charge the borrowers in terms of loan charges (FSD Kenya, 2020). The higher the APRs of DCP along with a higher-level performing loan the higher their financial performance and vice versa. Therefore, the CBK prudential regulations focus on supervising activities of DCPs to ensure that they do not exploit borrowers with usurious APRs (CBK, 2021). The study conducted an analysis to determine the effect of CBK prudential regulations on the financial performance of DCPs in Nairobi City County.

Digital credit can be described as money lent or borrowed through a digital channel without collateral (Busara, 2020). The CBK's prudential regulations as stipulated in CBK Act of 2022 focused on licensing of DCPs, regulation of activities by DCPs, and protecting borrowers from being charged usurious interest rates (CBK, 2022). Digital credit enables over 10 million people in Kenya who do not qualify for loans from financial institutions to have access to credit without collateral (Kamau, 2021). According to CBK (2022), digital credit given to customers in 2021 was almost Ksh 1 trillion, which shows how significant it was to Kenyan economy. Therefore, there was need to assess how CBK's digital loans regulation influences performance of DCP's

financially so as to ascertain the efficacy of prudential regulations and if it also served the intention of protecting borrowers from exorbitant interest rates.

Globally, DCPs have provided digital credit to borrowers who had been previously excluded from formal credit markets (Izaguirre, Kaffenberger & Mazer, 2019). However, the DCPs manipulated their customers because the industry was unregulated with high Annual Percentage Rates (APR) that led to problems such as consumer over indebtedness, which forced various governments around the globe to intervene with digital loans regulations to protect their citizens (Flor, Cooper, & Oltra, 2019). Countries such as India, Indonesia, and Pakistan have digital credit regulations that focus on governance of DCPs and confidentiality to protect customer's information (Totolo, 2019). China, India, and Pakistan have digital credit regulations that are anchored on product disclosure where transparency of the charges and terms must be disclosed by the DCPs to their clients (Totolo, 2019). This was enforced after numerous complaints from customers in those countries of how DCPs would not give a full disclosure of the pricing parameters only later on to charge their clients exorbitant rates. According to EPAR (2019), this was also after Non Performing Loans (NPLs) were 52% in China, 47% in Pakistan, and 49% in India between 2013 and 2018.

In Africa, the rapid adoption of mobile phones had enabled many customers to have access to digital loans that do not require collateral (Brown & Piroska, 2022). However, due to lack of regulations between 2011 to 2016 most of DCPs charged high interest rates which led to consumer over indebtedness and a high NPL rate of 50% in countries such as Nigeria, Kenya, Zambia, Ghana, and Angola (EPAR, 2019). This was caused by lack of regulations in five main areas of digital credit caused by market conduct of DCPs, which include product disclosure, data management, privacy, consumer over-indebtedness, and pricing parameters (EPAR, 2019).

According to EPAR (2021), only 12 countries in Africa out of 40 nations that have digital credit, had adopted term digital credit and enforced digital loans regulations by 2021.

In Kenya, digital credit has been unregulated from 2012 to 2016, which gave DCPs the loophole to charge borrowers high APRs and even harass the borrowers (FSD Kenya, 2019). There was also misuse of customer information where DCPs such as OKash and Branch were reported to have publicly shamed debtors by texting their relatives, colleagues, and friends (Masolo & Wanjohi, 2021). The high interest rates coupled with no-transparent charges caused the loans to have an APR of more than 400% per annum, which made it difficult for low-income borrowers to repay them (FSD Kenya, 2020). Almost 1 million borrowers got blacklisted by 2020 for loans that were less than Ksh 1,000 and by August 2020 the number of NPLs had risen to 14 million loans (Masolo & Wanjohi, 2021). Therefore, the government was forced to intervene and regulate the market through CBK's DCP regulations (CBK, 2022). The study focused on 3 digital loans regulations by CBK, which were the independent variables namely pricing parameter, pricing principle, and credit information that affect financial performance of DCPs that was the dependent variable.

1.1.1 Central Bank of Kenya Digital Loans Regulation

In Kenya, digital loans regulation referred to the rules and operational frameworks imposed by the CBK on the DCPs in accordance with the CBK's prudential regulations Act of 2022 along with any other directives issued by CBK (CBK, 2022). The CBK had powers to issue operating licenses to DCPs in Kenya, regulate their charges, supervising their activities, ensure they offered competitive and affordable interest rates, and cap NPLs at double the sum of the previously defaulted loans (CBK, 2021). According to KIPPRA (2022), the CBK regulated the

DCPs so as to protect consumers from being charged exorbitant interest rates, ensuring customers do not accumulate excessive debt, eliminate misuse of customers' confidential information by DCPs, and also reduce the number of NPLs. The CBK's DCP Act consisted of the following regulations pricing parameters, pricing principles, credit information, licensing of DCPs, and corporate governance (CBK, 2022). This study focused on three digital loans regulation by CBK that acted as the main variables namely pricing parameters, pricing principle, and credit information, which affected the financial performance of DCPs. The other two regulations of CBK Act of 2022 that were licensing of DCPs and corporate governance did not affect the financial performance of DCPs, which was the reason why they were not incorporated as variables in the study.

Pricing parameters refers to the pricing rules to be followed by DCPs when setting the cost of credit, which must be approved by CBK before they get effected (CBK, 2021). According to CBK (2022), pricing parameter regulation focused on borrowers' charges, which comprised of fees, penalties and loan interest rate. The charges must be specified in terms of an interest rate that must be paid by a customer to the DCP within a certain period of time normally thirty days but must be less than one year. The CBK's DCP pricing parameter regulation demanded that a DCP sets an interest rate for a certain period but the rate must be reasonable and competitive (FSD, 2022). The pricing regulation also allowed DCPs to charge a penalty when a loan is defaulted after a certain period. CBK's pricing parameter regulation capped all DCPs loans that have been defaulted after the 2nd period at double the initial interest rate charged when the loan was disbursed, the fees and the penalty are just added to the doubled interest rate. The purpose of pricing parameter was to ensure that customers were not charged exorbitant APR (CBK, 2022).

Therefore, pricing parameter significantly affected performance of DCP's financially since it capped their APR competitive rates that were initially between 44% to over 400% per annum.

Pricing principles regulation focuses on borrowers' limit, which refers to the procedures and rules to be followed when conducting credit appraisal to set the borrowers' limit and extending loans to customers. DCPs were required to set borrower limits for each customer according to their credit score by CRBs, its credit policy, and CBK regulations. The regulation was adopted to ensure that customers do not take loans that are beyond their ability to pay so as to reduce the number of NPLs and customer over-indebtedness. DCPs were required to disclose all the information related to a particular product before a loan is advanced to a customer (Malot, 2022). This involved outlining all the charges and repayment period to eliminate the hidden costs that were being subjected to customers by DCPs. This measure ensured that DCP's set a reasonable borrowers' limit for every customer to reduce number of NPLs, which were more than 10 million by June 2020 (CBK, 2020). Therefore, the pricing principle ensured every borrower has a reasonable borrowing limit to reduce the number of NPLs in Kenya and also protect the customer from over indebtedness. This significantly affected performance of DCPs financially.

The credit information regulation majorly focused on NPLs and performing loans and how they affect the borrowers in terms of CRB blacklisting and over-indebtedness (CBK, 2022). NPL refers to a loan in which the principal or interest is due and unpaid after the due date as per the contract between the DCP and the customer (Brown & Piroska, 2022). The credit information regulation prohibited DCPs and CRBs from blacklisting borrowers who have NPLs that are Ksh 1000 and below (CBK, 2022). The credit information regulation also required DCPs to protect customer information to eliminate the problem of debt shaming that borrowers experienced between 2017 and 2021 (Busara, 2021). Finally, the credit information regulation also prohibited

DCPs from using false or misleading adverts so as to lure customers into taking their loans (CBK, 2022). The information provided in adverts by DCPs must be timely and accurate whereby the charges, fees, interest rate, penalty for default is clearly outlined (FSD, 2022). Therefore, credit information significantly affected performance of DCPs financially by affecting their loan book turnover.

1.1.2 Financial Performance

Financial performance of digital credit providers is the actual output of the lenders measured against certain targets such as loan revenues along with profitability within a particular timeframe, which applies to the digital loans market (FSD, 2020). Performance of DCP in financial terms is actual profitability and growth in shareholder wealth of a company appraised against certain targets such as loan revenues along with profitability within a particular timeframe (Whelan, Atz, Van-Holt, & Clark, 2021). Performance of a DCP in financial terms is measured by assessing its growth in revenue over time, level of profitability over time, minimisation of costs, NPLs, and operational costs. Globally countries such as China, India, Indonesia, and Sri Lanka have used digital loans regulation, which reduced the ROE of DCPs from an average of 140% per annum to 15% per annum (EPAR, 2019). In Africa, it was only Kenya that had so far enacted a comprehensive digital loans regulation (CBK, 2022). According to Evans School of Policy Analysis and Research (2019), DCPs operating in African countries such as Tanzania, Zambia, Nigeria, Ghana, South Africa, Democratic Republic of Congo, Lesotho, Uganda, Angola, Egypt, and Morocco attained the ROE of 50% per annum and above plus their loans had an average APR of 240% per annum.

The problem with performance of DCPs financially was that they attain high levels of profitability of over 100% from 2011 to 2017 at the expense of the borrower who were levied

high charges beyond their capacity to pay, which pushes them into deeper poverty traps and a vicious cycle of borrowing (CBK, 2021). According to CBK (2022), from 2017 onwards the average ROEs for DCPs had not been determined but their profitability was still high, which impoverishes the borrower due to high loan charges. The CBK concluded this basing on the fact that the number of number of borrowers blacklisted by CRB that had increased from less than 1 million people in 2017 to 6.5 million people in 2022 and the number of NPLs has increased from 2 million loans to 14.5 million loans over the same period (CBK, 2022). The DCPs had been able to attain huge ROEs by charging borrowers above the market interest rate in order to recover money lost through NPLs and at the same time reap huge profits (CBK, 2022). Therefore, the study had the intention of assessing the efficacy of CBK's digital loans regulation whether it ensured borrowers are charged competitive and reasonable charges. These prudential regulations significantly affected performance of DCPs financially that was depicted by their ROEs.

The study used ROE as the measure for performance of DCPs financially. The justification for using ROE was that it can measure net profit to investment attained in a certain division of a firm since most of the DCPs were divisions for certain firms such as banks, MNOs, and Fintechs. The other reason was that ROE brings about goal congruence between different divisions and the entire firm whereby any increase in divisional ROE brings enhancement in the overall ROE and vice versa. Conversely, ROA measures how well a firm utilises its assets, which in this case it could have assessed how DCPs utilise their loan assets but it failed to capture the aspect of goal congruence within a firm. Therefore, ROE was the ideal measure over ROA because of its ability to capture goal congruence aspect within a firm and it also matched the conventional accounting rules, which means information obtained from financial statements of DCPs was used to accurately compute ROE.

As statistical evidence, so as to prove feasibility of the current study, the example was a study conducted by Masolo & Wanjohi (2021), which assessed the effect of digital loans on performance in financial terms of ten tier 1 and tier 2 banks in Metropolitan Nairobi. Masolo and Wanjohi (2021) also focused on the pricing principle used by banks that offered digital credit, which relates to the pricing principle regulation that is a variable in the current study. Results from correlation analysis depicted a +ve and significant relationship amongst the independent variables; MNO, internet, and smart phone application-based loans was significant & positive. It was also established that the relationship between performance in financial terms and digital loans was moderately influenced by bank size but in a negative and insignificant level.

1.1.3 Digital Credit Providers

DCP refers to entities that offer digital credit products to borrowers without collateral. The different types of DCPs include collaborations between Mobile Network Operators (MNOs) and banks, mobile application based DCPs, Sim Tool Kit DCPs, Unstructured Supplementary Service Data (USSD) DCPs, and Web-based DCPs (Du, Wu, Song, Zou, & Ouyang, 2019). Most of the DCPs are divisions or departments for certain firms such as banks, MNOs, and Fintechs. All DCPs in Kenya must obtain a license from CBK to conduct digital credit business in Kenya.

1.1.4 Central Bank of Kenya (CBK)

CBK acts as the monetary authority of the Republic of Kenya and it is headquartered in Nairobi. CBK's main role is to create monetary policy in order to accomplish and sustain price affordability in Kenyan economy. The CBK draws its powers from various pieces of legislation that include Constitution of Kenya 2010, CBK's 2015 Banking Act, 2006 Microfinance Act,

2011 Act of National Payment system also known as IFMIS, 2012 Act of deposit insurance, and DCPs Prudential Regulation Act of 2022 (CBK, 2022). The CBK regulates the DCPs so as to curb issues arising from market conduct and systemic risk associated digital credit as outlined 1.1.1 above. The digital loans regulations that CBK imposes upon DCPs are also outlined comprehensively in 1.1.1 above.

1.2 Statement of the problem

Digital credit segment experienced growth at an exponential rate from 2012 onwards where banks and other financial institutions were launching different types of digital loan products for their target customers (FSD, 2020). The digital credit products had been embraced well especially by the middle class and the low-income earners (Elizabeth, 2020). The low-income earners who mostly fall in the under-banked category had been enabled to access loans instantly, which was impossible for them due to lack of a bank account and security for the loan (Mbogo, 2019). However, DCPs operations raised certain systemic risk issues and market conduct issues, which created the need for the sector to be regulated (KIPPRA, 2020). According to EPAR (2019), there are five main regulatory issues that arise out of how DCPs conduct themselves in the market that include product disclosure, data management, privacy, consumer over-indebtedness, and pricing parameters. The market conduct issues plus systemic risk caused by DCPs operations created the need for the sector to be regulated to eliminate any unwanted negative consequences and ensure that the sector operates smoothly whereby it offers good products to consumers and it is also a viable venture for DCPs in terms of profitability (Totolo, 2019).

The primary problem with performance of DCPs in financial terms was that they attained high levels of profitability at the expense of borrowers who were charged above the market interest

rates that pushed them into deeper poverty traps (CBK, 2021). DCPs also created a vicious cycle of borrowing for the borrowers and caused many of them to be blacklisted by CRBs (Totolo, 2019). This eroded the gains of financial inclusivity attained through digital credit since over 6.5 million people were formerly blacklisted in Kenya (Busara, 2021). By August 2022, no study had been conducted to assess how all the three CBK's prudential regulations affected performance of DCPs financially. Previous studies conducted by FSD Kenya (2019), Busara (2021), Totolo (2019), Mbogo (2019) and others on digital credit and DCPs focused on one prudential regulation & recommending the need for the sector to be regulated by government through CBK since it was unregulated. Therefore, they left the gap for this study to assess the efficacy of the three CBK prudential regulations. Therefore, a research gap existed since no study had been conducted on the subject matter in Kenya. Additionally, no study had been carried out to assess the efficacy of regulations imposed by CBK on DCPs. This left a gap for this study to be conducted. In conclusion, this study availed important insights for DCPs, CBK, academicians, and other players in the digital loan sector about the efficacy of CBK digital loans regulation along with recommendations on how to enhance them plus how to make digital credit safe and affordable to borrowers, and deepening of financial inclusivity in Kenya especially amongst underbanked customers.

As statistical evidence, a study by Elizabeth (2020) on digital loan borrowing and the risk it poses on small businesses in Nairobi County. The results showed that digital loans increased the financial risk of small businesses by 46% (Elizabeth, 2020). The study focused on financial risk that digital loans posed on small businesses that was assessed in terms of borrower's limit set by the DCPs for the businesses, which relates to the pricing principle variable of the current study that also focuses on borrower's limit. The study recommended regulation of the digital lenders to

reduce number of NPLs. Basing on the statistical evidence above it is therefore feasible to conduct research on how CBK's digital loans regulations affects performance of DCPs financially.

1.3 Objectives of the Study

1.3.1 General Objective

Purpose of this research work was to determine effect of CBK's prudential regulations on the financial performance of digital credit providers in Nairobi City County, Kenya.

1.3.2 Specific Objectives

i. To determine effects of pricing parameter regulation on the financial performance of digital credit providers in Nairobi City County, Kenya.
ii. To determine effects of pricing principle regulation on financial performance of digital credit providers in Nairobi City County, Kenya.
iii. To determine effects of credit information regulation on financial performance of digital credit providers in Nairobi City County, Kenya.

1.3 Research Hypotheses

Study sought to test following null hypothesis at 95% confidence level:

H_{01}: Pricing parameter regulation has no significant effect on the financial performance of digital credit providers in Nairobi City County, Kenya.

H_{02}: Pricing principle regulation has no significant effect on the financial performance of digital credit providers in Nairobi City County, Kenya.

H_{03}: Credit information regulation has no significant effect on the financial performance of digital credit providers in Nairobi City County, Kenya.

1.5 Significance of the study

Study will be of value to several stakeholders, which include Digital Credit Providers (DCPs), government, and academicians. Study findings can help CBK in its policy formulation for digital loans sector to ensure that it addresses certain problems that bedevil the borrowers. Additionally, the findings can also help CBK to address issues that befall the digital loan regulations, which affect negatively the loan consumers, DCPs, and credit industry at large. The study findings will help DCPs to obtain an in-depth insight on how the digital loans regulation affects their business performance. Finally, findings of this research work will be valuable to academia especially scholars who want to study how digital loans regulations affect financial performance of DCPs.

1.6 Scope of the study

Study sought to expound how CBK's prudential regulations affected performance of digital credit providers financially in Nairobi City County. Geographical scope was Nairobi City County because all the DCPs are headquartered in Nairobi. Period scope of study was 6 years from 2017 to 2022 and the justification was that the average ROE for DCPs over this period has not been determined, which can help to ascertain the efficacy of the digital loans regulation. The content scope was how CBK regulation affects performance of DCPs financially since the regulation determines the charges that DCPs levy on borrowers, which significantly affected their revenue and profitability. The population scope was all the DCPs licensed by CBK. The methodological scope was descriptive design approach.

1.7 Limitations of the study

The main limitation in the study was that financial performance of DCPs was not solely determined by the CBK's prudential regulations. The financial performance of DCPs was also affected by other macro-environmental factors such as competition, economic issues, CRB's

predictive scoring model and others. Therefore, the researcher was unable to outline explicitly the 100% factors that affect the financial performance of DCPs. This is clearly depicted in the research results, which show that the CBK's prudential regulations affected the financial performance of DCPs in terms of ROE by 60.8% leaving out 39.2% that cannot be explained by this study. The remedy for this limitation was to recommend that the unexplained factors that affect financial performance of DCPs by 39.2% can be explored by other researchers as outlined in section 5.5 as suggestions for further research. The researcher faced a minor limitation of some DCPs that were unwilling to cooperate fully. The lack of cooperation by some DCPs to provide certain information acted as a limitation to the study. The researcher assured the DCPs that the documents they shared along with information was only utilised for academia purpose & was handled with discretion so as to maintain anonymity of the participants.

1.7 Organization of the study

Project was prearranged in this manner: the beginning chapter outlines background of the problem, digital loans regulation, performance of DCPs, CBK, DCPs, statement of the problem, study objectives, research hypothesis, study importance, study scope, study limitations, and organization of the study. Chapter two entails an in-depth review of literature about CBK's DCP regulations, theoretical analysis, empirical review, annotated bibliography with regards to DCP regulations along with research gaps, & conceptual framework. Third chapter outlines research methodology used in study, which entails design of research, study model in an empirical form, variables Operationalisation, target population, method of sampling, instruments utilised to collect data, data collection procedure, validity of research instruments, research instruments' reliability, analysis of collected data, & data presentation. Chapter four comprises of the descriptive statistics, diagnostic tests, inferential analysis, and hypothesis testing. Lastly, chapter

five gives study summary, research work conclusions, recommendations for concerned stakeholders, & suggestions for future or further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The main scope of literature review was ascertaining the effect of prudential regulations by governments through their entities such as central banks, federal reserves, or parastatals on the financial performance of DCPs. In order to conduct a comprehensive literature review, there was need to assess the risks that come along with digital credit services and the efficacy of CBK's prudential regulations in mitigating them to protect borrowers from exploitation by unscrupulous DCPs. The in-depth literature review encompasses the global, regional, and local perspective of prudential regulations and how they affected the financial performance of DCPs, which helped to pin point the different gaps that arose from the literature and how this study filled those gaps. The chapter conducted an in-depth analysis of the research objectives. The in-depth analysis was done to establish the effects of CBK's pricing parameter regulation on performance of DCPs financially, to assess how CBK's pricing principle regulation affects performance of DCPs financially, and to find out how CBK's credit information regulation affects performance of DCPs financially. Chapter 2 commenced with an analysis of relatable theories with regards to DCP regulations. After that it was followed by empirical review, annotated bibliography that highlights specific research gaps, along with framework of conceptualisation.

2.2 Theoretical Review

According to Mugenda & Mugenda (2019), theoretical study is a crucial element of business research for the reason that the study must anchored on certain theories. They also stress the imperative interrelationship among theory & research. Obviously, theories are fundamental in guiding a researcher in creating a research model, which play the role of a guiding map in their analysis. The study is rooted on four theories expounded below.

2.2.1 Micro-Loan Borrowing Rates and Default Theory

Micro-loan borrowing rates is a theory by Sam Cheung and Suresh Sundaresan in 2007 that outlines how firms like DCPs can issue loans without collateral and conversely how borrowers can obtain credit without collateral (Cheung & Sundaresan, 2019). The theory underpinned the pricing parameter variable because it focused on loan charges. The theory argued that a micro loan model can be used to establish loan charges that could guarantee profitability along with probability of default on credit advanced to a customer (Cheung & Sundaresan, 2019). Gao, Liu, Yin, and Zhang (2022), supported the theory by arguing that it was created on a model of borrowing and lending in markets where the lender such as a DCP cannot access physical collateral of their customer and the borrower is seriously constrained by capital (Gao, Liu, Yin, and Zhang, 2022). However, the theory had been criticized by Siaw, Ntiamoah, Oteng, and Opoku (2019) that it encouraged excessive punishment of borrowers who default to pay through use of hefty fines. The theory was criticised because it argued that lenders should use excessive penalties to discourage other users from defaulting and also as a way of recovering funds lost through the NPLs. Some DPCPs in Kenya have exercised this principle in Kenya whereby they charge their borrowers usurious interest rates to risky borrowers and charge them hefty fines in case they default on their loan obligation.

Despite the criticism the theory was still relevant to the research work since it helped in identification of pricing parameter as a key variable, which influences performance of DCPs financially. The theory addresses the pricing parameter variable that outlines the loan charges. The penalties explained by the theory relate to the pricing parameter regulation by CBK where charges comprise of interest rate, penalties, and loan processing fees.

2.2.2 Bank Risk Management Theory

It was brought forth by David H Pyle in 1997 that outlines the importance of risk management by banks (Pyle, 2019). The theory explains that banks should have credit information that is accurate and timely before it issues a loan to a customer. The theory underpinned the credit information variable because it encouraged bank managers to scrutinise credit reports of borrowers from CRBs to determine if they can be loaned or not. Rampini, Viswanathan, & Vuillemey, (2020) supported the theory by arguing that bank managers must gather enough information about a borrower to ascertain their level of risk, which can help to reduce NPLs. The theory defines risk as any change in the business environment that can cause a reduction in the value of a firm (Pyle, 2019).

The theory assumes that there are four major sources of risk, which are market, credit, performance, and operational (Pyle, 2019). Credit risk can be described as the change in capital value of a business entity caused by the inability of third parties to meet their contractual obligations. Market risk can be described as change in capital value of a business entity caused by changes in certain economic factors such as equity, commodity prices, foreign exchange rates, and interest rates (Pyle, 2019). Operational risk is caused by expenses incurred on blunders made in conducting certain business transactions like the failure to meet regulatory stipulations, failure to meet settlements, and untimely collection of debts. Lastly, performance risk entails

losses caused by failure to supervise employees and failure to use appropriate techniques that can help employees meet the set performance targets (Pyle, 2019). However, the theory had been criticised that it only focuses on analysis and mitigation of market risk and credit risk and it ignores the operational risk and performance risk (Leo, Sharma, & Maddulety, 2019). This makes the theory not to be comprehensive enough to outline all the variables in it exhaustively and also explain their theoretical underpinnings.

The theory underpinned the credit information variable of the study whereby credit managers need to access accurate, timely, and complete information to ascertain the level of risk involved in advancing a loan to a certain borrower. The theory was relevant to the research work for the reason that it helped in identification of credit information regulation as one of the variables. The theory also showed why the credit information regulation encourages DCPs to use credit reports from CRBs to ascertain the borrowers' willingness to pay and capacity to pay. This can help DCPs to reduce NPLs so as to enhance their performance.

2.2.3 Loan-able Funds Theory

It is a neo-classical theory of interest rate developed by Knut Wicksell and it was later on modified by Ohlin, Lindahl, Viner, Robertson, and Myrdal (Bertocco& Kalajzić, 2022). It explains that interest rates get determined by demand & supply forces of loanable finances, which makes it more pragmatic than the classical theory of interest by Keynes (Bertocco& Kalajzić, 2022). The theory underpinned the pricing principle variable because it emphasises the need for credit appraisal to ensure lenders set appropriate borrowing limits for their customers. The theory assumes that the demand for loanable funds arises from three factors that are demand for investment, hoarding of cash balances to meet liquidity needs, and dissaving (Bertocco&

Kalajzić, 2022). Conversely, supply of loanable funds is determined by levels of savings, bank money made through credit creation and bank services, dishoarding, and disinvestment.

Even though the theory is superior and more pragmatic than Keynes classical theory of interest rate it has been criticised on four factors that it assumes full employment in an economy, which is not realistic. The first factor is that the theory (Bertocco & Kalajzić, 2022). The second factor is that it is indeterminate in the sense that it assumes savings and income to be independent, which is not true since savings depends on income (Bertocco & Kalajzić, 2022). The third factor is that it is impractical since it assumes that hoarding, savings, and investment are related to the interest rate. The last factor is the unsatisfactory integration of real and monetary factors along with the unrealistic assumption that the level of national income remains constant (Bertocco & Kalajzić, 2022).

Despite the criticism, its hypothesis remained pertinent to this study because it is related to pricing principle variable that focuses on borrowers' limit. The theory was relevant to the research work since it shows the importance of credit scoring to determine the appropriate borrower's limit for a customer. This can help DCPs to reduce NPLs since they will advance credit based on an individual's capacity to pay rather than willingness to pay.

2.2.4 Loan Pricing Theory

It is a Keynesian theory that states borrowers' demand for money is the cause for expansionary policy measures whereby the role of financial institutions is to supply the required funds in a credit market (Stiglitz & Weiss, 2019). Chodechai supported the theory by arguing that lending institutions must deal with issue of economic anti-selection & moral hazard while issuing loans so as to enhance their performance financially (Chodechai, 2019). The theory underpinned

dependent variable of study since it outlines how financial institutions can enhance their profitability by avoiding high risk borrowers. The theory discourages use of high interest rates because they create the adverse selection problem whereby, they attract high risk borrowers that can increase the number of NPLs (Chmura, 2019). The theory argues that banks tend to overprice loans for their best customers and under-priced them for their worst customers. In the long run, the overpriced loans cause their best customers to become unable to repay the loans due to high interest rates, which can adversely affect performance of banks financially (Bertocco, 2019). The theory points out that most of the banks that face financial difficulties have loan approval and monitoring frameworks that are not in line with the nature and categories of risk by certain borrowers. The theory faces the main criticism whereby it advises banks to use monetary policy rates as the base for determining lending rates, which means that the interest rates will be the same for all customers (Dymski, 2019). This is not practical since banks tend to charge customers according to their level of riskiness.

The theory was relevant to the research work for the reason that it helped in identification of performance of DCPs in financial terms as dependent variable of this study. The theory further outlines pitfalls that financial institutions such as DCPs must avoid to enhance their performance financially. The theory advocates for appropriate loan appraisals to eliminate operational and market risk that a DCP might face when advancing loans to borrowers. The theory guides DCPs to price their loans optimally and ensure that they have appropriate credit appraisal polices that focus on a customers' ability to pay so as to enhance their performance financially.

2.3 Empirical Review

This part of the study carries out an in-depth analysis of the empirical literature by focusing on the variables of the research work. Financial performance of DCPs is dependent variable.

Conversely, autonomous variables include CBK's pricing parameter regulation, CBK's pricing principle regulation, and CBK's credit information regulation.

2.3.1 Pricing Parameter and Financial Performance

Barress, Foose, and Wright (2019) conducted a study on how to make digital loan borrowers to be financially responsible in Kenya. The study assessed the pricing parameters of DCPs to ascertain how it influenced their performance financially, which related to pricing parameter variable of this study. The study applied the quantitative research and descriptive design approach. The study collected primary data using open ended questionnaires and interviews at various DCPs in Kenya. Findings prove that borrowers were subjected to high APR by DCPs whereby Branch had an APR of 180%, Tala 200%, Fuliza 148.5%, Stawi loan 75%, Equitel 72%, Kopa Chapaa 621%, KCB-Mpesa 44%, M-Shwari 88%, and Timiza by Absa 73%. This resulted to a high number of NPLs that had an average of 40% for Fintechs, Banks, banks DCP facilitated by Mobile Network Operators and MFI because the borrowers were over indebted. The results show that the DCPs enjoyed high ROE of over 50% per annum because of the high APR that was levied on customers. The study recommended the regulation of DCPs by CBK through use of a pricing parameter regulation to protect consumers from over indebtedness and reduce the NPLs. This left a gap for this study to analyse in what ways the pricing parameter regulation affected performance of DCPs financially.

Francis, Blumenstock, and Robinson (2019) conducted research on digital loans in third world countries. Study utilised quantitative research along with descriptive design approach. The study focused on Philippines, Kenya, Tanzania, Malawi, Colombia and Zambia. The study assessed the pricing parameters of DCPs in those countries through use of the APR, which relates to this study (pricing parameter regulation by CBK). Study harvested primary data via open ended

questionnaires from 30 respondents in each country and from 5 DCPs in each country. The study noted that the borrowers were subjected to high APR where M-Shwari in Kenya was 138%, Kutchova a product by Airtel Malawi was 1000%, Timiza Wakala and Tigo Nivushe by Airtel Tanzania was 236%%, Smart Money by Smart Communications in Philipines was 187% (Francis, Blumenstock & Robinson, 2019). The results showed that DCPs used pricing parameters that impoverished borrowers due to lack of regulations. The results show that the DCPs enjoyed high ROE of over 85% per annum. The study advocated for regulatory intervention by governments in those nations to reduce the high APRs, which led to over indebtedness amongst the borrowers. This left a gap for this study to analyse in what ways the pricing parameter regulation affected performance of DCPs financially.

Putman, Blackmon, and Mazer (2021) conducted a study on Kenya digital credit market, which was an inquiry on behalf of Competition Authority of Kenya in 2021. The study also focused on ascertaining the pricing parameters adopted by DCPs, which related to the pricing parameter regulation that was in this study. The study utilised the quantitative research framework together with the descriptive design approach. The study collected primary data using open ended questionnaires from various DCPs. Results show that borrowers were subjected to high APR due lack of full disclosure about the charges by some DCPs and also as a result of false adverts that gave wrong information about the charges. The results show that the DCPs enjoyed high ROE of over 100% per annum because of the high APR. The study advocated for capping of charges by regulatory body such as CBK to ensure that DCPs do not exploit the borrowers as a pricing parameter regulation, which left a gap for this research work to analyse how pricing parameter regulation affected performance of DCPs financially.

2.3.2 Pricing Principle and Financial Performance

Masolo & Wanjohi (2021) conducted research on impact of digital loans on profitability of 10 banks in Kenya. Study focused on pricing principle used by banks that offered digital credit, which related to the pricing principle regulation that was a variable in this study. The researcher's target population was ten out of Kenya's thirty-eight commercial banks that had launched digital credit products from 2012 onwards. The top five leading banks on matters of digitization acted as the sample size. Researcher obtained secondary data from financial reports of 10 banks. Results showed that digital credit increased the revenues of commercial banks by an average of 15% in 2020 compared to revenue figures of 2012. The results showed that use of pricing principle enabled banks to set appropriate limits for borrowers that enhanced performance of banks financially, this left a gap for the current research work to analyse how pricing principle regulation affected performance of digital lenders financially.

Elizabeth (2020) conducted a study on digital loans and the risk it posed on small businesses in Nairobi. Study scope was financial risk that digital lending posed on small business entities that was assessed in terms of borrowers' limit set by the DCPs for the businesses, which related to the pricing principle variable of this study that also focuses on borrower's limit. Researcher utilised descriptive research design. Primary data was harvested from sampled population through use of questionnaires. The study results showed that digital loans increased the financial risk of small businesses since they had high borrowing limits because of ineffective pricing principles used by the DCPs since they could get funds from different DCPs at the same time. This posed a high risk to their businesses because of over indebtedness, which resulted in almost 46% of the business owners in the study being blacklisted. The study recommended adoption of a pricing

principle regulation by CBK, which left a gap for this research work to analyse how pricing principle regulation affected performance of DCPs financially.

Wathome (2020) conducted a research about effects of digital loans on the financial inclusivity of youth in Kangemi, Nairobi. Study also assessed the borrower's limit for youth in Kangemi, which relates to the pricing principle variable of this study that also focuses on borrower's limit. The study applied quantitative research and descriptive design approach. Study results indicate that 39% of respondents defaulted on their loans. The results also show that 48% had been blacklisted for defaulting. Results also show that 93% of the respondents had access to multiple loans from different DCPs and even used one loan to pay off another one. The study recommended for adoption of pricing principle regulation by CBK to protect youth from over indebtedness, which left a gap for this study to analyse how pricing parameter regulation affected performance of digital lenders financially.

2.3.3 Credit Information and Financial Performance

Kaigu and Theuri (2019) conducted a study on the manner in which commercial banks utilise credit information when issuing loans in Nakuru. The study focused on credit information of borrowers the bank assesses before issuing a loan, which related to the credit information variable of this study. The study applied descriptive research design whereby data was harvested through use of questionnaires. Study results point to the fact that comprehensive analysis in terms of credit information by a bank helped to reduce the number of NPLs by 63.7%. The study shows how credit information can help in reducing the number of NPLs since banks will only advance loans to customers who have a capacity to pay. Obviously, scope of the study was limited to banks and secured loans, this left a gap for the current research work to analyse how credit information regulation affected performance of digital lenders financially.

Gubbins and Totolo (2019) conducted a research on Digital loans in Kenya: Evidence from demand side surveys. The study also focused on how DCPs used borrower's credit information that is in form of credit reports by CRBs before issuing loans. This related to the credit information variable of this study. Study employed a survey research technique. Results show that 87% of the borrowers had access to loans from different DCPs and even used one loan to pay off another one. The results also show that borrowers were subjected to high APR that averaged at 140% for all DCPs in Kenya. This results in consumer over indebtedness that is showed by high number of people blacklisted. The study recommended the implementation of credit information regulation by CBK to reduce NPLs, which left a gap for this research work to analyse how credit information regulation affected performance of digital lenders financially.

Ogada and Hammond (2019) conducted a study on the digital loan landscape that focused on Kenya, Nigeria, and India. The study focused on assessing the credit information used by DCPs to issue loans to borrowers, which is inform of credit reports from CRBs. This related to the credit information variable of this study. Study collected primary data using open ended questionnaires and interviews respondents while secondary data was collected from various DCPs, and government agencies in those countries. The results show that NPLs were 32% in Kenya, 28% in India, and 41% in Nigeria. The results show that DCPs subjected borrowers to high APRs of over 150% in the three countries so as to recover losses from NPLs. This occurred because the DCPs did not fall under regulatory body that could cap the APRs to protect consumers from exploitation. The study recommended adoption of credit information regulation that focuses on capacity to pay instead of willingness to pay as depicted by CRB reports, which left a gap for this research work to analyse how credit information regulation affected performance of DCPs financially.

2.4 Summary of Literature Review and Research Gaps

The table showcases summary of annotated bibliography and research gaps.

Table 2.1: Summary of Literature Review

Author	Topic	Findings	Research Gaps	Focus of Study
Pricing parameter and financial performance				
Barress, Foose, and Wright (2019)	Making digital credit socially responsible: findings about DCPs in Kenya	Results showed that the DCPs enjoyed high ROE of over 100% per annum because of the high APR that was levied on customers, which shows that pricing parameter that focused on borrower's charges influences performance of DCPs financially	The study recommended the regulation of DCPs by relevant authorities to protect consumers from over indebtedness and reduce the NPLs, which left a gap for analysing how CBK's pricing parameter regulation, affected performance of DCPs financially.	The study focused on CBK pricing parameters regulation for DCPs to ascertain how it influenced their performance financially
Francis, Blumanstark, and Robinson (2019)	Digital lending in third world countries	Results also showed that the loan charges are determined by borrower's behaviour, that is willingness to pay showed by the predictive scoring model and the DCPs ROE is over 50% per	The study recommended adoption of pricing parameter regulations by governments of third world countries to protect borrowers, which left a gap to assess how the CBK regulation	The study zeroed in on the CBK pricing parameter regulation in Kenya for DCPs to ascertain if the loan charges were competitive and reasonable or

		annum	affect performance of DCPs financially.	above the market rates
Putman Blackmon, and Mazer (2021)	Kenya digital credit market	The study results showed that DCPs applied high charges to customers giving them a high ROE of over 100% per annum, which showed how pricing parameter influences performance of DCPs.	The study recommended the regulation of DCPs by CBK to protect consumers from over indebtedness and reduce NPLs, which left a gap for the current study to assess how the CBK regulation affect performance of DCPs financially.	The study focused on CBK pricing parameters regulation for DCPs to ascertain how it influenced their performance in Kenya financially
Pricing principle and financial performance				
Masolo & Wanjohi (2021)	Digital Credit and Performance (financial) of selected Banks in Kenya	Results showed that digital credit increased revenues of commercial banks by an average of 15% in 2020, which enhanced their performance financially.	The study scope was limited to how digital credit affects performance of banks in financial terms, which left gap for the current research work to analyse how pricing principle regulation affects performance of digital lenders financially.	The study focused on the CBK pricing principles used by DCPs in Kenya.
Elizabeth (2020)	Digital loan lending and financial risk exposure of small businesses in Nairobi.	Study results showed that DCPs use of predictive scoring model that focuses on willingness to pay to set borrower's limit was not	The study recommended regulation of digital lenders by CBK through use of a pricing principle regulation, which left a gap for	Study focused on CBK pricing principle regulation and if it helped to set reasonable borrowing limits for borrowers.

		effective since borrowers could access multiple loans at the same time that led to high level of NPLs.	analysing how CBK's DCP regulations affects the performance of digital lenders financially.	
Wathome (2020)	Effects of digital borrowing on the financial inclusivity of youth in Kangemi, Nairobi	Results showed that borrowers limit set by DCPs was not effective since 93% of the respondents had access to multiple loans from different DCPs and even used one loan to pay off another one, which negatively affected performance of DCPs financially because of high NPLs.	Study focused on digital credit and financial inclusion of youth where it recommended regulation of DCPs, which left a gap for assessing the effect of CBK's pricing principle regulation on performance of DCPs financially.	Study focused on CBK pricing principle regulation and whether it helped to protect borrowers from over indebtedness
Credit information and financial performance				
Kaigu and Theuri (2019)	Loan information and property quality of banks in Nakuru (2019).	It showed that a comprehensive analysis in terms of credit information by a bank helped to reduce the number of NPLs by 63.7%	The scope of the study was confined on how credit information is utilised by commercial banks, which left a gap for the current research work to analyse how credit information regulation affects the performance of digital lenders financially.	Study focused on utilisation of credit information by DCPs that will be depicted by percentage of performing loans out of the total issued loans
Gubons and Tottolo (2019)	Digital credit in Kenya: Evidence from demand side	Results showed that 27% of DCP loans were	The study recommended the regulation of	The study also focused on effect of CBK

	surveys.	defaulted in 2019 because DCPs relied on credit score that focuses in willingness to pay instead of capacity to pay	DCPs by CBK by use of credit information regulation to protect borrowers from excessive debt and reduce the NPLs, which left a gap for the current research work to analyse how credit information regulation affects performance of digital lenders financially.	credit information regulation on performance of DCPs financially
Ogada and Hammond (2020)	Digital credit terrain: focusing on Kenya, Nigeria, and India.	The study results showed that the DCPs only relied on credit score that depicted willingness to pay instead of capacity to pay, which resulted in the high default rates affecting the performance of NPLs	The scope of the study was in Kenya, India, and Nigeria, which left a gap for the current research work to analyse how credit information regulation affects performance of digital lenders financially.	The study focused on the utilisation of CRB credit reports about borrowers and how it affected loan performance of DCPs financially.

Source: Researcher 2022

2.5 Conceptual Framework

Dependent study parameter of the model is performance of a DCP in financial terms. Autonomous variable of the model was CBK's pricing parameter regulation, CBK's pricing principle regulation, and CBK's credit information regulation.

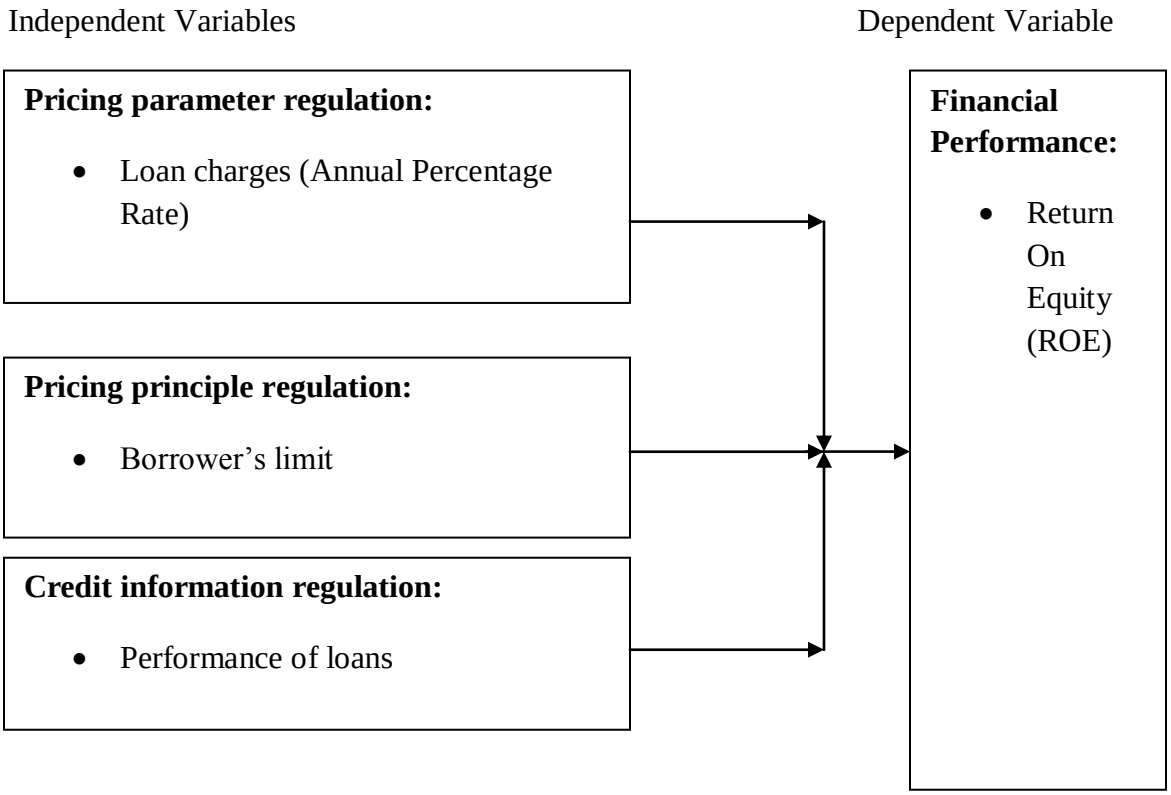

Figure 2.1: Conceptual Framework

Source: Researcher, (2022)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter 3 explains modus operandi, which was applied on sampling research participants, collecting the needed data, & also analysing it. The chapter encompasses the design that was used in conducting the research alongside other methodological elements. The scope of the chapter was to outline the research methodology that was deployed in data collection and analysis, which ensured that the research objectives were met accordingly.

3.2 Research Design

It is the overall strategy along with the analytical framework that a researcher adopts so as to integrate in a logical and coherent way the different components of the study to ensure that the research problem is adequately investigated. Study utilised descriptive design approach, which stipulates that a researcher obtains details about the current status of a certain phenomenon so as to illustrate the status quo in accordance with certain variables and conditions of a particular context (Greener, 2019). Additionally, it gives an in-depth examination required in research work. Lastly, it was applied given that helped researcher to explain clearly the concept being studied.

3.3 Empirical Model

The study had 1 measure for dependent variable namely ROE. Subsequently, 1 model was formed through use of single linear regression.

Performance of DCPs in financial terms shall be determined as follows:

Financial performance of DCPs (Yit) = ROE; ……1

Therefore, models of regression are projected as below:

$ROE = \alpha + \beta 1X1it + \beta 2X2it + \beta 3X3it + \varepsilon$…….1

Where:

i= represents DCPs

t= time period in years

Yit represents performance of DCPs in financial terms of ROE that were licensed by CBK for period t

X1it represents the loan Annual Percentage Rate for the period t

X2it represents average borrowers' limit (borrower's limit/ income) for the period t

X3it represents performance of issued loans for period t

α: signifies a Constant that describes performance of DCP financially without inserting the independent variables that is value of Y when value of X is zero

βi' represents components of variable i that estimate degree to which dissimilarity in Y was described by deviations in X

ε = error term

3.3.1 Operationalisation and Measurement of Variables

Table 3.1: Operationalisation of Variables

Variable	Variable type	Operationalisation	Measurement	Measurement Scale
Financial performance of DCPs	Dependent	CBK prudential regulations	EBIT/ Equity EBIT/ Total Assets	Ratio
Pricing parameter	Independent	Loan charges = Loan interest rate + penalties + loan processing fee	Loan Annual Percentage Rate (APR)	Ratio
Pricing principle	Independent	Credit Score or rating by Credit Reference Bureaus and average borrower's income	Average borrower's limit/Average borrower's Income	Ratio
Credit information	Independent	Total number of issued loans in a certain period	Performing loans/ total number of issued loans	Ratio

Source: Researcher, (2022)

3.4 Target Population

It was all the 20 DCPs licensed by CBK (as highlighted in Appendix III) in Nairobi City County (CBK, 2022).The research work collected data from the accounting and finance department of the firms owned by this DCPs and their websites, which provided the required data such as the charges (Loan APR), borrowers limit (average borrowers limit and average borrower's income), performance of issued loans (performing loans/ total number of issued loans), and the financial statements that can were used to compute ROE.

3.5 Sampling Design

Sampling design encompasses a framework along with certain steps that will be followed in selecting a sample from a population. Census sampling as a modus operandi was applied in the study since data was fetched from all DCPs licensed by CBK by 30th November 2022. Census sampling as a modus operandi was ideal for study because the target population was below 100 (Mugenda & Mugenda, 2019). Furthermore, it increased accuracy of the quantitative data that was collected.

3.6 Data Collection Instruments

Study employed use of secondary data to examine research topic. Secondary data was obtained from financial statements and other appropriate documents of DCPs such as a pricing policy document and loan performance reports. Secondary data collection template was used to collect necessary figures about performance of DCPs financially whereby data from financial statements was used to compute the ROE. The secondary data collection template was ideal for the study since it could collect and group data for each variable, which helped in computation of the different Key Performance Indicators (KPIs). Researcher also used secondary data which was extracted from CBK's biannual supervision reports from 2017 to 2022. The researcher collected data for six years that is from 2017 to 2022. The justification for this period was that according to CBK the DCPs reap huge profits at the expense of the borrowers that is portrayed by the number of number of borrowers blacklisted by CRB, which has increased from 1 million people in 2017 to 6.5 million people in 2022 and the number of NPLs has increased from 2 million loans to 14.5 million loans over the same period (CBK, 2022). Data such as loan APR and average borrowers limit was obtained from the pricing policy document of DCPs while

performance of issued loans was obtained from loan performance reports of the DCPs. Data was amassed through use of secondary data collection template.

3.7 Data Collection Procedure

Researcher got authorisation from graduate school and school of business at Kenyatta University permission to collect data. Researcher also acquired necessary research permit from NACOSTI. Authorisation letter along with the research permit was availed to the 20 DCPs in Nairobi County and CBK to enable the researcher collect data from 2018 to 2022. Researcher used secondary data amassing template to amass data about CBK digital credit regulations and performance of DCPs financially. It took the researcher 5 days to collect the data. A transmittal letter that warrants data collection was addressed to DCPs and CBK. After getting approval from CBK the data was collected from organisation's website. DCPs were requested to email the secondary data where it was possible. For those DCPs that could not email the data appointments were booked with the management to collect it. For DCPs that are public companies the data was obtained from their websites.

3.8 Data Analysis and Presentation

Quantitative data that was amassed has been expounded using tables and the statistical operations were conducted through use of descriptive and inferential statistics while the multiple regressions was analysed through use of SPSS version 22. Inferential analysis was conducted through regression methods based on 95% confidence interval that was 5 on percent significance level. Therefore, the null hypothesis of the study was based on 5 percent significance level. The single regression analysis outlined in section 4.3 entails five years from 2018 to 2022 to analyse the effect of CBK's digital regulations on performance of DCPs financially in Nairobi City County.

3.9 Diagnostic Tests

Diagnostic tests were conducted on study parameters so as to improve accuracy of the research work by ensuring that the objectives are met. They entail multicollinearity, model specification test, autocorrelation test, & others.

3.9.1 Multicollinearity Test

Multicollinearity test was conducted on independent variables to ascertain their similarities. It transpires when more than 1 variable, which is autonomous in a certain model of regression are linearly related. It also ascertains if independent study parameters have a linear relationship with dependent. This is because regression operations can only be conducted if there is linear relationship among independent & dependent variable. To single out multicollinearity Variance Inflation Factors (VIF) indicator is used (Dauodi, 2019).

3.9.2 Normality Test

Normality test was conducted to ascertain whether data that was collected in the study had a normal distribution. This is majorly because without a normal distribution the study could not have produced reliable and accurate results. The normality test was conducted using Shapiro-Wilk test that recommended for samples between $50<n>2000$ whereby data is considered to be normally distributed if the Shapiro-Wilk p value is > 0.05 (Field, 2019).

3.9.3 Heteroscedasticity Test

Breusch-Pagan test was used to ascertain if there was Heteroscedasticity in model of regression. It measures whether errors arising from regression are constant over values or data of independent variables.

3.9.4 Stationarity Test

Obviously, an analysis of research data without considering panel nature of the data can create a biasness of the research results. Therefore, the study adopted Levin-Lin-Chu unit root test that was necessary in assessment of the panel nature of the research data.

3.9.5 Autocorrelation Test

Information in the form of time series usually portrays autocorrelation also known as serial disturbance correlation over a certain time frame. However, serial correlation has certain weaknesses in linear panel data models because it makes the estimated coefficient of regression to be consistent but inefficient. The study adopted Durbin –Watson test to ascertain if correlation existed. The test helped to ascertain if the each of the mistakes are related to certain observations.

3.9.6 Model Specification Test

So as to determine the appropriate model between random effect model and fixed effect model; study tested data basing on certain assumptions since fixed model shows that the variables that affect performance of DCPs financially vary with time but have a fixed effect over certain entities. Fixed model uses assumption that correlation exists between predictor variables and the error term (Drukker, 2019). Conversely, a random effect model simply implies that variation amongst the entities is randomised. The study conducted test to ascertain if data violated the supposition of the fixed effect model. The Hausman test was conducted so as to establish the appropriate model to adopt.

3.10 Ethical Consideration

Ethical consideration refers to the ethical issues that research must take into consideration while conducting a study such as informed consent of the participants, voluntary participation of the participants, confidentiality, and anonymity. A research authorisation letter was procured from Kenyatta University & a research permit from NACOSTI so that the participants ascertained that

the study was being conducted in an appropriate manner. Participants were also convinced beyond doubt that collected information was only used for academic endeavour. The researcher ensured there was confidentiality of information gathered in the study.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

In this project section that is chapter four; the analysis of collected data was conducted in accordance with the research objectives along with the hypothesis plus their interpretations. Just to expound, the chapter outlines the descriptive statistics, regression analysis, correlation analysis along with diagnostic tests and hypothesis testing. The scope of the chapter was to present the research findings & discussions in accordance with the objectives of the research.

4.2 Descriptive Statistics

Descriptive statistics was carried out to aid in clear and appropriate presentation of data in the form of standard deviations and averages through the use of SPSS Version 22. Study adopted the descriptive research design to ensure that specific objectives of research were met. Specific objectives, which the researcher wanted to attain were effect of CBK's Prudential regulations (pricing parameter, pricing principal, and credit information) on the financial performance of DCPs in Nairobi, Kenya. Secondary data amassing template was adopted to collect information about performance of DCPs financially whereby data from financial statements was used to compute the ROE. Researcher utilised secondary data which was extracted from CBK's biannual supervision reports of 2017 to 2022. Data such as loan APR and average borrowers limit was obtained from the pricing policy document of DCPs while performance of loans was obtained from loan performance reports of the DCPs. Descriptive statistics for all the variables are outlined in table 4.1. According to descriptive statistics below, number of observations per independent variable was 120 that is 20 observations on 20 DCPs in each year for the study period of 6 years (2017-2022).

Table 4.1 Descriptive Statistics

Descriptive Statistics

	No.	Minimum	Maximum	Average	Standard. Deviation
Pricing Parameter (Loan Charges/APR)	120	0	14.733	1.094096	2.0990695
Pricing Principle (Average Borrower's limit)	120	1000.0	20000	5623.000	6014.6094
Credit information	120	0.39	0.9980	0.741680	0.2118492
ROE		0.0345	39.00	2.289102	7.3123372
Valid N	360				

Source: Study data, (2022)

Pricing parameter had a mean of 1.094096. The mean was utilised to measure the central tendency of data for pricing parameter. Additionally, means were utilised to measure the central tendency of data. Pricing parameter as an independent variable has a significant mean that shows it has considerable influence on performance of DCPs financially. The results were in agreement with Barress, Foose, and Wright (2019), that had a mean of 1.417267 that was a significant mean proving that it had considerable influence on the financial performance of DCPs. Standard deviation of pricing parameter was 2.0990695. The data in table above asserts that standard deviation of pricing parameter was spread away from average.

Pricing principle had the highest mean of 5623. The mean was utilised to measure the central tendency of data for pricing principle. Additionally, pricing principle as an independent variable had a significant mean that shows it has considerable influence on performance of DCPs financially. This research results show that pricing principle had most effect on performance of DCP financially. The findings concurred with those of Masolo & Wanjohi (2021), whereby pricing principle regulation influenced positively the financial performance of DCPs by 115%

and had a mean 6,873, which was a high value that explains the considerable influence of the variable. The results also agree with Elizabeth (2020), which showed that pricing principle had highest impact on performance of DCPs financially since it had the highest mean of 4,826. Standard deviation of pricing parameter was 6014.6094. The data in table above asserts that standard deviation of pricing principle was spread away from average.

Credit information had average of 0.741680. The mean was utilised to measure the central tendency of data for credit information. Furthermore, credit information as an independent variable has a significant mean that shows it has considerable influence on performance of DCPs financially. The results concurred with those of Kaigu and Theuri (2019), which had a mean of 0.875412 that was quite significant to prove that credit information has considerable positive influence on performance of DCPs financially since the regulation reduces NPLs therefore increasing the profitability of the firms. However, the results do not agree with those of Ogada and Hammond (2020) that had a mean 0.034581, which was a low figure for a mean and therefore meant that credit information did not have considerable influence on the financial performance of DCPs. Standard deviation of credit information was 0.2118492. The data in table above asserts that standard deviation of credit information was spread away from average.

The table results also show that the mean of dependent variable that is performance of DCPs financially as measured by ROE was 2.289102. Furthermore, means were utilised to measure the central tendency of data. Obviously, as discussed above, all the three independent variables have significant means that shows they have considerable influence on performance of DCPs financially. Results of study concur with those of Putman Blackmon, and Mazer (2021), which showed that prudential regulations by CBK significantly affected performance of DCPs financially since the regulations helped to reduce the number of NPLs hence causing an

enhancement to the financial results of DCPs since they obtained a mean ROE 1.828012 that was highlighted in the literature review. Standard deviation of ROE was 7.3123372, which asserts that standard deviation of ROE was spread away from average. The results also agreed with those of Gubbins and Totolo (2019), which attested that CBK regulations enhanced performance of DCPs financially and also protected consumers from exploitation through usurious APRs. Conversely, the results differed with those of Francis, Blumenstock, and Robinson (2019), which showed that the DCP regulations by CBK did not significantly affect profitability of DCPs but by other variables such as ability to access digital loans without collateral that led to their rapid growth in Kenya between 2014 and 2020.

4.3 Diagnostic Tests

Six diagnostic tests were conducted in study as a component of regression analysis to ascertain extends of the research towards its attainment of the set objectives. The tests are outlined below.

4.3.1 Multicollinearity Test

Multicollinearity test was conducted on independent variables to ascertain their similarities. It transpires when more than 1 variable, which is autonomous in a certain model of regression are linearly related. It also ascertains if independent study parameters have a linear relationship with dependent. To single out multicollinearity Variance Inflation Factors (VIF) indicator was used (Dauodi, 2019).

Table 4.2 Multicollinearity Test Summary

Multicollinearity Test

	VIF	1/VIF
Pricing Parameter (Loan Charges/APR)	1.410	0.710
Pricing Principle (Average Borrower's limit)	1.040	0.962
Credit information (Loan performance)	1.023	0.978
Mean VIF	1.158	

Source: Study data, (2022)

A test was conducted where pricing parameter (loan charges/ APR) acted as the independent variable, which made it possible to measure multicollinearity level of it with other variables as outlined in the table above. The results of table 4.2 show that the VIF of pricing principle and credit information as autonomous variables was 1.410 when pricing parameter acted as the independent variable, which attests that there was very little correlation amongst the independent variables.

A test was conducted where pricing principle (borrower's limit) acted as the independent variable, which made it possible to measure multicollinearity level of it with other variables as outlined in the table above. The results of table 4.2 show that the VIF of pricing parameter and credit information as autonomous variables was 1.040 when pricing parameter acted as the independent variable, which attests that there was little to almost no correlation amongst the independent variables.

A test was conducted where credit information (performance of loans) acted as the independent variable, which made it possible to measure multicollinearity level of it with other variables as outlined in the table below. The results of table 4.2 show that the VIF of pricing parameter and pricing principle as autonomous variables was 1.023 when pricing parameter acted as the independent variable, which attests that there was no correlation amongst the independent variables.

In conclusion, multicollinearity test was conducted on independent variables to ascertain their similarities. It can exist when more than one variable, which are autonomous in a certain model of regression are linearly related. It also helps a researcher to ascertain if the autonomous variables have a linear relationship with its dependent. This is because analysis of regression can only be conducted if there is linear relationship between autonomous and its dependent variable. VIF was utilised to single out multicollinearity. To interpret VIF this rule was applied; if VIF = 1 not correlated, 1<VIF<5 moderately correlated while VIF>5 would mean highly correlated (Daoudi, 2019). The study findings as depicted in 4.2 above show that the value of VIFs for the independent variables was below 5. In accordance with Woolridge (2019), if the VIF value amongst two or more independent variables is below 5, then it is shows that there is no issue of multicollinearity. This meant that the independent variables in the study could be used without affecting the efficiency of the estimators in the regression model.

4.3.2 Normality Test

Normality test was conducted to ascertain whether data that was collected in the study had a normal distribution. The normality test was conducted using Shapiro-Wilk test that recommended for samples between 50<n>2000 whereby data is considered to be normally distributed if the Shapiro-Wilk p value is > 0.05 (Field, 2019).

Table 4.3 Normality Test

Shapiro-Wilk Test			
	Statistic	Df	Sig.
ROE	.961	42	0.168

Source: Study data, (2022)

The study adopted Shapiro-Wilk test for normality because it was the most appropriate for a small sample size of 20 DCPs. The results are outlined in the table above. The results in the table above indicate that the study data was normally distributed since ROE's significance value was 0.168, which was larger than 0.05.

4.3.3 Heteroscedasticity Test

Heteroscedasticity ascertains whether errors arising from model of regression are constant in accordance with values of autonomous variables. Therefore, null assumption applied was homoscedastic residuals which show that there is Heteroscedasticity.

Table 4.4 Heteroscedasticity Test: Breusch- Pagan Test

Return on Equity
$Chi^2(1) = 2.58$ Probability>Chi2 = 0.8603

Source: Study data, (2022)

Constant variance is depicted if the p-value is more than 0.05. Study results show a value of 0.8603 for ROE which allude to the fact that null hypothesis was thus not rejected. This proved that data did not have any issues of Heteroscedasticity as portrayed in the table above.

4.3.4 Stationarity Test

The study adopted Levin-Lin-Chu unit root test that was necessary in assessment of the panel nature of the research data. This is because an analysis of research data without considering panel nature of the data can create a biasness of the research results.

Table 4.5 Levin-Lin-Chu Test of Unit Root

Variable	Statistics	P-value
ROE	t = -87.6625	p <0.05
Pricing parameter	t = -8.4438	p < 0.05
Pricing principle	t = -5.9161	p < 0.05
Pricing parameter	t = -42.6696	p < 0.05
Credit information	t = -98.5478	p< 0.05

Source: Study data, (2022)

The test assumes that the null hypothesis contains unit roots whilst the panels of the alternative hypothesis are stationary. The study results in the table above show that all the variables that is Return On Equity (ROE), pricing parameter, pricing principle, and credit information have a p-value that is less than 0.05. This meant that the study had to reject the null hypothesis meaning that the panels were stationary and did not contain unit roots.

4.3.6 Autocorrelation Test

The study adopted Durbin –Watson test to ascertain if correlation existed. The test helped to ascertain if each of the mistakes were related to the separate observations. Durbin- Watson test showed in null hypothesis that no correlation was present.

Table 4.6 Durbin-Watson Test

ROE
H_0: no serial autocorrelation
d-statistic (8,67) = 0.870128

Source: Study data,(2022)

The study results show that the d-statistic of 0.870128 for ROE D-statistic value was > 0.05, which meant that there was an absence of serial correlation. Obviously, this was proof that errors for each observation had no correlation.

4.3.6 Model Specification Test (Hausman Test)

The model specification test was conducted through use of Hausman test in order to establish if there was an occurrence of random effects. Null hypothesis of the Hausman test operates on assumption that random effects enjoy autonomy over explanatory variables whilst alternative hypothesis assumes that the null hypothesis is invalid.

Table 4.7 Hausman Test

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	Random	Difference	S.E.
Pricing parameter	.6964711	-.4518053	.5091322	.5194125
Pricing principle	-.410978	.1458354	.1164425	
Credit information	.2145951	-.1027451	.9909574	.9904586
		-.1154389		

Chi2 (3) = (b-B) ' [(V_b-V) ^ (-1)] (b-B)

= 3.81

Prob>chi2 = 0.9830

Source: Study data, (2022)

The table 4.4 shows the study results of the Hausman test. Study findings depicted in the table above have p-values for the Hausman test as 0.9830, which means do not reject the null hypothesis since the p-value is > 0.05. Therefore, the study adopted the random estimator effect to assess the regression model.

4.4 Inferential Analysis

The inferential analysis comprises of the correlation analysis and regression analysis outlined below in section 4.4.1.

4.4.1 Correlation Analysis

Correlation analysis was carried out by the researcher to obtain Karl Pearson Correlation Coefficient between dependent & autonomous variables. Study interpreted correlation results by applying Huber linear relations whereby variables with a weak correlation range between 0.1-0.29, moderate range between 0.3- 0.49, and strong range between 0.5 – 0.9. Correlation analysis was performed at 95% confidence level. The correlation results for ROE are expounded in table 4.13.

Table 4.8 Correlation Coefficients for ROE

		Return on Equity	Pricing parameter	Pricing principle	Credit information
Return on Equity	Pearson Correlation Sig. (2-tailed)	1			
Pricing parameter	Pearson Correlation Sig. (2-tailed)	0.538* 0.000	1		
Pricing principle	Pearson Correlation Sig. (2-tailed)	0.195 0.000	174* 0.000	1	
Credit information	Pearson Correlation Sig. (2-tailed)	0.654 0.000	0.562 0.000	0.678* 0.000	1

Source: Study data,(2022)

Study results in the table 4.8 depict that pricing parameter was positively related and strongly linked to performance of DCPs financially in terms of ROE because it had r value of 0.538 & p-values of 0.000. Results show that pricing principle was significantly and positively related to performance of DCPs financially in terms of ROE. Pricing principle was positively related and moderately linked to performance of DCPs financially in terms of ROE because it had an r value of 0.195 and p-values of 0.000. This shows that pricing principle was significantly and positively related to performance of DCPs financially. Credit information was positively related and strongly linked to performance of DCPs financially in terms of ROE because it had r value of 0.654 and p-values of 0.000. It shows that credit information was significantly and positively related to performance of DCPs financially in terms of ROE. The study results concurred with those of Ogada and Hammond (2020), which showed that credit information regulation and pricing principle regulation were significantly and positively related to performance of DCPs financially because they had r values of 0.51 and 0.64 respectively plus their p-values were 0.00. The study results also agreed with that of Kaigu and Theuri (2019), which proved that pricing parameter and pricing principle were significantly and positively related to performance of DCPs financially because they had r values of 0.57 and 0.51 respectively.

4.4.2 Regression Analysis

Analysis of regression refers to a statistical modus operandi used to obtain the value of the predictor or dependent variable (Y) basing on independent that is X. Study applied a single linear regression analysis using SPSS Version 22. The independent variables pricing parameter, pricing principle, and credit information were regressed against the dependent CBK's prudential regulations.

Table 4.9 ROE Model Summary

Model Summary[b]					
Model	R	R^2	Adjusted R^2	Standard. Error (S.E) of the Estimate	
1	.780[a]	.608	.599	711.09004%	
a. Predictors: (Constant), Credit information (Loan performance), Pricing Parameter (Loan Charges/APR), Pricing Principle (Average Borrower's limit)					
b. Dependent Variable: Return on Equity/ ROE					

Source: Study data,(2022)

Study adopted ROE as the KPI of performance for a DCP in financial terms that was outlined above. Results in table 4.9 depict ROE as dependent variable. R value portrays correlation that was 0.780. This is proof of +ve correlation of 0.78 amongst ROE and pricing parameter, pricing principle, and credit information for the period of the study. The R square column outlines the ROE, which can be expounded by the independent variables (predictors) that is pricing parameter, pricing principle, and credit information that is 0.608. This outlines that there was a change of 60.8% in the performance of DCPs financially caused by effect of CBK prudential regulations on DCPs. This further show that 39.2% of the performance of DCPs can be outlined well using other factors that were not focus of this study such as predictive scoring model used by CRBs, macro-environmental factors, customer's willingness to pay, customers who cannot access conventional loans (solely rely on DCPs as their only source of credit), inflation amongst many others. The results of the study concur with those of Busara (2021), which showed that regulations by CBK significantly affected performance of DCPs financially by 42%. The study results also concurred with that that of Elizabeth (2020) that showed that CBK regulations affected performance of digital credit products in financial terms offered by commercial banks by 36%.

Table 4.10 Analysis of Variance (ANOVA) For ROE

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4393265.003	3	1464421.668	2.896	.000[b]
	Residual	48542308.264	96	505649.044		
	Total	52935573.267	99			
a. Dependent Variable: ROE						
b. Predictors: (Constant), Credit information (Loan performance), Pricing Parameter (Loan Charges/APR), Pricing Principle (Average Borrower's limit)						

Source: Study data, (2022)

Table 4.10 outlines results of ANOVA, which portray how well data fits equation of regression since level of significance was 0.000 which was an indication that the model fits well. Furthermore, the model was statistically relevant since it was below 0.05. The results of the study concurred with those of Busara (2021), which showed that regulations by CBK significantly affected performance of DCPs financially since its data had a good fit on the regression line with a significance of 0.002 and it was statistically relevant since it was below 0.05.The results disagreed with those of Putman Blackmon, and Mazer (2021) whose data did not fit the regression model and the model was not statistically relevant, which made it to conclude that performance of DCPs financially was affected by factors that were not the regulations by CBK such as access to loans without collateral, competition inflation, and others.

Table 4. 11 Coefficients Table for ROE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Standard. Error	Beta		
1	(Constant)	494.132	285.003		-1.734	.004
	Pricing Parameter (Loan Charges/APR)	1.020	.348	.161	-.057	.37
	Pricing Principle (Average Borrower's limit)	4.002	1.014	.274	.109	.42
	Credit information (Loan performance)	9.661	4.045	.280	.389	.51

a. Dependent Variable: ROE

Source: Study data,(2022)

Table 4. 11 displays proof of how model can forecast ROE that was basing on pricing parameter, pricing principle, and credit information to show whether the autonomous variables contributed greatly to the model. Values of beta show that pricing parameter, pricing principle and credit information had a positive effect on performance of DCPs financially. The study results agreed with those of Busara (2021) where all beta coefficients of the ROE model were positive, which shows that the CBK regulations influenced performance of DCPs financially. Study results disagree with those of Putman Blackmon, and Mazer (2021) since the beta values of its ROE model were negative, which shows that the regulations impacted performance of DCPs financially in a negative manner.

The final model summary for ROE was derived below.

Y= 494.132+1.02X1+4.002X2+9.661X3

Where:

Y= ROE

X1= pricing parameter (loan Annual Percentage Rate)

X2= pricing principle (average borrowers' limit)

X3= credit information (performance of issued loans)

Regression function was derived from the unstandardized beta coefficients from table above, which outlined the unit contribution of each autonomous variable to the dependent variable ROE. Study findings depicted that if other predictor variables were held constant, unit rise in pricing parameter will increase performance of DCPs by 1.02 financially, unit increase in pricing principle will increase performance by 4.002, and a unit increase in credit information (loan performance) will increase performance in financial terms by 9.661. Evidently, the results in the table above showed that the 3 predictors influenced performance of DCPs financially when measured by ROE. Results also proved that significance of performance components in terms of finances as shown by the P-values in the table above.

4.4.2.1 Pricing Parameter and ROE of Digital Credit Providers

The study analysed the effect of pricing parameter regulation on performance of DCPs financially, which was amongst the specific objectives of the study. Pricing parameter had a regression coefficient of 1.02 in the ROE regression, which shows that a unit increase in pricing parameter would cause an increase in ROE by 102%. The findings prove that pricing parameter had a +ve impact on performance of DCPs financially. The results also agreed with Francis,

Blumenstock, and Robinson (2019), whose results showed that pricing parameter influenced positively performance of DCPs financially by 50% in terms of ROE. Lastly, the results agreed with those of Putman, Blackmon, and Mazer (2021), whose results showed that parameter had a +ve impact on performance of DCPs financially in terms of ROE by 100% because it had a regression coefficient of 1.00.

4.4.2.2 Pricing Principle and ROE of Digital Credit Providers

The study analysed the effect of pricing principle regulation on performance of DCPs financially, which was amongst the specific objectives of the study. Pricing principle had a regression coefficient of 4.002 in the ROE regression, which shows that a unit increase in pricing parameter would cause an increase in ROE by 400.2%. The findings proved that pricing parameter had a +ve impact on performance of DCPs financially. The results concurred with those of Masolo & Wanjohi (2021), whereby pricing parameter influenced performance of DCPs financially by 134% in terms of ROE. Conversely, the study results disagreed with Elizabeth (2020), whose results showed that pricing parameter variable influenced negatively performance of DCPs because of the high rate of NPLs by 46% in terms of ROE. The results differed with those of Wathome (2020), whose results showed that pricing principle had a -ve impact on performance of DCPs financially in terms of ROE by -39% because it had a regression coefficient of -0.39.

4.4.2.1 Credit Information and ROE of Digital Credit Providers

The study analysed the effect of credit information regulation on performance of DCPs financially, which was the third specific objectives of the study. Credit information had a regression coefficient of 9.661 in the ROE regression, which shows that a unit increase in pricing parameter would cause an increase in ROE by 966.1%. The findings prove that pricing parameter had a +ve impact on performance of DCPs financially. Credit information variable had the

highest impact on performance of DCPs financially because it helped DCPs reduce NPLs, which increased their profitability. The results concurred with those of Kaigu & Theuri (2021), whereby pricing parameter influenced performance of DCPs financially by 556% in terms of ROE. Conversely, the study results disagreed with Elizabeth Gubons and Tottolo (2019), whose results showed that pricing parameter variable influenced negatively performance of DCPs because of the high rate of NPLs by 28% in terms of ROE. The study results also differed with those of Ogada and Hammond (2020), whose results showed that pricing principle had a -ve impact on performance of DCPs financially in terms of ROE by -42% because it had a regression coefficient of -0.42.

4.5 Hypothesis Testing

Hypothesis testing was conducted through carrying out regression analysis, which was outlined in Section 4.4.2 and entails model summary, ANOVA, and coefficients of explanatory variables. The study results have been presented in table 4.9, 4.10 and 4.11. The study focused on correlation coefficients for ROE outlined in table 4.14.

4.4.1 H_{01}: Pricing parameter regulation has no significant effect on the financial performance of digital credit providers in Nairobi City County, Kenya.

The first hypothesis of this study was tested through use of regression analysis where it was determined by applying the p-value. The H_{01} of study related to the first objective of the study, which was to determine effects of pricing parameter regulation on performance of DCPs financially in Nairobi. The deciding factor for rejecting the null hypothesis was to reject it if the p-value was <0.05. The results from table 4.9 depicted that the p-value for pricing parameter was p=0.37 which was greater than 0.05 hence the null hypothesis was accepted because it was within the acceptance region. The findings concur with Barres, Foose, and Wright (2019) who established relationship between pricing parameter

and performance of DCPs financially in terms of ROE whereby pricing parameter had a statistical significance on the performance of DCPs financially.

4.4.2 H_{02}: Pricing principle regulation has no significant effect on the financial performance of digital credit providers in Nairobi City County, Kenya.

The 2nd hypothesis of this study was tested through use of regression analysis where it was determined by applying the p-value. The H_{02} of study related to the 2nd objective of the study, which was to determine effects of pricing principle regulation on performance of DCPs financially in Nairobi. The deciding factor for rejecting the null hypothesis was to reject it if the p-value was <0.05. The results from table 4.10 depicted that the p-value for pricing principle was p=0.42 which was greater than 0.05 hence the null hypothesis was accepted because it was within the acceptance region. The alternate hypothesis was meant to accept that CBK regulations have a significant effect on performance of DCPs financially. The findings concurred with Masolo & Wanjohi (2021) who established relationship between pricing principle and performance of DCPs financially in terms of ROE whereby pricing principle had a significant effect on the financial performance of DCPs.

4.4.3 H_{03}: Credit information regulation has no significant effect on the financial performance of digital credit providers in Nairobi City County, Kenya.

The 3rd hypothesis of the study was tested through use of regression analysis where it was determined by applying the p-value. The H_{03} of study related to the 3rd objective of the study, which was to determine effects of credit information regulation on performance of DCPs financially in Nairobi. The deciding factor for rejecting the null hypothesis was to reject it if the p-value is <0.05. The results from table 4.11 depicted that the p-value for credit information was p=0.51 which was greater than 0.05 hence the null hypothesis was

accepted because it was within the acceptance region. The alternate hypothesis was meant to accept that CBK regulations have a significant effect on performance of DCPs in financial terms. The findings concur with Ogada and Hammond (2020) who established relationship between credit information and performance of DCPs financially in terms of ROE whereby pricing principle had a significant effect on performance of DCPs financially.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMENDATIONS

5.1 Introduction

Chapter 5 provides a summary of entire study. Objectives of the study along with the research hypothesis were used as the units of analysis in the research. Data was analysed & interpreted appropriately & findings were compared with theoretical literature and empirical evidence available to establish certain inferences so as to draw informed conclusions that were backed by research data. The scope of the chapter was to present the study's summary, conclusions, & recommendations in accordance with the objectives of the study. The derived conclusions related to the objectives of the study.

5.2 Summary

The study applied secondary data that was collected through a secondary data collection template. The research adopted descriptive research design and a census sampling design was applied since all the licensed DCPs were involved. The analysis was conducted through SPSS Version 22 where the findings were derived from. The study adopted ROE as the sole measure of performance of DCPs financially from which a regression model was created. General; objective of the study was to establish effect of CBK regulations on performance of DCPs financially in Nairobi City County. Study also sought after establishing the effect of; CBK's pricing parameter regulation on performance of DCPs financially in Nairobi, CBK's pricing principle regulation on performance of DCPs financially in Nairobi, and CBK's credit information regulation on performance of DCPs financially in Nairobi. Target population was all the 20 DCPs licensed by CBK as at 30th September 2022 that were operational from 2017 to 2022.

5.2.1 Pricing Parameter

First objective of research work was to ascertain effect of pricing parameter regulation on the performance of DCPs financially in Nairobi City. The correlation results established that pricing parameter regulation & financial performance of DCPs in terms of ROE because it had r value of 0.538 Regression of coefficients results established that pricing parameter regulation and performance of DCPs financially were significantly related. Additionally, the study applied hypothesis testing, which established that the CBK's pricing parameter regulation had a significant effect on performance of DCPs financially in Nairobi City County.

5.2.2 Pricing Principle

The 2nd objective was to establish the effect of CBK's pricing principle regulation on the financial performance of DCPs in Nairobi City County. Correlation results established that pricing parameter regulation and financial performance of DCPs in terms of ROE were positively and significantly related. Regression of coefficients results established that pricing parameter regulation and financial performance of DCPs were significantly related because it had an r value of 0.195. Furthermore, the study applied hypothesis testing, which established that the CBK's pricing parameter regulation has a significant effect on performance of DCPs financially in Nairobi City County.

5.2.3 Credit Information

The last objective of the study was to establish the effect of CBK's credit information regulation on performance of DCPs financially in Nairobi City County. The correlation results established that credit information regulation and financial performance of DCPs in terms of ROE were positively and significantly related ROE because it had r value of 0.654. Regression of coefficients results established that pricing parameter regulation and performance of DCPs financially were significantly related. Furthermore, the study applied hypothesis testing, which

established that indeed the CBK's pricing parameter regulation had a significant effect on performance of DCPs financially in Nairobi City County.

5.3 Conclusion

With regards to the general objective of the study, which was to ascertain the effect of CBK' prudential regulations on performance of DCPs financially in Nairobi City County. It was concluded that prudential regulations of CBK had a +ve effect on performance of DCPs financially. This was showed by ROE model analysis; whereby the prudential regulations influenced performance of DCPs financially by 60.8% in the ROE model.

With the regards to the 1st specific objective of the study, which was to ascertain the effect of CBK's pricing parameter regulation n performance of DCP's financially in Nairobi City County. It was concluded that pricing parameter had a regression coefficient of 1.02 in the ROE regression, which shows that a unit increase in pricing parameter would cause an increase in ROE by 102%, which proves that pricing parameter had a +ve impact on performance of DCPs financially.

With the regards to the 2nd specific objective of the study, which was to ascertain the effect of CBK's pricing principle regulation n performance of DCP's financially in Nairobi City County. It was concluded that pricing principle had a regression coefficient of 4.002 in the ROE regression, which shows that a unit increase in pricing parameter would cause an increase in ROE by 400.2%, which proves that pricing parameter had a +ve impact on performance of DCPs financially.

With the regards to the 3rd specific objective of the study, which was to ascertain the effect of CBK's credit information regulation n performance of DCP's financially in Nairobi City County. It was concluded that pricing principle had a regression coefficient of 9.661 in the ROE regression, which showed that a unit increase in pricing parameter would cause an increase in

ROE by 966.1%, which proved that pricing parameter had a +ve impact on performance of DCPs financially. This was because CBK uses a CRB system that focuses on credit scoring, which means that borrowers can access multiple loans at the same time or use one loan to pay offset another one. Therefore, DCP's had been able to issue more loans to their borrower, which had increased their loan book and eventually enhancing their performance financially.

5.4 Recommendations

The study findings are of great significance to various stakeholders in the digital credit sector that is DCPs, CBK, borrowers, academicians, governments and other regulatory authorities. In accordance with the objectives of the study which was to determine the effect of CBK regulations on performance of DCPs financially in Nairobi City County; the following recommendations were made below.

The study recommended that CBK needs to cap the APR charged by DCPs at a certain level to protect borrowers from usurious APR that were above 100% per annum. The recommendation was based on the study findings, which showed that pricing parameter regulation had a positive impact on performance of DCPs financially by a smaller margin as portrayed by model analysis of ROE. The collected data showed that some DCPs charge interest rates of up to 30% per week, which was expensive for the borrowers since it pushes them into deeper poverty traps and erodes the purpose of financial inclusivity attained through digital credit.

The study also recommended that the CBK can enhance their pricing principle regulation by incorporating the risk-based model into it so that DCPs can use it to assess borrower's limit. This was because DCPs were using the predictive scoring model to assess credit limit that focused on their willingness to pay instead of capacity to pay. This was portrayed by the average borrowers' limit that has increased to Ksh 5000 up from Ksh 2300 before the enactment of CBK regulations for DCPs according to the research data. This can help to protect borrowers from accessing loans

that are beyond their capacity to pay and also protect them from over borrower indebtedness. The study recommended to the DCPs to adopt a borrower's loan review model that focuses on a risk-based lending whereby the customers are charged interest rates according to their level of riskiness. This can help them to increase their revenues and reduce their non-performing loans, which is a strategy that is commonly practised by banks in Kenya.

Finally, the study recommended to the academicians to adopt ROE as the appropriate measure for performance of DCPs financially. The justification for using ROE was that it can measure net profit to investment attained in a certain division of a firm since most of the DCPs are divisions for certain firms such as banks, MNOs, and Fintechs. The other reason was that ROE brings about goal congruence between different divisions and the entire firm whereby any increase in divisional ROE brings enhancement in the overall ROE and vice versa. Conversely, ROA measures how well a firm utilises its assets, which in this case it assessed how DCPs utilise their loan assets but fails to capture the aspect of goal congruence within a firm. Therefore, ROE was the ideal measure over ROA because of its ability to capture goal congruence aspect within a firm and it also matches the conventional accounting rules, which means information obtained from financial statements of DCPs was used to accurately compute ROE.

5.5 Contributions to Knowledge

The study contributed to the body of knowledge by conducting comprehensive research about the prudential regulations of CBK that encompasses all the variables that affect performance of DCPs financially. Most of the previous studies conducted on the prudential regulations of CBK with regards to performance of DCPs financially focused only one of the variables. Hence, they were not able to give a comprehensive analysis and conclusion about the subject matter. The study also applied secondary data that was collected from DCPs and CBK, which made it to

provide reliable & credible findings that DCPs & CBK can apply to enhance their policy, practice, and governance.

5.6 Suggestion for Further Research

Obviously, the study has contributed to the existing body of knowledge in digital credit and also it has created a basis for future studies. The study variables were pricing parameter regulation, pricing principle regulation, and credit information regulation which affected performance of DCPs financially in terms of ROE by 60.8% respectively as portrayed by analysis of the ROE model. Further research can be conducted to determine the factors that explain the remaining 39.2% respectively for ROE such as predictive scoring model used by CRBs, customer's willingness to pay, customers who cannot access conventional loans (solely rely on DCPs as their only source of credit), inflation amongst many others. Another study can be carried out to determine how the behavioural economics of borrowers affect the performance of DCPs.

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APPENDIX I: SECONDARY DATA COLLECTION TEMPLATE

The template below was created by the researcher to enable him collect data regarding the financial performance of DCPs in Nairobi City County, Kenya for the last six financial years.

Financial Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Loan Annual Percentage Rate						
Average Borrowers' Limit						
Average Borrowers' income						
Pricing principle rate						
Total Issued Loans						
Performing Loans						
Loan performing rate						
Earnings Before Interest and Taxes (EBIT)						
Total assets						
ROA						
Profit After Taxes						
Total Equity						
ROE= Net income/shareholder's equity: net income						
Shareholder Equity						

APPENDIX II: LIST OF DIGITAL CREDIT PROVIDERS LICENSED BY CBK

1. Okolea
2. Branch
3. Finance Plan
4. Kuwazo
5. L-Pesa
6. Sotiwa
7. Stawika
8. Tala
9. Branch
10. Pesa Zone
11. Asante Services Financial Group
12. Uba Pesa Limited
13. Eazy Loan by Equitel
14. Timiza by Absa
15. M-Coop Cash
16. M-Shwari
17. KCB M-Pesa
18. Fuliza
19. HF Whizz
20. Loop Loan by NCBA and Stawi Loan by NCBA

Source 1: DLAK website: https://www.dlak.co.ke/

Source 2: CBK Website: https://www.centralbank.go.ke/wp-content/uploads/2022/09/Directory-of-Licensed-Digital-Credit-Providers.pdf

APPENDIX III: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 650850

Date of Issue: 17th October 2022

RESEARCH LICENSE

This is to Certify that Mr. KUYA JEREMIAH OBOTE of Kenyatta University, has been licensed to conduct research in ..... Nairobi on the topic: "

CENTRAL BANK OF KENYA REGULATIONS AND FINANCIAL PERFORMANCE OF DIGITAL CREDIT PROVIDERS IN NAIROBI CITY COUNTY for period ending 17/October/ 2023.

License No: NACOSTI/P/21/9498

650850

Applicant Identification Number

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 IV: GRADUATE SCHOOL RESEARCH AUTHORIZATION LETTER

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: D53/CTY/PT/39346/2016

DATE: 26th September, 2022

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR KUYA JEREMIAH OBOTE – REG. NO. D53/CTY/PT/39346/2016.

I write to introduce Kuya Jeremiah Obote who is a Postgraduate Student of this University. The student is registered for M.B.A degree programme in the Department of Accounting and Finance.

Kuya intends to conduct research for a M.B.A Project Proposal entitled, **"Central Bank of Kenya Regulations and the Financial Performance of Digital Credit Providers in Nairobi City County"**.

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
DEAN, GRADUATE SCHOOL

AM/lm