

**EFFECT OF COVID-19 PANDEMIC ON FINANCIAL
PERFORMANCE OF THE DEPOSIT-TAKING MICROFINANCE
INSTITUTIONS IN KENYA**

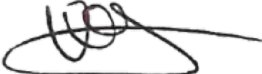
VIRGINIA NJERI MWANGI

**A RESEARCH PROJECT SUBMITTED TO THE UNIVERSITY OF
NAIROBI, FACULTY OF BUSINESS AND MANAGEMENT
SCIENCES, FOR THE AWARD OF DEGREE OF MASTER OF
BUSINESS ADMINISTRATION IN FINANCE**

OCTOBER 2022

DECLARATION


This research project is my original work and to the best of my knowledge has not been presented to any university for the award of a degree.

Signature  _____ Date 23 October 2022

VIRGINIA NJERI MWANGI

D61/11073/2018

This research project has been submitted with my approval as university:

Signature  _____ Date 23 October 2022

PROF. CYRUS IRAYA

DEPARTMENT OF FINANCE AND ACCOUNTING

ACKNOWLEDGEMENT

Sincere acknowledgement to my supervisor, Prof. Cyrus Iraya, for his advisory in my project. I also acknowledge the lectures and other staff within the University of Nairobi for the knowledge imparted and the support offered throughout the entire learning and research exercise. I also appreciate my fellow students at the University of Nairobi, finance, for sharing their knowledge with me. Appreciation also goes to my parents and friends for encouraging and motivating all through.

DEDICATION

I dedicate this project to my son, Renson Mwangi, and parents, Mr and Mrs Mwangi.

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xi
ABSTRACT.....	xii
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background To The Study.....	1
1.1.1 COVID-19 Pandemic.....	2
1.1.2 Financial Performance	3
1.1.3 COVID-19 and Financial Performance	4
1.1.4 Deposit-Taking Microfinance Institutions in Kenya	5
1.2 Research Problem	6
1.3 Research Objective	8
1.4 Value of The Study	8
CHAPTER TWO: LITERATURE REVIEW.....	9
2.1 Introduction.....	9

2.2 Theoretical Review	9
2.2.1 Real Options Theory	9
2.2.2 Diffusion of Innovation Theory	10
2.2.3 Crisis Management Theory	12
2.3 Determinants of Financial Performance of Deposit-Taking Microfinance Institutions	13
2.3.1 Firm Size	13
2.3.2 Capital Adequacy	14
2.3.3 Asset Quality	15
2.3.4 Liquidity	16
2.4 Empirical Studies	17
2.4.1 Global Studies	17
2.4.2 Local Studies	20
2.5 Conceptual Framework	22
2.6 Summary of Literature Review	23
CHAPTER THREE: RESEARCH METHODOLOGY	24
3.1 Introduction	24
3.2 Research Design	24
3.3 Population	24
3.4 Data Collection	25

3.5 Data Analysis	25
3.5.1 Diagnostic Tests	25
3.5.2 Analytical Model	27
3.5.3 Significance Tests	28
CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS ..	29
4.1 Introduction.....	29
4.2 Descriptive Statistics.....	29
4.3 Diagnostic Tests.....	30
4.4 Regression analysis.....	33
4.5 Discussion of Findings.....	35
CHAPTER FIVE	37
SUMMARY, CONCLUSION AND RECOMMENDATIONS	37
5.1 Introduction.....	37
5.2 Summary of Findings.....	37
5.3 Conclusions.....	39
5.4 Policy Recommendations	41
5.5 Limitations of The Study	42
5.6 Recommendations for Future Studies.....	43
REFERENCES.....	44

APPENDICES	56
Appendix I: List of Deposit-taking financial institutions in Kenya (2018-2021).....	56
Appendix II: Research Permit.....	57
Appendix III: Data Collection Sheet	58
Appendix IV: Data.....	61

LIST OF TABLES

Table 4.1: Descriptive Statistics	29
Table 4.2: Normality Test.....	30
Table 4.3: Heteroscedasticity Test.....	31
Table 4.4: Multicollinearity Test	31
Table 4.5: Model Specification Test.....	32
Table 4.6: Regression Analysis.....	33

LIST OF FIGURES

Figure 2.1: Conceptual Framework	23
--	----

LIST OF ABBREVIATIONS

AMFI	Association of Microfinance Association
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
COVID-19	Coronavirus Disease
DTMFIS	Deposit-Taking Microfinance Institutions
EBIT	Earnings Before Interest and Tax
MFI s	Microfinance Institutions
MSE s	Micro and Small Enterprises
NPL	Non-Performing Loans
ROA	Return On Assets
ROE	Return On Equity
ROI	Return On Investment
ROIC	Return On Invested Capital
SARS	Severe Acute Respiratory Syndrome
UNICEF	United Nations International Children's Emergency Fund
VIF	Variance Inflation Factor

ABSTRACT

This particular research wanted to determine effect of COVID-19 pandemic on financial performance of deposit-taking microfinance institutions in Kenya. It was anchored the on real options, diffusion of innovation, and Crisis management theories. The research adopted a descriptive research design. The research targeted thirteen (13) deposit-taking microfinance institutions in Kenya between July 2018 and December 2021. The research used quarterly secondary data for seven quarters before COVID-19 (July 2018 to March 2020) and seven during COVID-19 (April 2020 to December 2021). Data was sourced from firm financial reports sourced from the Central Bank of Kenya. The data was collected using a data collection sheet. STATA 14 was deployed to generate descriptive and inferential statistics for analysis. The research deployed a logit regression model. The descriptive statistics exhibited a negative average return on assets between July 2018 and December 2021. Thus, the research concludes that deposit-taking microfinance institutions in Kenya are making losses, as shown by negative return on assets. The research found that 64.86% of the change in financial performance was due to changes in the COVID-19 pandemic, capital adequacy, asset quality, firm size and liquidity. This study concludes that the COVID-19 pandemic, capital adequacy, asset quality, firm size and liquidity are the major factors influencing financial performance of deposit-taking microfinance institutions in Kenya. From the regression analysis, the COVID-19 pandemic does not affect financial performance of deposit-taking microfinance institutions in Kenya. Deposit-taking microfinance institutions had low capital adequacy. Regression analysis exhibited that capital adequacy possessed significant direct regression coefficient against financial performance. This leads to the conclusion that capital adequacy directly affects financial performance of deposit-taking microfinance institutions in Kenya. The research concludes that deposit-taking microfinance institutions in Kenya have poor asset quality. Regression analysis exhibited that the NPL ratio as a measure of asset quality possessed negative and insignificant regression coefficient against financial performance. This leads to the conclusion that asset quality does not affect financial performance of deposit-taking microfinance institutions in Kenya. The regression analysis findings exhibited that firm size possessed significant direct regression coefficient with financial performance. Hence, we can conclude that firm size in terms of assets directly affects financial performance of deposit-taking microfinance institutions in Kenya. From the descriptive statistics, the selected firms exhibited a liquidity ratio of less than 1; hence, the deposit-taking microfinance institutions in Kenya have low levels of liquidity. From the regression analysis, liquidity exhibited a direct significant coefficient with financial performance. This leads to the conclusion that liquidity directly affects financial performance of deposit-taking microfinance institutions in Kenya. This indicates that if the deposit-taking microfinance institutions in Kenya increase their liquidity levels, they will experience increased financial performance levels in terms of increased return on assets. The research recommends that deposit-taking microfinance institutions in Kenya increase the quality of their assets, capital adequacy, firm size, and liquidity to enhance their financial performance. The research also recommends further research based on other variables, primary data, a longer period, and annual and semi-annual data.

CHAPTER ONE: INTRODUCTION

1.1 Background To The Study

With the outbreak and spread of the COVID-19 pandemic, organizations worldwide have had to reinvent their tactics and strategies to align to the changing market needs (Yin, Zhang & Dong, 2020) hence remaining in operations and making a profit. Since its detection in China (Wuhan area) in 2019, the virus has spread worldwide, with several variations and mutations being discovered on different continents. The World Health Organization reported that over two million people died, with 90 million people being infected at the end of 2020 (Lfiti & Hichri, 2021). Countries worldwide suffered massive social, economic, and political impacts, and governments worldwide have tried to move with speed to mitigate these negative effects through varied economic and social interventions. The growing information uncertainty regarding the virus has been reflected in financial and banking transactions and the corresponding relationships with consumers, according to Yin et al. (2020).

This research was based on the real options theory, diffusion of innovation and Crisis management theory. Real options theory notes that managers defer investment when uncertainties rise due to pandemics. On the other hand, the premise upon which the diffusion of innovation theory is based is that the development and adoption of novel ideas and behaviours do not occur simultaneously. In the aftermath of the pandemic, it has become fundamental that microfinance institutions reinvent or remodel their systems and processes to remain in business, increase their profitability, and succeed in the market.

According to crisis management, monitoring the employee's performance frequently aids executives to forecast crisis and warn staffs against the negative ramifications.

The microfinance sector in Kenya, especially deposit-taking firms, had to undergo radical changes to maintain competitiveness and provide services during the pandemic period. Through central bank directives and other fiscal management tactics, deposit-taking microfinance institutions (DTMFIs) have redesigned their operations by reducing interests in loans (in the short run), deferring payments, and creating long lines of credit that businesses can benefit and use to continue operations. Kenyan deposit-taking microfinance institutions have been experiencing declining performance in previous years. Companies experienced a dip in financial performance in 2020 compared to previous years. The institutions have also banked on establishing necessary procedures to counter effects of the COVID-19. The key question is whether COVID-19 led to the current state of the performance of deposit-taking microfinance institutions (DTMFIs).

1.1.1 COVID-19 Pandemic

UNICEF (2020) describes COVID-19 as an unique sickness that is brought on via that identical coronavirus genus as serious acute respiration symptoms (SARS). Despite the early incidences being less serious as observed in China, many nations have seen varying degrees of severity based on the victim's tolerance and the state-of-the-art medical centers. That virus is caught via exposure to contaminated pulmonary secretions, via contacts with affected persons, or via interaction with contaminated things, and it is now a serious hazard to the health of the majority of the population globally. The virus became classified as a pandemic of worldwide importance in March 2020 owing to disastrous impact, which has a global impact on daily life and economic activities.

Given that the pandemic has hit the majority of countries, Kenya included, its effects upon this country's economic activities have been profound. Knowing the patterns, realities, plus hazards associated with COVID-19 pandemic is crucial for Kenyan businesses who want to succeed in this new environment. To recapture the rhythm of existing business activities, financing organizations ought to understand what they can achieve with existence of COVID-19. Since the pandemic was centred on social distance, businesses had to come up with novel techniques to market their goods whilst maintaining this social distance, with digital commercial transactions becoming much more popular.

COVID-19 pandemic's consequences attracted a lot of attention globally, and various studies have just lately been launched in this area. To assess ramifications of COVID-19, there are primarily two methods currently employed. A few researchers, like those by Fernandes (2020) and Al-Awadhi et al. (2020), had used incidents to assess effect of COVID-19 on share price. Other researchers employed the method of counting the days when active cases were in the country to assess the parameter (Adenomon, Maijamaa & John, 2020). This research selected quarterly metric since the declaration of initial incidence to measure COVID-19. This is because the influence upon the majority of African countries is just a consequence of the viral controlling strategies considered.

1.1.2 Financial Performance

The operating actions in employing the assets of an organisation produce overall financial performance of overall organization, which is a reflection of state of overall organization at a given time. Financial performance utilizes business's capacity to effectively utilise assets to support its objectives (Taouab & Issor, 2019). Financial performance is characterised as indicator of how effectively a business uses its limited assets to generate

their optimum yield or productivity (Amalendu, 2012). It is exclusively focused on delivering the organisation's objective via effective leadership, solid administration, and renewed commitment to getting things done (Laforet & Li, 2005).

Looking at a business's financial performance might give investors insight into its general wellbeing (Ongore & Kusa, 2013). It's a snapshot of the company's health and management success, revealing the capability of the firm to handle challenges facing it. Its fundamental goal is to provide complete and up-to-date information to shareholders and stakeholders so that they may make informed decisions (Grzyl, Miszewska-Urbańska & Apollo, 2017). It can be used to compare aggregate industries or evaluate similar enterprises in the same industry.

Financial performance is gauged via financial and non-financial ratios. The financial ratios include returns on assets, returns on investments, net profit margin, and return on equity (Nataraja et al., 2018). Kim (2016) utilized returns on equity (ROE), returns on investments (ROI), returns on assets (ROA), and returns on invested capital (ROIC) to evaluate financial performance. Notwithstanding, Batchimeg (2017) adopted financial performance metrics of ROA and ROE. Financial performance is also measured using non-financial measures like the number of customers, conversion customer rate (Gan, Park & Suh, 2020), salary competitiveness ratio and internal promotion rate (Mihalciuc & Apetri, 2019). In this research, financial performance was assessed via ROA.

1.1.3 COVID-19 and Financial Performance

Banking firms are intrinsically susceptible to economic recessions, and these effects are worse when there is a rise in NPLSs, as per Leoni (2013). The pandemic breakout and dissemination are frequently linked to deposits volatility, particularly in poor countries.

Consequently, financial institutions tap into their savings and accounts when the financial assets, revenue sources, and clients diminish. As a result, they create large-scale withdrawals. In such a situation, small, fragile financial firms run the risk of failing or reporting significant losses (Lagoarde-Segot & Leoni, 2013).

Financial performance during the COVID-19 pandemic has produced divergent results in practical research. COVID-19 was shown to have a favourable impact on financial performance of financial institutions by Yusuf and Ichsan (2021). The COVID-19 pandemic reflected favourable impact on financial performance (Sutrisno, Panuntun, & Adristi, 2020). However, in 2021 Zaneta Prarthana et al. found that the COVID-19 pandemic negatively impacted financial performance. The findings aligned with those of Shen et al. (2020); and Ayeni and Adekunle's (2021), who displayed inverse linkage. Nevertheless, Candra et al. (2021) displayed insignificance in the linkage. Wardhani et al. (2021) in addition displayed no difference in the performance metrics.

1.1.4 Deposit-Taking Microfinance Institutions in Kenya

Microfinance envelopes microlending, microinsurance, and microsavings. It entails offering financial products to microbusinesses and impoverished families. Immediate deposits, loans, and savings, microsavings, and microinsurance (Christen & Rosenberg, 2000). The Microfinance Act of 2006 and the supportive DTMFIs regulations of 2008 have together made ready the institutional change in Kenya. Deposit-Taking Micro Financing Institutions (DTMFIs) are characterized as organisations whose significant business is to arrange microfinance administrations. Their point is to become sustainable and extend their microfinance services (Thrikawala, Locke & Reddy, 2013). In Kenya, there are fourteen (14) microfinance institutions (CBK, 2021).

COVID-19 pandemic has been found to have detrimental effects to Kenyan financial firms. The most affected firms would be DTMFIs due to their target market. The pandemic led to decreased disposable income among Kenyans especially the low-income earners who mainly rely on microfinance institutions for funding. Deposit-taking microfinance firms have also displayed poor financial performance in the last five years (CBK, 2021). This has been reflected in falling profit levels and increased number of DTMFIs reflecting losses in the last five years. The firms have also experienced a reduction in deposit levels despite the increased number of loan accounts in recent years. The question is whether the COVID-19 pandemic has been the reason why the DTMFIs in Kenya registered poor monetary performance.

1.2 Research Problem

The ongoing escalation of COVID-19 certainly posed major impact upon banking industry and the entire financial industry. The pandemic lately caused a downturn because various countries across the globe suffered an abrupt macroeconomic hardship towards the monetary sector internationally. Microfinance institutions are some of the important institutions which the pandemic affected. As a result, microfinance institutions globally face the difficulties of continually funding small businesses and less privileged groups of the economy despite falling economic activities while also managing rising risks (Dokulilova, Janda & Zetek, 2009).

Deposit-taking microfinance institutions have been experiencing financial performance challenges in the last five years (CBK, 2021). For example, in 2020, 53.8% of the deposit-taking microfinance institutions made losses within the year. This exhibits financial challenges within the deposit-taking microfinance institutions in Kenya. This has led to

some of the firms laying off workers and others selling private equity to stay afloat. For example, Century Microfinance bank limited sold its majority shareholding to Branch International Limited in 2022. There is a need for improved financial performance among the firms. The development in financial performance would increase contribution of microfinance segment to the economy, increasing the tax paid to the government (Korir, 2014). Improved financial performance would also enhance firms' growth, creating employment opportunities.

The studies reviewed in this research exhibits inconsistent results. Some studies show negative effects, with others showing negative or insignificant effect. This exhibits the need to look at COVID-19 in addition to financial performance locally to establish how the two relate. The local studies reviewed show that research gaps were in existence. Some studies have concentrated on diverse concepts other than COVID-19 and financial performance. For example, Talibong and Simiyu (2019) used financial soundness indicators, while Njue (2020) used liquidity management as the independent variable other than the COVID-19 pandemic. Orege (2020) used stock performance as the dependent other than financial performance. Ngumo, Collins and David (2020) looked at determinants of microfinance banks' financial performance, indicating conceptual gaps. The studies that adopted similar concepts as the current study were based in sectors dissimilar to the Microfinance sector. For example, Kaberia and Muathe (2021) in SMEs and Orege (2020) in firms listed Nairobi Securities Exchange (NSE). What is the ramifications of COVID-19 pandemic on financial performance of deposit-taking micro-finance institutions in Kenya?

1.3 Research Objective

To determine effect of COVID-19 pandemic on financial performance of deposit-taking microfinance institutions in Kenya.

1.4 Value of The Study

This research is of value in its offering to theory, policy, and practice. In its input to theory, it adds to theoretical postulations by supporting or refuting the assumptions of the various theories. Studies will also add to literature on COVID-19 and organisations' financial performance. Scholars may use such in their academic assignments. The literature may show research gaps that may form the basis for further research.

The research may also contribute to policy. The research outlines effect of COVID-19 on financial performance of DTMFIs in Kenya. Understanding how COVID-19 influences financial performance would enable the policymakers to come up with policies that would enable Kenyan DTMFIs to experience improved financial performance in the era of COVID-19. The policymakers comprise but are not restricted to CBK and the Ministry of Trade.

The research will contribute to practice. This study will create an understanding of how COVID-19 influences financial performance. This would enable the management of DTMFIs in Kenya to develop strategies that would enable them to reduce negative effects of COVID-19 and enhance their firms' financial performance. The management of the DTMFIs may also adopt the recommendations given in this study to enhance their firm's financial performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter contained the literatures reviewed in relation to topic of investigation and as anchored on empirical and theoretical angle. The section also addressed the determinants of financial performance among DTMFIs. The variables were also conceptualized in this chapter. The researcher also gave a precis of the referenced in this chapter

2.2 Theoretical Review

This segment examines theories that are the foundation of this research. The chapter discusses these theories and draws their relationships to the study variables. The study was based on real options, diffusion of innovation and the crisis management theories.

2.2.1 Real Options Theory

Real Options theory, a contemporary hypothesis on choosing investing in the face of uncertainty, was put forth by Myers in 1987. The concept compares how financial alternatives are valued to how its real economy is valued (Song, Makhija & Kim, 2015). Even yet, throughout an epidemic resembling COVID-19, these alternatives remain constrained. Under the real options hypothesis, businesses can decide whenever to reinvest and that any proposed project is akin to an alternative because it gives them the chance, but no compulsion, to support or reject the initiative.

Insofar as alternatives produce a definite amount of beneficial versatility in capital investments, rational monetary choices are the foundation of real options concept. A company can choose the optimum location and timing for a capital expenditure whether it

has monetary options. The theory has been criticized based on the assertion that, in contrast toward options on financial instruments or products, it relates to "correct, and not the responsibility, to pursue multiple lines of actions in regard to actual resources." (Lambrecht, 2017). This may not be practical in that decisions relating to underlying assets may not necessarily confer a right for the holder to purchase or sell at a particular price but may be forced by the market or situation to sell against his or her will. The theory states that an investor or firm always has investment option. This may not be ideal as a firm or investor may lack an investment option, especially where costs exceed benefits (Mun, 2012).

In relation to this study, real options theory notes that managers defer investment when uncertainties rise due to pandemics (Zeng, Hu, & Su, 2016). Management should strengthen existing cash reserves in emergency situations since epidemics like COVID-19 raise vulnerabilities. Increased cash holdings consume investing capital, which lowers the impetus of businesses' sustainability growth (Hagerty & Williams, 2020). As a result, company revenue declines, which in turn affects MFI's financial performance.

2.2.2 Diffusion of Innovation Theory

Diffusion of Innovation (DOI) Theory was advanced by Rogers in 1962. The premise upon which that paradigm is based is that the development and adoption of novel ideas and behaviours do not occur simultaneously. As a result, they do not happen instantaneously since there are procedures in which certain individuals seem more equipped to react to changes over everyone else. Participants of a social structure are constantly informed about the diffusion process through designated routes. Therefore, creativity, communication channels, periods, and societal structures are necessary for spread (Dearing & Cox, 2018).

Nevertheless, a number of environmental aspects affect diffusion. For example, adopters of innovation have choices when there are complementary or competing innovations. Additionally, where disruptive occurrence demands fast modification, there could be additional shortcomings in the innovative good or services or overall adoption strategy (Al-Jabri & Sohail, 2012).

The diffusion of innovation theory has been criticized on various bases. The user classifications plus majority of these supporting data for such a theory didn't come from behavioural experiments, it was never created specifically to explain how newer behaviours are adopted (Dearing & Cox, 2018). This means that the theory may not conclusively explain the adoption of a certain behavior. In addition, the notion disregards a person's ability to accept an invention or their social network (Wani & Ali, 2015)

In the aftermath of the pandemic, it has become fundamental that microfinance institutions reinvent or remodel their systems and processes to remain in business and increase their profitability. They also need to address the resistance or slow adoption of the new changes by their target markets (Jamshidi & Kazemi, 2019) hence accelerating acceptance. Also, they must ensure that the new technology has relative advantage over the existing systems and processes and is compatible with the culture, values, and expectations of both the institution and the target market. Finally, as Jamshidi and Kazemi (2019) argue, the farther difficult it is for an invention to ever be embraced, the deeper and much more meaningful the connection across the assimilated technologies and users intents. Such idea supports the requirement for easiness (Alomari et al., 2014).

2.2.3 Crisis Management Theory

Diagnose underlying situation, prepare, and adapt to alterations are indeed the 3 steps of emergency preparedness, as per Gonzalez-Herrero and Pratt's (1998) suggested crisis management theory. The initial step entails identifying the crisis's preliminary warning signs. In order to develop the organisational resources to confront a disaster with bravery and resolve, top management must be able to recognise the early signs of a catastrophe. In order to understand overall plans, bosses must periodically examine overall accomplishments of respective subordinates. The role of a manager does not involve sitting in closed offices and issuing commands to subordinates but rather guiding and engaging them, hence understanding what is happening inside and outside the firm. Continuously assessing job productivity enables management to anticipate crises and alert staff to potential implications. Lenders such DTMFIs must work to avert crises rather than ignoring the warning signs of one (Nojavan, Salehi & Omidvar, 2018).

The theory is criticized based on various bases. The theory limits its focus on the subject under a crisis, assuming other factors contributing to it (crisis). The theory of crisis management was initially conceived with original notion of firms facing unpredictable and unpredictable surroundings must create groups made up of those product lines capable of responding to significant difficulties (Marsden, 2010). This theory fits the current study in that management of institutions needs to manage the unstable and unforeseeable crisis shaped by COVID-19 contagion. The scholar will be able to observe how managers attempts to reduce the detrimental consequences of COVID-19 epidemic upon that financial performance from each particular microfinance organisation using such idea.

2.3 Determinants of Financial Performance of Deposit-Taking Microfinance Institutions

This research sought to discuss determinants of financial performance. Key determinants considered in this study were firm size, capital adequacy, liquidity, and asset quality.

2.3.1 Firm Size

Volume or magnitude of operations produced by a particular business is known as firm's size (Lima Crisostomo et al., 2014). Firm size is the number of assets, employees, and market share of a firm. Normally, large financial institutions are able to acquire cheap capital and make big profits. This means that firm size directly connects with financial performance. Also, financial performance has a direct connection with firm size, indicating that large financial institutions can achieve economies of scale hence reducing the cost of operating and increasing their loan volumes (Gyeke-Dako et al., 2018).

Innovation, internationalization, adoption of sophisticated technologies, and the ability to handle new competitive challenges are all connected with a firm's size; through all of these channels, larger organizations show better financial performance. The larger the assets a firm owns, the more its ability to assume a large number of projects with greater returns in comparison with small firms with a smaller amount of assets. Additionally, the bigger the firm, the larger the amount of loans that can be extended to borrowers, which increases the interest income hence improved financial performance (Chodorow-Reich et al., 2022). Total assets, the number of employees, market capitalization, and sales revenue gauge the size of business (Hasanuddin et al., 2021; Dang et al., 2018). In this academic work, firm, size was gauged in terms of total assets.

Empirical studies have shown that firm size affects financial performance. Vu et al. (2019) established that firm size influenced financial performance directly. Kijkasiwat and Phuensane (2020), though, established that firm size influenced financial performance negatively. Olawale et al. (2017), however, found that no relationship existed between firm size and financial performance. This exhibits that there is ambiguity in the literature on the effect of firm size on firm financial performance. This warranted research on firm size and financial performance to establish the relationship.

2.3.2 Capital Adequacy

Statutory capital adequacy regulations mandate that pertinent enterprises hold certain minimal capitalization holdings, measured as a proportion of overall risk-weighted assets (Abusharba et al., 2013). This legal minimal capital reserves which a financial organization or investing company must keep on hand is known as capital adequacy, regulatory capital, or capital base. In Kenya, the capital adequacy ratio for financial institutions is set, regulated, and enforced by the Central Bank of Kenya (CBK). A company's adherence to rules regarding the required minimal capital reserve amounts is evaluated by its capital adequacy. The adequacy of fulfilling a minimum capital obligation, known as the Capital Adequacy Ratio (CAR), measures a firm's capital adequacy. It compares capital with productive assets based on its risk. Capital adequacy ratios measure a financial institution's capacity to meet its obligations relative to its exposure to risk (Irawati et al., 2019). The capital adequacy ratio aims to guarantee that a financial institution is able to absorb losses and discharge its obligations to account holders without halting operations. Capital adequacy is also measured using the debt-to-equity ratio and advances to total assets ratio

(Baldwin, Alhalboni & Helmi, 2019). In this study, advances to the total asset's ratio was adopted to measure capital adequacy.

Mendoza and Rivera (2017) found a direct linkage across capital adequacy and financial performance. Ngumo et al. (2020) displayed a significant and direct correlation relating capital adequacy and financial performance in their research. However, Irawati et al. (2019) however exhibited a negative linkage around capital adequacy and financial performance. However, Oudat and Ali (2021) exhibited no significant linkage existed around capital adequacy and financial performance. This exhibited mixed results and created the need for checking how capital adequacy and financial performance are related.

2.3.3 Asset Quality

According to Bernstein (1996), the pricing that a banking companies can lend or leases a mortgage or even any financial instrument to a third person is known as asset quality, and it is defined by borrowers or lenders. Asset quality is a component of credit institutions administration that comprises assessing an organisation's assets to make it easier to gauge the degree and scope of credit risk attached towards company operations (De Bock & Demyanets, 2012). Asset quality management is considered very important by the financial institutions (Bace, 2016).

Asset quality is measured using ratios such as total investments to total assets ratio as adopted by Alali et al. (2021). Nugraha et al. (2021) used the loan quality ratio and noncurrent receivables gross to debt ratio to measure asset quality. On the other hand, Nachimuthu and Veni (2019) used non-performing assets to total assets as well as non-performing loans to gross loans ratio to measure asset quality. However, Tran, Hasan and

Houston (2020) adopted loan loss provision to net interest revenue ratio as the measure of asset quality. This study adopted the NPL ratio to gauge asset quality.

Empirically, asset quality has shown mixed results in its relationship with financial performance. For instance, Salike and Ao (2018) found that asset quality possessed direct relationship with financial performance. This was supported by Ekinici and Poyraz (2019) and Robin et al. (2018) who found similar results. On the other hand, Byrne and Kelly (2019) found a negative effect of asset quality on financial performance. Further, Musyoka (2017) exhibited inverse and insignificant linkage around asset quality and financial performance.

2.3.4 Liquidity

Liquidity refers to easiness through which assets are changed to cash (Campello et al., 2010). Afrifa & Padachi (2016) suggests that in order to remain profitable, businesses should balance their liquidity levels. The company's capacity to cover unforeseen cash demands from customers is measured by liquidity risk (Almajali et al., 2012). It is anticipated that liquidity position will have a mixed relationship with financial performance.

Liquidity ratios are used to assess liquidity. They have to do with liquidity assets to total assets ratio (Farhan et al, 2019); liquidity assets to total deposits ratio (Sathyamoorthi et al., 2020); current assets to current liabilities (Waswa et al., 2018); or balance at the bank to total assets (Alim et al., 2021). It has been discovered that the current ratio gives a more precise analysis of liquidity. This study, however, adopted a liquidity ratio in the analysis.

Some studies exhibited that liquidity and financial performance relate directly (Waswa et al., 2018; Abubakar et al., 2018; Dzapasi, 2020). However, a few researches have exhibited indirect linkage around liquidity (Daryanto et al., 2018; Adusei, 2022) and financial performance, with others showing no relationship (Oudat & Ali, 2021).

2.4 Empirical Studies

2.4.1 Global Studies

The impact of COVID-19 outbreak upon that operation of NGO microfinance organisation in the Indian Tamil Nadu provinces of Nilgiris and Perambalur was discussed in Zaneta Prarthana et al. (2021). The researchers conducted a research on the women customers of the microfinance institution by enrolling a hundred and twenty (120) respondents, sixty (60) from each district, respectively. The research established that the COVID-19 pandemic had unfavourable impacts on performance. The research was done on the COVID-19 pandemic on performance like current one. However, the research focused on non-profit microfinance institutions, with present research focusing on DTMFIs. The research was carried out in India, while present one was carried out in Kenya. The research adopted primary data, with the current study adopting secondary data. This exhibits that gaps exist in this research which this study would fill.

Shen et al. (2020) studied impact of COVID-19 contagion on firm financial performance. Scholars examined the effect of COVID-19 on company performance utilizing financial information of traded Chinese corporations. According to the investigation, COVID-19 seems to result in detrimental effect on a company's financial performance. Whenever a company's investment volume or volume of sales is lower, COVID-19's detrimental effects

on business performance are increasingly obvious. The analysis revealed that severe regions and sectors are greater severely affected by COVID-19's detrimental effects on company financial performance. This research looked at concepts similar to the current study (COVID-19 pandemic and firm performance). However, The research was done in a context (Chinese listed firms) different from that of current research (Kenyan DTMFIs). The research also adopted a different model (OLS regression) other than the logit model and T-test for analysis used by the current study.

In 2020, Shrestha evaluated how the COVID-19 pandemic affected Nepal's mfis. The evaluation was founded upon information they provided in accordance with regulatory requirements. After govt implemented shutdown interventions to stop the diffusion of coronavirus, this same investigator assessed adjustments in a variety of important financial metrics, including savings, borrowings, NPL, net profits, and non-financial metrics, including the shifts in a variety of staff and borrowers. A review of data from mid-March 2020 to mid-July 2020 exhibited that the lockdown measures had severely hit microfinance institutions. Despite looking at COVID-19 and Microfinance Institutions, The research was based in Nepal. This gives a different context to the current study, which was done in Kenya. The research was done between March and July 2020, with the current study done between March 2020 and December 2021. The research focused on financial and non-financial indicators of performance, with current paper focusing on financial indicators only. The research adopted descriptive statistics and regression to bring in the impact. However, the current study adopted the logit regression model and T-test to determine the relationship between variables.

Ermawati et al. (2021) analyzed the impacts of COVID-19 pandemic on MFIs. Focus group discussions and an online research were applied to find out the effect of the COVID-19 pandemic on the MFIs' business. Outcomes exhibited that MFIs' financial performance was inversely affected as a consequence of COVID-19. The research investigated how COVID-19 impacted Microfinance Banks, with the current study looking at financial performance as the element affected by COVID-19. Despite the focus being on Microfinance institutions, this study was done in Indonesia other than Kenya as it is for the current study hence giving a different context. The research adopted a research questionnaire and focus group discussion for primary data collections. However, current research adopted secondary form data.

Ayeni and Adekunle (2021) specifically focused on the South-West District of Nigeria when examining the COVID-19 pandemic's implications upon these operations and financial performance of microfinance institutions. Information was gathered from 100 departmental chiefs who have been chosen at random among 20 MFIs. A straightforward percentage and logistic methodology was used to analyze the information. It was shown that COVID-19 hampered the operations of MFIs by reducing repayment, deposit mobilisation, client patronage, operating excellence, particularly high NPLs. According to the report, COVID-19 restricted MFIs' ability to operate, resulting in a detrimental impact on their financial performance. This study, despite analyzing COVID-19 in Microfinance Banks, the research looked at the effect it had on business activities. However, present paper engrossed on how COVID-19 affected financial performance of banks. Further, research was based in Nigeria, which may have different economic conditions from

Kenya's; hence the concepts may relate differently. Panel regression technique was used with the current study using the logit regression model of analysis.

2.4.2 Local Studies

The impacts of COVID-19 pandemic on stock value for companies registered upon that Nairobi Securities Exchange was examined by Orange (2020). The investigation used a scientific methodology, and regression technique used to gather and analyse quantitative results. The research adopted a regression analysis model to show how the intervening variables related to stock performance. The event-study methodology was deployed to establish the effect. COVID-19 contagion negatively affected stock performance. The research compared COVID-19 to stock performance with present paper comparing COVID-19 to companies financial performance. This exhibits that research looked at concepts that were different from the current study. Focus was on public trading institutions, with present's focus being DTMFIs. This exhibited that the context was different.

An impact of COVID-19 pandemic on performance of women SMEs was studied by Kaberia and Muathe in 2021. Academic articles, case analysis, stakeholder reports, or additional internet materials were employed in that investigation, which also utilized supplementary, heterogeneous materials. Outcomes exhibited insignificantly performance effect by pandemic. Research was anchored on MSMEs, with current study based on deposit-taking microfinance institutions. The research also adopted different data analysis methods. For example, the correlation model was adopted, with the current study adopting the regression model.

Ngumo et al. (2020) looked at determinants of financial performance of MFBs via descriptively researches designs. They utilized inferential for assessments secondary form data mined via 7 Microfinance banks; the data was for five years, from 2011 to 2015. The research found that business size, capital sufficiency, and organizational effectiveness all significantly improved overall performance. The investigation came to conclusion that financial success relating MFI Kenyan banks is directly correlated with business size, capital adequacy, and financial results. This study looked at determinants of performance with the current study relating COVID-19 to financial performance. The research was conducted between 2011 and 2015, which could give different results from the period for the current research (2018-2021).

Talibong and Simiyu (2019) investigated the relationship between financial soundness indicators and financial performance MFBs. Populace were thirteen MFBs from whom data were mined from yearly reports from 2012 to 2017 analyzed. The investigation concluded that capital adequacy, asset quality, and liquidity impact financial performance of microfinance banks. Was based on financial soundness indicators instead of COVID-19. This research covered period 2012-2017, which differs with the current study period (2018-2021). The research adopted a panel regression model, with the current study adopting the logit model bringing in a methodological gap.

The connection involving liquidity management and the financial success of Kenyan microfinance organisations was evaluated by Njue (2020). The MFIs under consideration's audited financial records were used to gather secondary data on the research variables. The information was taken from the 2012–2016 AMFI annual reports and the CBK Yearly Supervisory reports. The research's targeted demographic was made up of everyone

26 MFIs in Kenya which were also AMFI participants. Utilizing researches, primary information was gathered, and secondary data came from AMFIs' verified financial records. The dataset was examined via descriptive and regression. The results of overall analysis exhibited that financial success was impacted by liquidity management methods. This research addressed different concepts from the current study; they looked at liquidity and financial performance, assuming the ramifications of the COVID-19 pandemic on performance. This is despite the research focusing on microfinance institutions. Further, it (research) used primary and secondary data for analysis, with the current study basing its analysis on secondary data. Finally, the research adopted annual data, with the current study adopting quarterly data.

2.5 Conceptual Framework

Connection among parameters was presented conceptually via 2.1. Independent predictor was COVID-19 pandemic with financial performance as dependent. Firm size, capital adequacy, asset quality, and liquidity, controlled connection.

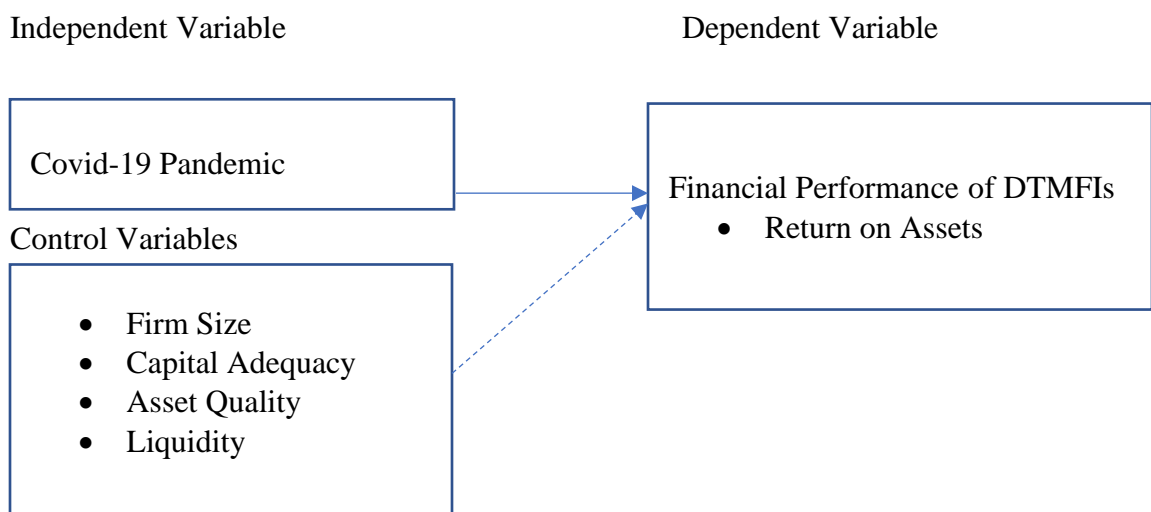


Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

Research sought to determine the effect of COVID-19 pandemic on financial performance of deposit-taking microfinance institutions in Kenya. Literature on the COVID-19 pandemic and firm financial performance was theoretically and empirically reviewed. The researcher also discussed the theories, foundations on which the research was based. The empirical studies reviewed exhibited conflicting findings, with some showing direct while others exhibited negative or no relationship between the two. Other local studies discussed concepts other than ones considered here, with others focusing on contexts other than that warranted the need for such research.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section gave methods to be adopted. Specifically, it provided research design, target population, data collection, diagnostic tests, data analysis, and variable measurement.

3.2 Research Design

This paper made use of descriptive research design to establish effect of COVID-19 on financial performance of DTMFIs. This kind of design describes a variable's existing situation and collects data over a number of units (Mangeni, 2018). It was appropriate as it mined data from all DTMFIs in Kenya. It also described status of financial performance among the DTMFIs and effect that COVID-19 has on financial performance. Additionally, the investigator was allowed to determine parameters' causal link thanks to methodology. It permitted investigator establish effect of COVID-19 on financial performance of DTMFIs in Kenya.

3.3 Population

Population relates to a group of items in a particular population with similar characteristics (Kothari, 2006). The population of this study included DTMFIs listed and licensed to operate in Kenya by CBK between year 2018 and 2021. According to CBK (2020), there were fourteen (14) DTMFIs in Kenya as of 31st December 2021. However, thirteen (13) DTMFIs existed between July 2018 and December 2021. All the microfinance banks that existed within the period were included in the analysis; according to CBK, thirteen (13) DTMFIs existed between 2018 and 2021.

3.4 Data Collection

This research composed secondary data based on variables for seven quarters before COVID-19 (July 2018 to March 2020) and seven quarters during the COVID-19 period (April 2020 to December 2021). This exhibited that panel quarterly data was adopted in the research. It was sourced from financial reports of thirteen (13) DTMFIs. The financial reports were sourced from CBK as it is required by the law that DTMFIs publish annual reports with CBK. Central Bank of Kenya was preferred as it was a credible source which increases data credibility and hence credible findings.

Investigator utilized data collection sheet to mine information. Data collection contained data relating to the variables. For financial performance, the data sheet contained data relating to net income and total assets. For the predictor variables, the data collected included NPLs, gross loans, liquidity ratio, deposits, assets, and total advances. The researcher also collected data relating to total equity. The data was based on the firm and quarter, which created a panelised data collection method. The data collection sheet is shown in Appendix III.

3.5 Data Analysis

STATA 14 was utilized in generation of statistics. This study used descriptive and inferential analytical methods for analysis. The financial ratios were adopted for analysis. Multivariate regression was utilized.

3.5.1 Diagnostic Tests

This investigation commenced various tests in check of assumptions relating to regression model. This research did normality, heteroskedasticity, multicollinearity, and specification

tests. A normality test was done to check whether the data followed a normal distribution. Shapiro-wilk tests was adopted. The null hypothesis is that data are normally distributed. Where Shapiro wilk statistics possesses significance value of less than 5%, investigator rejects null hypothesis and assumes normal data. Where significance value is higher compare to 5%, investigator does not reject null hypothesis assuming normally distributed data.

A heteroscedasticity test checked whether the error term was constant over time. It assumes that error term is constant across time. Breusch Pagan was adopted for heteroscedasticity. If significance value is below 5%, error term varies with time. On the other hand, whenever significance value is higher in comparison to 0.05, investigator assumes that error terms is constant across time. Hence, no heteroscedasticity issues.

A multicollinearity test checked if predictors exhibited any correlation. Multicollinearity exists where the predictor variables show a linear relationship. This study used Variance Inflation Factor (VIF) to examine the multicollinearity in the data. The null hypothesis asserts that there is linear linkage across predictors. Where VIF is below 2, the researcher assumes low variance inflation and hence no relationship among predictor variables. Where the VIF is higher than 2, null hypothesis is rejected, assuming multicollinearity issues exist in the data.

A specification testing was carried out for best modeling to assume. Hausman test was done to specify the model. The null hypothesis postulate that random effect is preferred. The hypothesis is not rejected where the significance value is greater than 0.05. The null hypothesis is rejected if significance value is less than 0.05, assuming that fixed effects model is most preferred.

3.5.2 Analytical Model

Investigator deployed a logit regression and interrogated financial ratios for the thirteen (13) deposit-taking microfinance institutions for seven quarters before COVID-19 (July 2018 to March 2020) and seven quarters during the COVID-19 (April 2020 to December 2021). A dummy variable was used representing COVID-19 pandemic. The dummy variable assumed the value 0 for pre-COVID-19 era and 1 for period during COVID-19. The regression was represented in the form of;

$$ROA_{it} = \beta_0 + \beta_1 DCV_{it} + \beta_2 CA_{it} + \beta_3 AQ_{it} + \beta_4 FS_{it} + \beta_5 LQ_{it} + \beta_6 LQ_{it} + \beta_7 FS_{it} + \epsilon_{it}$$

Where;

ROA_{it} = financial performance represented by return on assets of firm i at time t;

DCV_{it} = COVID-19 pandemic represented by a dummy variable

CA_{it} = Capital adequacy represented by advances to total assets ratio of firm i at time t;

AQ_{it} = Asset quality represented by NPL ratio of firm i at time t;

FS_{it} = Firm size represented by log of total assets of firm i at time t;

LQ_{it} = Liquidity as represented by credit deposit ratio of firm i at time t

β_0 = Regression constant

i represented individual microfinance institution

t represented the quarter

3.5.3 Significance Tests

The statistical test of significance that was carried out in this research involved F-statistics. This exhibited the fitness of the model and its significance for the data. Where the p-value was below 5%, the modeling was assumed significant and fit variable data. On the other hand, where p-value was below 5%, model was assumed to be insignificant. The researcher used a T-test to assess significance of parameters. If p-value corresponding to test statistic t was less than the chosen significance level (5%), then variables were assumed to show significance.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter analyzed data collected, and its finding presented below. Discussions on the findings are also included. The paper used data from thirteen deposit-taking microfinance institutions that existed between July 2018 and December 2021. The researcher used quarterly data based on seven quarters before and seven quarters during COVID-19. Firms, like Muungano that came to be listed by CBK after July 2018 were excluded. This gave a total of 182 data points that were used for analysis.

4.2 Descriptive Statistics

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	182	-9.147315	14.22557	-53.33333	5.855856
DVC	182	.7142857	.4530002	0	1
CA	182	1.068831	1.202624	0	8.4375
AQ	182	104.4202	269.66	0	2250
FS	182	5.644554	1.92799	1.504077	9.433564
LQ	182	46.66813	103.5339	.9	724

From descriptive statistics, findings exhibited ROA averaged -9.147 with a St Dvi of 14.226 exhibiting that DTMFIs experienced losses between July 2018 and December 2021. The ROA ranged between -53.333 and 5.856. Outcomes further exhibited COVID-19 dummy averaged 0.714 with a St Dvi of 0.453. The outcomes also exhibited that capital adequacy exhibited a mean of 1.069 between July 2018 and December 2021. Capital

adequacy ranged from 0 to 8.438. Capital adequacy exhibited a St Dvi of 1.203. Asset quality exhibited a mean ratio of 104.42% with St Dvi of 269.66. This exhibits that DTMFIs had very high levels of NPL, which has led to low asset quality. The asset quality also varied greatly across the DTMFIs, as shown by the St Dvi. Firm size exhibited an average log of assets of 5.645 with St Dvi of 1.928. This exhibits that the asset levels didn't differ much across DTMFIs between July 2018 and December 2021. Liquidity exhibited a mean of 46.668%, with a St Dvi of 103.534. The liquidity ranged from 0.9 to 724. This exhibits a high variation of liquidity among DTMFIs within the period between July 2018 and December 2021.

4.3 Diagnostic Tests

The investigation did tests to check on postulations of regression modeling. They involved normality, heteroscedasticity, Multicollinearity as well as specification tests.

Table 4.2: Normality Test

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
ROA	182	0.75582	33.564	8.045	0.00000
DVC	182	0.98942	1.454	0.858	0.19557
CA	182	0.65081	47.997	8.864	0.00000
AQ	182	0.33133	91.911	10.352	0.00000
FS	182	0.97672	3.200	2.663	0.00387
LQ	182	0.27431	99.748	10.539	0.00000

The research sought to establish if data assumed a normal distribution via Shapiro Wilk. The null hypothesis is that data follows a normal distribution. From the findings, COVID-19 data was normal because p-value was larger compared to 0.05. However, the other

variables exhibited p-values below 0.05. Research concludes that data for ROA, capital; adequacy, asset quality, firm size, and liquidity were not normally distributed.

Table 4.3: Heteroscedasticity Test

```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of ROA

chi2(1)      =      0.48
Prob > chi2  =      0.6410
    
```

The researcher tested for heteroscedasticity via Breusch Pagan Tests. The null hypothesis stipulates that error terms is continuous across timespans. From findings, the Chi-square value exhibited a p-value of 0.641. For this reason, we don't reject hypothesis; therefore, assume that data used in the analysis has no heteroscedasticity issues.

Table 4.4: Multicollinearity Test

Variable	VIF	1/VIF
AQ	1.21	0.828723
FS	1.15	0.872389
DVC	1.07	0.938716
CA	1.06	0.941908
LQ	1.04	0.963676
Mean VIF	1.10	

Multicollinearity was tested to check whether there was a linear relationship across predictors via VIF. From findings, VIFs fell below 2, which indicates that the variance is inflated to very low levels. Hence, no linear relationship among the variables adopted for the research.

Table 4.5: Model Specification Test

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
DVC	.1097778	.1488824	-.0391046	.
CA	.6851530	.7892012	-.1040482	.008368
FS	.0827920	.0567893	-.0339973	.
LQ	.0171353	.0108524	-.0037171	.

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from regress

Test: Ho: difference in coefficients not systematic

$\text{chi2}(3) = (b-B)'[(V_b-V_B)^{-1}](b-B)$
 = 1.94
 Prob>chi2 = 0.3358

A specification test was done to specify most fit modelling. From the outcomes, the Housman test exhibits a Chi2 value with a significance of $0.3358 > 0.05$. It exhibits that scholar should reject null hypothesis not. Hence, researcher assumes that random effect model is most preferred. This means that the researcher used a random effect panel regression.

4.4 Regression analysis

Table 4.6: Regression Analysis

```

Random-effects GLS regression           Number of obs   =       182
Group variable: Code                   Number of groups =        13

R-sq:                                   Obs per group:
  within = 0.1911                        min =           14
  between = 0.6486                       avg =          14.0
  overall = 0.5505                       max =           14

corr(u_i, X) = 0 (assumed)              Wald chi2(5)    =       59.79
                                           Prob > chi2     =       0.0000

```

ROA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
DVC	-.6227673	1.076523	-0.58	0.563	-2.732714	1.487179
CA	1.788213	.6943897	2.58	0.010	.4272338	3.149191
AQ	-.0002185	.0024701	-0.09	0.930	-.0050598	.0046228
FS	4.78436	.7126843	6.71	0.000	3.387524	6.181195
LQ	.0211296	.007321	2.89	0.004	.0067808	.0354784
_cons	-38.58261	4.748972	-8.12	0.000	-47.89043	-29.2748
sigma_u	7.7289806					
sigma_e	6.1843849					
rho	.60966371	(fraction of variance due to u_i)				

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e$$

was fitted in the equation

$$Y_{it} = -38.5826 - 0.6228X_{1it} + 1.7882X_{2it} - 0.0002X_{3it} + 4.7843X_{4it} + 0.0211X_{5it}$$

The researcher established the effect of individual predictor variables on dependent. The random effect (between) model was adopted. The Wald chi2 statistics (59.79) exhibited a significance value (0.0000) of less than 5% of the outcomes. This exhibits that the random

effect model fitted data. Outcomes showed a between R^2 (0.6486) stipulating that Covid-19 and controls caused 64.86% volatility in financial performance of DTMFIs in Kenya between July 2018 and December 2021 at a 5% significance level. The remaining change in financial performance of DTMFIs within the period was due to other factors.

From the coefficients, the model exhibited a constant of -38.5826. This exhibits that financial performance of DTMFIs would stand at -38.5826 if the predictor variables were held constant. The fitted model displayed that a unit increase in COVID-19 would decrease financial performances of DTMFIs by 0.6228 with a significance of 0.563. This exhibits that COVID-19 possesses inverse insignificant impact on financial performance of DTMFIs. Unit upsurge in capital adequacy would surge financial performance of DTMFIs by 1.7882 with a significance of 0.010. This exhibits that capital adequacy possesses direct and profound effect on financial performance. Nevertheless, a unit increment in the NPL ratio would bring about a decline in financial performance of DTMFIs by 0.0002 with a significance value of 0.930. This indicates that increased asset quality through reduction of NPL ratio would lead to an increase in financial performance of DTMFIs. This exhibits that asset quality possesses direct but insignificant influence on financial performance of DTMFIs. A unit firm size increment increased financial performance of DTMFIs by 4.7843 with a significance of 0.000. This shows that firm size possesses direct and noteworthy effect on financial performance of DTMFIs. A unit increment in liquidity would result to increased financial performance, as shown by a regression coefficient of 0.0211 with significance value of 0.004. This indicates that liquidity possesses direct significant effect on financial performance of DTMFIs.

4.5 Discussion of Findings

The findings exhibited that an increase in the COVID-19 pandemic would decrease financial performance of DTMFIs. This exhibits that the COVID-19 pandemic possesses negative effect on financial performance. Consequently, the findings coincide with those of Ermawati et al. (2021) and Ayeni and Adekunle (2021), who found a negative relationship. However, the decrease was insignificant. This indicates that the COVID-19 pandemic had no significant effect on financial performance of DTMFIs between July 2018 and December 2020. Hence, the COVID-19 pandemic had no effect on financial performance. The findings concur with those of Kaberia and Muathe (2021), who found an insignificant effect of the pandemic on financial performance. However, they differed from the findings of Zaneta Prarthana et al. (2021), who found that the COVID-19 pandemic possessed pronounced influence on financial performance.

The research found that a rise in capital adequacy would culminate in an increase financial performance of DTMFIs significantly. This indicates that if DTMFIs increase their capital adequacy, they will experience improved financial performance in terms of ROA. This exhibits that capital adequacy possesses direct effect on financial performance. The findings concur with the findings of Ngumo et al., (2020); and Mendoza and Rivera (2017), who found a direct relationship between capital adequacy and financial performance. However, the findings differ from those of Irawati et al. (2019), who found a negative relationship between capital adequacy and financial performance, as well as those of Oudat and Ali (2021), who found that no notable relationship between capital adequacy and financial performance.

On the other hand, a rise in asset quality was found to lead to an increase in financial performance of DTMFIs insignificantly. Hence, asset quality possesses no noteworthy effect on financial performance. The findings concur with the findings of Musyoka (2017), who established an insignificant relationship between asset quality and financial performance. However, they differ from the findings of Byrne and Kelly (2019) established a negative effect of asset quality on financial performance. They also differed from those of Salike and Ao (2018); Robin et al. (2018); and Ekinici and Poyraz (2019), who found a significant direct relationship between asset quality and financial performance.

Further, the findings exhibited that a firm size increase would lead to a significant increase financial performance of DTMFIs in terms of ROA. This indicates that firm size possesses direct effect on financial performance. The findings concur with the findings of Vu et al. (2019), who found that firm size influenced performance directly. The outcomes, however, differ from those of Kijkasiwat and Phuensane (2020), who established a negative relationship, and those of Olawale, Ilo and Lawal (2017), who found that no relationship existed between firm size and financial performance.

From the findings, an increase in liquidity would lead to a significant increase in financial performance of DTMFIs. This indicates that liquidity possesses direct effect on financial performance. The findings align with those of Waswa et al. (2018); and Dzapasi (2020), who found a direct relationship. However, they differ from studies of Daryanto et al. (2018); and Adusei (2022), who found a negative relationship. The findings also differ from those of Oudat and Ali (2021), who found that financial performance had no relationship with liquidity.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

A summary of findings as well as conclusions and recommendations are given. Limitations and suggestions for future studies is also indicated.

5.2 Summary of Findings

From the descriptive statistics, the findings exhibited that ROA averaged -9.147 between July 2018 and December 2021. This indicates that most of the DTMFIs in Kenya exhibited a negative return on assets between July 2018 and December 2021. This gives a picture of a loss-making subsector within the microfinance sector. The findings further exhibited that the COVID-19 dummy variable averaged 0.714, indicating that 71.4% of the target period, the DTMFIs operated in an environment where the pandemic existed. This is because the value was greater than 0.5 and close to 1, which is the dummy for the presence of the COVID-19 pandemic.

Capital adequacy exhibited a mean of 1.069 between July 2018 and December 2021. Basel III outlines 8% as the lowest capital adequacy ratio that banks must maintain. The research outcome shows that DTMFIs had low capital adequacy within the research period. Hence, the DTMFIs are less likely to withstand a financial downturn or other unforeseen losses in the future, putting them at risk of bankruptcy. Asset quality exhibited a mean non-performing ratio of 104.42%. This exhibits that DTMFIs had very high NPLs, exceeding the gross loans. This indicates that between July 2018 and December 2021, the DTMFIs had poor asset quality. The asset quality also varied greatly across the DTMFIs, and the

asset quality differed highly among the firms. Firm size exhibited an average log of assets of 5.645; the asset levels didn't differ much across DTMFIs between July 2018 and December 2021. The liquidity exhibited a mean of 46.668% ranging from 0.9 to 724. This exhibits a high liquidity variation among DTMFIs between July 2018 and December 2021. The research found that 64.86% of the change in financial performance of DTMFIs in Kenya between July 2018 and December 2021 was due to changes in the COVID-19 pandemic, asset quality, firm size, liquidity, and capital adequacy. This indicates that the COVID-19 pandemic, asset quality, firm size, liquidity, and capital adequacy were the major factors influencing financial performance of DTMFIs during the research period.

From the regression coefficients, the model exhibited a negative constant. This exhibits that financial performance of DTMFIs would be negative if the COVID-19 pandemic, capital adequacy, asset quality, firm size, and liquidity do not change. It means that combined the predictors would directly influence financial performance of DTMFIs. From the fitted model, an increase in the COVID-19 pandemic would decrease financial performance of DTMFIs, as manifested by a negative regression coefficient. However, the coefficient was insignificant. This exhibits that the COVID-19 pandemic possessed insignificant effect on financial performance of DTMFIs.

An increase in capital adequacy would increase financial performance of DTMFIs, as shown by a direct regression coefficient significant at the 5% significance level. This implies that capital adequacy possessed direct effect on financial performance. Contrary, a rise in the NPL ratio would lead to a decrease in financial performance of DTMFIs, as portrayed by a negative regression coefficient. However, the coefficient was insignificant. This indicates that increased asset quality through reduction of NPL ratio would increase

financial performance insignificantly. An increase in firm size would increase financial performance of DTMFIs significantly. This indicates that firm size possesses direct and significant effect on financial performance of DTMFIs. An increase in liquidity would lead to an increase in financial performance significantly. This indicates that liquidity directly affected financial performance between July 2018 and December 2021.

5.3 Conclusions

The descriptive statistics exhibited a negative average return on assets between July 2018 and December 2021. Thus, the research concludes that DTMFIs in Kenya are making losses, as shown by negative return on assets. The research found that 64.86% of the change in financial performance was due to changes in the COVID-19 pandemic, capital adequacy, asset quality, firm size, and liquidity. This study concludes that the COVID-19 pandemic, capital adequacy, asset quality, firm size, and liquidity are the major factors influencing financial performance of DTMFIs in Kenya.

From the regression analysis, the COVID-19 pandemic exhibited a negative but insignificant regression coefficient against financial performance. This exhibits that the COVID-19 pandemic possessed insignificant effect on financial performance. This inspires the deduction that the COVID-19 pandemic does not affect financial performance of DTMFIs in Kenya. This means that even if the COVID-19 pandemic remains, the negative effect would not significantly decrease financial performance of DTMFIs in Kenya.

Capital adequacy exhibited a mean of 1.069 between July 2018 and December 2021. Hence, the research concludes that DTMFIs had low capital adequacy, which would make them unable to withstand a financial downturn or other unforeseen losses in the future.

Regression analysis exhibited that capital adequacy possessed significant direct regression coefficient against financial performance. This leads to the deduction that capital adequacy directly affects financial performance of DTMFIs in Kenya. This means that increased capital adequacy within DTMFIs in Kenya would improve the firms' financial performance.

The findings exhibited that the DTMFIs had very high levels of NPLs, which exceeded the gross loans within their loan portfolio. Hence, the research concludes that DTMFIs in Kenya have poor asset quality. Regression analysis exhibited that the NPL ratio as a measure of asset quality possessed negative and insignificant regression coefficient against financial performance. This leads to the inference that asset quality possesses no effect on financial performance of DTMFIs in Kenya. This means that even if the DTMFIs in Kenya experience increased NPLs, there would be no significant change in their financial performance.

The regression analysis findings exhibited that firm size possessed significant direct regression coefficient with financial performance. Hence, we can conclude that firm size in terms of assets possesses direct effect on financial performance of DTMFIs in Kenya. Hence, when the DTMFIs increase their asset levels, they experience increased financial performance levels in terms of return on assets. From the descriptive statistics, the selected firms exhibited a liquidity ratio of less than 1 (46.668%). This leads to the conclusion that the DTMFIs sector in Kenya possesses low levels of liquidity and faces negative working capital and experiencing a liquidity crisis. From the regression analysis, liquidity exhibited a direct significant coefficient with financial performance. This leads to the conclusion that liquidity directly affects financial performance of DTMFIs in Kenya. This indicates that if

the DTMFIs in Kenya improve their liquidity levels, they will experience increased financial performance levels in terms of increased return on assets.

5.4 Policy Recommendations

From the regression analysis, research concluded that the COVID-19 pandemic possesses no effect on financial performance of DTMFIs in Kenya as the negative effect is insignificant on financial performance. This study proposes that DTMFIs come up with measures to overcome the pandemic's negative effects to ensure that the negative out-turn does not turn significant, which may create financial performance challenges. However, the DTMFIs in Kenya should focus more on other factors than the pandemic in their strive to revamp their financial performance.

The research concluded that DTMFIs had low capital adequacy, creating financial performance challenges. This is based on the findings that capital adequacy significantly directly affected financial performance of DTMFIs in Kenya. This study, therefore, advocates for DTMFIs in Kenya increase their capital adequacy level. This would increase their financial performance levels through increased return on assets. This can be done by increasing their customer advances, hence increasing the capital adequacy ratio.

On asset quality, regression analysis exhibited that asset quality possessed insignificant direct ramifications on financial performance of DTMFIs in Kenya. The research concluded that DTMFIs in Kenya have poor asset quality. This means that the DTMFIs should enhance asset quality to turn the direct effect on their financial performance to a significant level. This can be done by reducing their NPL ratio through improved loan management which would reduce the level of NPLs in their loan portfolio. The DTMFIs

in Kenya can also increase the gross loans within the loan portfolio to reduce the NPL ratio. This would, in turn, improve asset quality, hence improving financial performance of the DTMFIs. The firms can also increase their income level through increased issuance of loans, which would earn increased interest income while ensuring that the loans are paid back.

The research concluded that firm size in terms of assets directly affects financial performance of DTMFIs in Kenya. Hence, the DTMFIs in Kenya need to increase their asset levels to increase financial performance levels. This can be done by the management purchasing more productive assets for their DTMFIs, increasing the return on assets.

From the descriptive statistics, the DTMFIs sector in Kenya exhibits a liquidity ratio of less than 1, indicating a negative working capital and a liquidity crisis. From the results of the regression analysis, the research concludes that liquidity directly affects financial performance of DTMFIs in Kenya. This creates the need for DTMFIs in Kenya to increase their liquidity levels through increased liquidity ratios to enhance their financial performance. This can be attained by increasing current assets and reducing current liabilities within the DTMFIs in Kenya.

5.5 Limitations of The Study

This research faced various limitations. The research addressed the COVID-19 pandemic and financial performance as the key variables. This limitation in the research was mitigated by recommending further studies using different variables. The focus sector also limited the research; the research was based on DTMFIs in Kenya, which may limit the generalizability of the conclusions to other sectors of the economy in and outside Kenya

and to DMFIs in other countries. The research was limited to secondary data, which is historical in nature. This may make the findings obsolete where old sources are utilized. This was mitigated by utilizing the most recent information. This research was also limited by the period of research. The paper focused on the period spanning July 2018 and December 2021. Longer periods like five or ten (10) years may give different results. The research was also limited to the data adopted. The researcher utilized quarterly secondary data. This may increase the error in the data, especially where monthly data is available. This was overcome by using the most recent data and recommending supplementary research.

5.6 Recommendations for Future Studies

The research addressed the COVID-19 pandemic and financial performance as the key variables. This research commends similar research based on variables other than the ones considered in this research. The research was based on DTMFIs in Kenya, and other researchers may explore different sectors to compare the findings. The research was limited to secondary data. The researcher also adopted the use of quarterly data. The researcher recommends that further research be done using primary sources of data which may give a different result. The researcher also recommends that other scholars investigate the COVID-19 pandemic and financial performance using annual, semi-annual, or monthly data to compare results. The paper focused on the period spanning 2018 and 2021. Similar research is recommended based on different periods like five years, ten (10) years or even 20 years for comparison of results.

REFERENCES

- Abubakar, A., Sulaiman, I., & Haruna, U. (2018). Effect of firm's characteristics on financial performance of listed insurance companies in Nigeria. *African Journal of History and Archaeology*, 3(1), 1-9.
- Abusharba, M. T., Triyuwono, I., Ismail, M., & Rahman, A. F. (2013). Determinants of capital adequacy ratio (CAR) in Indonesian Islamic commercial banks. *Global review of accounting and finance*, 4(1), 159-170.
- Adenomon, M. O., Maijamaa, B., & John, D. O. (2020). On the Effects of COVID-19 outbreak on the Nigerian Stock Exchange performance: Evidence from GARCH Models (preprint). *Mathematics & Computer Science*.
- Adusei, M. (2022). The liquidity risk–financial performance nexus: Evidence from hybrid financial institutions. *Managerial and Decision Economics*, 43(1), 31-47.
- Afrifa, G. A., & Padachi, K. (2016). Working capital level influence on SME profitability. *Journal of Small Business and Enterprise Development*.
- Alali, E., Alhammadi, N., Almarar, M. S., Almheiri, S., Almarar, F., Almarar, M., ... & Nobanee, H. (2021). Financial Analysis and Performance Evaluation of Moderna. Available at SSRN 3896199.
- Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of behavioral and experimental finance*, 27, 100326.

- Alim, W., Ali, A., & Metla, M. R. (2021). The Effect of Liquidity Risk Management on Financial Performance of Commercial Banks in Pakistan. *Journal of Applied Economics and Business*, 9(4), 109-128.
- Al-Jabri, I. M., & Sohail, M. S. (2012). Mobile banking adoption: Application of diffusion of innovation theory. *Journal of electronic commerce research*, 13(4), 379-391.
- Almajali, A. Y., Alamro, S. A., & Al-Soub, Y. Z. (2012). Factors affecting the financial performance of Jordanian insurance companies listed at Amman Stock Exchange. *Journal of Management research*, 4(2), 266.
- Alomari, Y. M., Sheikh Abdullah, S. N. H., Zaharatul Azma, R., & Omar, K. (2014). Automatic detection and quantification of WBCs and RBCs using iterative structured circle detection algorithm. *Computational and mathematical methods in medicine*, 2014.
- Amalendu, B. (2012). Stock Market Efficiency in India: Evidence from NSE. *Universal Journal of Marketing and Business Research*, 1(2).
- Ayeni, Y. T., & Adekunle, O. E. (2021). COVID-19 and Microfinance Banks in Nigeria. *Economic Insights-Trends & Challenges*, (4).
- Bace, E. (2016). Bank profitability: Liquidity, capital and asset quality. *Journal of Risk Management in Financial Institutions*, 9(4), 327-331.
- Baldwin, K., Alhalboni, M., & Helmi, M. H. (2019). A structural model of “alpha” for the capital adequacy ratios of Islamic banks. *Journal of International Financial Markets, Institutions and Money*, 60, 267-283.

- Batchimeg, B. (2017). Financial performance determinants of organizations: The case of Mongolian companies. *Journal of competitiveness*, 9(3), 22-33.
- Bernstein, D. (1996). Asset quality and scale economies in banking. *Journal of economics and Business*, 48(2), 157-166.
- Byrne, D., & Kelly, R. (2019). Bank asset quality & monetary policy pass-through. *Applied Economics*, 51(23), 2501-2521.
- Campello, M., Graham, J. R., & Harvey, C. R. (2010). The real effects of financial constraints: Evidence from a financial crisis. *Journal of financial Economics*, 97(3), 470-487.
- Candera, M., Muslimin, A., & Permatasari, D. (2021). Banking Financial Performance Before and During the Covid 19 Pandemic in Indonesia: Analysis of Comparison Between Islamic and Conventional Banking. *Information Technology in Industry*, 9(1), 976-986.
- Central Bank of Kenya (CBK)., 2021. Bank Supervision Annual Report 2020. Also accessed from www.cbk.co.ke.
- Central Bank of Kenya (CBK)., 2022. Bank Supervision Annual Report 2021. Also accessed from www.cbk.co.ke.
- Chodorow-Reich, G., Darmouni, O., Luck, S., & Plosser, M. (2022). Bank liquidity provision across the firm size distribution. *Journal of Financial Economics*, 144(3), 908-932.
- Christen, R. P., & Rosenberg, R. (2000). The rush to regulate: Legal frameworks for microfinance. *Occasional Paper*, 4.

- Dang, C., Li, Z. F., & Yang, C. (2018). Measuring firm size in empirical corporate finance. *Journal of banking & finance*, 86, 159-176.
- Daryanto, W., Samidi, S., & Siregar, D. (2018). The impact of financial liquidity and leverage on financial performance: Evidence from property and real estate enterprises in Indonesia. *Management Science Letters*, 8(12), 1345-1352.
- De Bock, M. R., & Demyanets, M. A. (2012). *Bank asset quality in emerging markets: Determinants and spillovers*. International Monetary Fund.
- Dearing, J. W., & Cox, J. G. (2018). Diffusion of innovations theory, principles, and practice. *Health affairs*, 37(2), 183-190.
- Dokulilova, L., Janda, K., & Zetek, P. (2009). Sustainability of microfinance institutions in financial crisis. *European financial and accounting journal*, 4(2), 7-33.
- Dzapasi, F. D. (2020). The impact of Liquidity Management on Bank Financial Performance in a subdued economic environment: A case of the Zimbabwean Banking Industry. *PM World Journal*, 9(1), 1-20.
- Ekinci, R., & Poyraz, G. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, 158, 979-987.
- Ermawati, T., Nugroho, A. E., Soekarni, M., Firdaus, N., Sarana, J., Edi, R. Y., ... & Suardi, I. (2021). The COVID-19 pandemic and its impact on microfinance institutions in Indonesia. *Enterprise Development & Microfinance*, 32(1), 93-106.
- Farhan, N. H., Alhomidi, E., Almaqtari, F. A., & Tabash, M. I. (2019). Does corporate governance moderate the relationship between liquidity ratios and financial

- performance? evidence from Indian pharmaceutical companies. *Academic Journal of Interdisciplinary Studies*, 8(3), 144-144.
- Fernandes, N. (2020). Economic effects of coronavirus outbreak (COVID-19) on the world economy.
- Gan, H., Park, M. S., & Suh, S. (2020). Non-financial performance measures, CEO compensation, and firms' future value. *Journal of Business Research*, 110, 213-227.
- Gonzalez-Herrero, A., & Pratt, C. B. (1998). Marketing crises in tourism: Communication strategies in the United States and Spain. *Public Relations Review*, 24(1), 83-97.
- Grzyl, B., Miszewska-Urbańska, E., & Apollo, M. (2017). Building Information Modelling as an opportunity and risk for stakeholders involved in construction investment process. *Procedia Engineering*, 196, 1026-1033.
- Gyeke-Dako, A., Agbloyor, E. K., Turkson, F. E., & Baffour, P. T. (2018). Financial development and the social cost of financial intermediation in Africa. *Journal of African Business*, 19(4), 455-474.
- Hagerty, S. L., & Williams, L. M. (2020). The impact of COVID-19 on mental health: The interactive roles of brain biotypes and human connection. *Brain, Behavior, & Immunity-Health*, 5, 100078.
- Hasanuddin, R., Darman, D., Taufan, M. Y., Salim, A., Muslim, M., & Putra, A. H. P. K. (2021). The Effect of Firm Size, Debt, Current Ratio, and Investment Opportunity Set on Earnings Quality: An Empirical Study in Indonesia. *The Journal of Asian Finance, Economics and Business*, 8(6), 179-188.

- Irawati, N., Maksum, A., Sadalia, I., & Muda, I. (2019). Financial performance of Indonesian's banking industry: The role of good corporate governance, capital adequacy ratio, non-performing loan and size. *International Journal of Scientific and Technology Research*, 8(4), 22-26.
- Jamshidi, D., & Kazemi, F. (2019). Innovation diffusion theory and customers' behavioral intention for Islamic credit card: Implications for awareness and satisfaction. *Journal of Islamic Marketing*.
- Kaberia, S. K., & Muathe, S. (2021). Effect of Covid-19 pandemic on performance of women owned micro, small and medium Enterprises in Kenya. *Int'l J. Soc. Sci. Stud.*, 9, 7.
- Kijkasiwat, P., & Phuensane, P. (2020). Innovation and firm performance: The moderating and mediating roles of firm size and small and medium enterprise finance. *Journal of Risk and Financial Management*, 13(5), 97.
- Kim, H. S. (2016). A study of financial performance using dupont analysis in food distribution market. *Culinary science and hospitality research*, 22(6), 52-60.
- Korir, S. (2014). *The effect of credit risk management on financial performance of deposit taking microfinance institutions in Kenya* (Doctoral dissertation, University of Nairobi).
- Kothari, U. (2006). An agenda for thinking about 'race' in development. *Progress in Development Studies*, 6(1), 9–23.
- Laforet, S., & Li, X. (2005). Consumers' attitudes towards online and mobile banking in China. *International journal of bank marketing*.

- Lagoarde-Segot, T., & Leoni, P. L. (2013). Pandemics of the poor and banking stability. *Journal of Banking & Finance*, 37(11), 4574-4583.
- Lambrecht, B. M. (2017). Real options in finance. *Journal of Banking & Finance*, 81, 166-171.
- Leoni, P. L. (2013). HIV/AIDS and banking stability in developing countries. *Bulletin of Economic Research*, 65(3), 225-237.
- Lfiti, M., & Hichri, A. (2021). The effects of corporate governance on the customer's recommendations: a study of the banking sector at the time of COVID-19. *Journal of Knowledge Management*.
- Lima Crisostomo, V., de Souza Freire, F., & Nobre Parente, P. H. (2014). An analysis of corporate social responsibility in Brazil: growth, firm size, sector and internal stakeholders involved in policy definition. *Pensamiento & Gestión*, (37), 125-149.
- Mangeni, W. (2018). Other People's Money: External Debt, Disequilibrium Exchange Rate and Economic Growth, A Kenyan Case (1963-2015). *Journal of International Business, Innovation and Strategic Management*, 2(2), 191-223.
- Marsden, C. (2010). Economics, the financial crisis and corporate responsibility. *Corporate Governance: The international journal of business in society*.
- Mendoza, R. R., & Rivera, J. P. R. (2017). The effect of credit risk and capital adequacy on the profitability of rural banks in the Philippines. *Scientific Annals of Economics and Business*, 64(1).

- Mihalciuc, C., & Apetri, A. N. (2019, May). Measuring and reporting non-financial performance of socially responsible companies. In *2019 Basiq International Conference: New Trends in Sustainable Business and Consumption*, V. Dinu, Ed. Bucuresti: EdituraAse (pp. 507-514).
- Mun, J. (2012). *Real options analysis: Tools and techniques for valuing strategic investments and decisions* (Vol. 320). John Wiley & Sons.
- Musyoka, B. K. (2017). *The effect of capital adequacy on the financial performance of commercial banks in Kenya* (Doctoral dissertation, University of Nairobi).
- Myers S.C. (1987) Finance theory and financial strategy. *Midland Corporate Finance Journal*, 5(1), 6–13.
- Nachimuthu, K., & Veni, M. (2019). Impact of non-performing assets on the profitability in Indian scheduled commercial banks. *African Journal of Business Management*, 13(4), 128-137.
- Nataraja, N. S., Chilale, N. R., & Ganesh, L. (2018). Financial performance of private commercial banks in India: multiple regression analysis. *Academy of Accounting and Financial Studies Journal*, 22(2), 1-12.
- Ngumo, K. O. S., Collins, K. W., & David, S. H. (2020). Determinants of financial performance of microfinance banks in Kenya. *arXiv preprint arXiv:2010.12569*.
- Njue, A. (2020). *Liquidity Management and Financial Performance of Microfinance Institutions in Kenya* (Doctoral dissertation, University of Embu).
- Nojavan, M., Salehi, E., & Omidvar, B. (2018). Conceptual change of disaster management models: A thematic analysis. *Jambá: Journal of Disaster Risk Studies*, 10(1), 1-11.

- Nugraha, N. M., Yahya, A., Nariswari, T. N., Salsabila, F., & Octaviantika, I. Y. (2021). Impact of Non-Performing Loans, Loan to Deposit Ratio and Education Diverstiy on Firm Performance of Indonesia Banking Sectors. *Review of International Geographical Education Online*, 11(3), 85-96.
- Olawale, L. S., Ilo, B. M., & Lawal, F. K. (2017). The effect of firm size on performance of firms in Nigeria. *Aestimatio: The IEB International Journal of Finance*, (15), 68-87.
- Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International journal of economics and financial issues*, 3(1), 237-252.
- Oreng, M. B. (2020). *The effects of Covid-19 pandemic on stock performance for firms listed at the Nairobi Securities Exchange* (Doctoral dissertation, University of Nairobi).
- Oreng, M. B. (2020). *The effects of Covid-19 pandemic on stock performance for firms listed at the nairobi securities exchange* (Doctoral dissertation, University of Nairobi).
- Oudat, M. S., & Ali, B. J. (2021). The Underlying Effect of Risk Management On Banks' Financial Performance: An Analytical Study On Commercial and Investment Banking in Bahrain. *Ilkogretim Online*, 20(5).
- Robin, I., Salim, R., & Bloch, H. (2018). Financial performance of commercial banks in the post-reform era: Further evidence from Bangladesh. *Economic Analysis and Policy*, 58, 43-54.

- Salike, N., & Ao, B. (2018). Determinants of bank's profitability: role of poor asset quality in Asia. *China Finance Review International*.
- Sathyamoorthi, C. R., Mapharing, M., & Dzimiri, M. (2020). Liquidity Management and Financial Performance: Evidence from Commercial Banks in Botswana. *International Journal of Financial Research*, 11(5), 399-413.
- Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. (2020). The impact of the COVID-19 pandemic on firm performance. *Emerging Markets Finance and Trade*, 56(10), 2213-2230.
- Shrestha, P. K. (2020). Impact of Covid-19 on Microfinance Institutions of Nepal. *Reserach Gate*.
- Song, S., Makhija, M., & Kim, S. M. (2015). International investment decisions under uncertainty: Contributions of real options theory and future directions. *Journal of Management & Organization*, 21(6), 786-811.
- Sutrisno, S., Panuntun, B., & Adristi, F. I. (2020). The effect of Covid-19 pandemic on the performance of Islamic bank in Indonesia. *EQUITY*, 23(2), 125-136.
- Talibong, J. K., & Simiyu, E. M. (2019). Financial soundness indicators and financial performance of deposit taking micro finance banks in Kenya. *African Journal of Emerging Issues*, 1(11), 67-84.
- Taouab, O., & Issor, Z. (2019). Firm performance: Definition and measurement models. *European Scientific Journal*, 15(1), 93-106.

- Thrikawala, S., Locke, S., & Reddy, K. (2013). Social performance of microfinance institutions (MFIs): does existing practice imply a social objective?. *American journal of business and management*, 2(2), 173-180.
- Tran, D. V., Hassan, M. K., & Houston, R. (2020). Discretionary loan loss provision behavior in the US banking industry. *Review of Quantitative Finance and Accounting*, 55(2), 605-645.
- Unicef. (2020). Social Science Support for COVID-19: Lessons Learned Brief 1: What Social Sciences Researchers Working in Humanitarian Contexts (Sub-Saharan Africa) Should Be Asking in COVID-19 and Why.
- Vu, T. H., Nguyen, V. D., Ho, M. T., & Vuong, Q. H. (2019). Determinants of Vietnamese listed firm performance: Competition, wage, CEO, firm size, age, and international trade. *Journal of Risk and Financial Management*, 12(2), 62.
- Wani, T. A., & Ali, S. W. (2015). Innovation diffusion theory. *Journal of general management research*, 3(2), 101-118.
- Wardhani, R. S., Rosalina, E., Elvany, R., & Awaluddin, M. (2021). Banking financial performance during Covid-19. *Technium Soc. Sci. J.*, 19, 302.
- Waswa, C. W., Mukras, M. S., & Oima, D. (2018). *Effect of liquidity on financial performance of the Sugar Industry in Kenya*.
- Yin, S., Zhang, N., & Dong, H. (2020). Preventing COVID-19 from the perspective of industrial information integration: Evaluation and continuous improvement of information networks for sustainable epidemic prevention. *Journal of Industrial Information Integration*, 19(3), 100-127.

Yusuf, M., & Ichsan, R. N. (2021). Analysis of Banking Performance in The Aftermath of The Merger of Bank Syariah Indonesia in Covid 19. *International Journal of Science, Technology & Management*, 2(2), 472-478.

Zaneta Prarthana, B., R Ashok, K., Mahendran, K., & Buddhi Bhuvaneswari, S. (2021). *An Investigation into the Impact of COVID-19 on the Performance of a Non-profit Microfinance Institution*.






Zeng, S., Hu, M., & Su, B. (2016). Research on investment efficiency and policy recommendations for the culture industry of China based on a three-stage DEA. *Sustainability*, 8(4), 324.

APPENDICES

Appendix I: List of Deposit-taking financial institutions in Kenya (2018-2021)

1. Caritas Microfinance Bank Limited
2. Century Microfinance Bank Limited
3. Choice Microfinance Bank Limited
4. Daraja Microfinance Bank Limited
5. Faulu Microfinance Bank Limited
6. Kenya Women Microfinance Bank Limited
7. Maisha Microfinance Bank Limited
8. Rafiki Microfinance Bank Limited
9. Key Microfinance Bank Limited
10. SMEP Microfinance Bank Limited
11. Sumac Microfinance Bank Limited
12. U & I Microfinance Bank Limited
13. Uwezo Microfinance Bank Ltd

Appendix II: Research Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 133522	Date of Issue: 13/July/2022
RESEARCH LICENSE	
	
This is to Certify that Ms. Virginia Mwangi of University of Nairobi, has been licensed to conduct research in Nairobi on the topic: Effect of Covid-19 Pandemic on the Performance of the Deposit-Taking Micro-Finance Institutions in Kenya for the period ending : 13/July/2023.	
License No: NACOSTI/P/22/18647	
133522 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 III: Data Collection Sheet

Period/ Quarter	Net Income	Total Assets	Total Equity	Gross loans	Non- performing loans	Liquidity Ratio	Total Advances	Total Deposits
Pre- COVID- 19	Shs. ‘000	Shs. ‘000	Shs. ‘000	Shs. ‘000	Shs. ‘000	%	Shs. ‘000	Shs. ‘000
Q1								
Q2								
Q3								
Q4								
Q5								
Q6								
Q7								
COVID- 19								
Q1								
Q2								
Q3								
Q4								
Q5								
Q6								

Q7								
----	--	--	--	--	--	--	--	--

Appendix IV: Data

Bank	Year	QRT	COVID-19	Net Income	Total Assets	Total Equity	Gross loans	Non-performing loans	Total Deposits	Liquidity ratio
				Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M	%
Kenya Women	2018	3	0	-330.8	11832.8	1628.4	7998.8	1720.4	6455.6	23
	2018	4	0	-165.4	5916.4	814.2	3999.4	860.2	3227.8	19
	2019	1	0	-40.2	3061.3	384.6	1897.2	399.8	1577.4	22
	2019	2	0	-120.6	9183.9	1153.8	5691.6	1199.4	4732.2	25
	2019	3	1	-160.8	12245.2	1538.4	7588.8	1599.2	6309.6	26
	2019	4	1	-80.4	6122.6	769.2	3794.4	799.6	3154.8	23
	2020	1	1	-148.5	2803.8	236.1	1674.1	478.4	1633.5	19
	2020	2	1	-445.5	8411.4	708.3	5022.3	1435.2	4900.5	20
	2020	3	1	-594	11215.2	944.4	6696.4	1913.6	6534	18
	2020	4	1	-297	5607.6	472.2	3348.2	956.8	3267	23
	2021	1	1	20.4	2696.1	256.4	1512.9	495.9	1773.7	28
	2021	2	1	61.2	8088.3	769.2	4538.7	1487.7	5321.1	27
2021	3	1	81.6	10784.4	1025.6	6051.6	1983.6	7094.8	26	

	2021	4	1	40.8	5392.2	512.8	3025.8	991.8	3547.4	23
Faulu	2018	3	0	65.16	9801	1247.04	6096.6	902.52	6458.76	28
	2018	4	0	43.44	6534	831.36	4064.4	601.68	4305.84	26
	2019	1	0	74.88	7123.68	906.24	4746.48	611.04	4822.08	25
	2019	2	0	109.2	10388.7	1321.6	6921.95	891.1	7032.2	27
	2019	3	1	68.64	6530.04	830.72	4350.94	560.12	4420.24	26
	2019	4	1	59.28	5639.58	717.44	3757.63	483.74	3817.48	26
	2020	1	1	-59.85	4391.85	436.05	2634.15	612.9	3439.65	30.5
	2020	2	1	-127.68	9369.28	930.24	5619.52	1307.52	7337.92	28
	2020	3	1	-139.65	10247.65	1017.45	6146.35	1430.1	8025.85	30
	2020	4	1	-71.82	5270.22	523.26	3160.98	735.48	4127.58	27.5
	2021	1	1	-61.05	4167	532.5	2306.7	391.7	2152.4	31.25
	2021	2	1	-101.75	6945	887.5	3844.5	1175.1	6457.2	36
	2021	3	1	-183.15	12501	1597.5	6920.1	1566.8	8609.6	33.5
	2021	4	1	-61.05	4167	532.5	2306.7	783.4	4304.8	35.25
RAFIKI	2018	3	0	-76.8	2420	512.4	1089.2	789.2	918	19.75
	2018	4	0	-38.4	1210	256.2	544.6	394.6	459	22.25
	2019	1	0	-0.3	593.5	126.7	304	219.5	257.6	38

	2019	2	0	-0.9	1780.5	380.1	912	658.5	772.8	39.5
	2019	3	1	-1.2	2374	506.8	1216	878	1030.4	41
	2019	4	1	-0.6	1187	253.4	608	439	515.2	37.5
	2020	1	1	-4.2	600.5	61.9	409.5	264.8	302.7	29.5
	2020	2	1	-12.6	1801.5	185.7	1228.5	794.4	908.1	30.5
	2020	3	1	-16.8	2402	247.6	1638	1059.2	1210.8	31.5
	2020	4	1	-8.4	1201	123.8	819	529.6	605.4	32.5
	2021	1	1	-15.3	588.9	99.75	522.6	489.3	333.6	41.5
	2021	2	1	-45.9	1766.7	166.25	871	815.5	1000.8	40
	2021	3	1	-61.2	2355.6	299.25	1567.8	1467.9	1334.4	39
	2021	4	1	-30.6	1177.8	99.75	522.6	489.3	667.2	39.5
SMEP	2018	3	0	-8.8	1176.8	205.2	658.8	130.4	758.4	33
	2018	4	0	-4.4	588.4	102.6	329.4	65.2	379.2	27
	2019	1	0	0.6	331.4	50.4	168.2	39.5	214.3	25.5
	2019	2	0	1.8	994.2	151.2	504.6	118.5	642.9	27.5
	2019	3	1	0.9	497.1	75.6	672.8	158	857.2	28.5
	2019	4	1	1.5	828.5	126	336.4	79	428.6	26.5
	2020	1	1	-31.05	1550.7	195.3	176.1	46.5	239.8	26

	2020	2	1	-10.35	516.9	65.1	528.3	139.5	719.4	21
	2020	3	1	-27.6	1378.4	173.6	704.4	186	959.2	23
	2020	4	1	-13.8	689.2	86.8	352.2	93	479.6	22
	2021	1	1	-4.6	338.2	38.7	225	81.3	236.6	23
	2021	2	1	-13.8	1014.6	116.1	375	135.5	709.8	25
	2021	3	1	-18.4	1352.8	154.8	675	243.9	946.4	24
	2021	4	1	-9.2	507.3	77.4	225	81.3	473.2	24
CARITAS	2018	3	0	-34	298.56	105.2	300.4	21.6	373.6	35
	2018	4	0	-17	248.8	52.6	150.2	10.8	186.8	39
	2019	1	0	-5.1	171.2	24.1	75.8	13.9	135.3	47
	2019	2	0	-15.3	513.6	72.3	227.4	41.7	405.9	54
	2019	3	1	-7.65	684.8	96.4	303.2	55.6	541.2	56
	2019	4	1	-12.75	342.4	48.2	151.6	27.8	270.6	59
	2020	1	1	1.8	228.4	25.6	141.1	12.8	194.3	49
	2020	2	1	1.2	685.2	76.8	423.3	38.4	582.9	30.5
	2020	3	1	2	913.6	102.4	211.65	51.2	777.2	31
	2020	4	1	1	456.8	51.2	352.75	25.6	388.6	29.5
	2021	1	1	1.7	295.1	34.7	702.72	12	250.4	31

	2021	2	1	5.1	885.3	104.1	468.48	36	751.2	34
	2021	3	1	6.8	1180.4	138.8	780.8	48	1001.6	31
	2021	4	1	3.4	442.65	69.4	390.4	24	500.8	32
SUMAC	2018	3	0	2	367.2	127.6	367.6	77.88	200	35
	2018	4	0	1	306	63.8	183.8	67.26	100	31
	2019	1	0	0.9	201.3	78.96	119.9	20.1	63.1	3
	2019	2	0	2.7	603.9	115.15	359.7	60.3	189.3	2
	2019	3	1	1.35	805.2	72.38	479.6	80.4	252.4	4
	2019	4	1	2.25	402.6	62.51	239.8	40.2	126.2	3
	2020	1	1	2.52	231	35.1	131.4	42.5	97.8	39
	2020	2	1	1.68	693	105.3	394.2	127.5	293.4	35
	2020	3	1	2.8	924	140.4	525.6	170	391.2	36
	2020	4	1	1.4	462	70.2	262.8	85	195.6	38
	2021	1	1	0.6	728.88	36.1	134.8	70.2	126.6	40
	2021	2	1	1.8	1062.95	108.3	404.4	117	379.8	42
	2021	3	1	2.4	668.14	144.4	539.2	168.48	506.4	43
	2021	4	1	1.2	577.03	72.2	269.6	112.32	253.2	39
KEY	2018	3	0	-5.6	173.2	61.2	92.4	22	49.2	73

	2018	4	0	-2.8	86.6	30.6	46.2	19	24.6	75
	2019	1	0	-1.3	40.6	14.7	23.7	10.4	9.9	91
	2019	2	0	-3.9	121.8	44.1	39.5	31.2	29.7	95
	2019	3	1	-5.2	162.4	58.8	56.88	41.6	39.6	104
	2019	4	1	-2.6	81.2	29.4	37.92	20.8	19.8	110
	2020	1	1	-3.4	30.7	10.8	9.8	8.6	7.4	32
	2020	2	1	-10.2	92.1	32.4	29.4	25.8	22.2	29
	2020	3	1	-13.6	122.8	43.2	39.2	34.4	29.6	31
	2020	4	1	-6.8	61.4	21.6	19.6	17.2	14.8	32
	2021	1	1	-5.1	43.35	5.7	6.2	8.6	8	29
	2021	2	1	-15.3	72.25	17.1	18.6	25.8	24	28
	2021	3	1	-20.4	104.04	22.8	24.8	34.4	32	26
	2021	4	1	-10.2	69.36	11.4	12.4	17.2	16	25
U & I	2018	3	0	3.2	213.6	67.6	97.46	18.4	114	23
	2018	4	0	1.6	106.8	33.8	84.17	9.2	57	19
	2019	1	0	0.6	68.64	17.3	60.172	2.9	35.6	28
	2019	2	0	1	205.92	51.9	180.516	8.7	106.8	30
	2019	3	1	1.44	274.56	69.2	240.688	11.6	142.4	32

	2019	4	1	0.96	137.28	34.6	120.344	5.8	71.2	34
	2020	1	1	2.88	80.5	29.55	70	3.9	36.8	23
	2020	2	1	4.2	241.5	49.25	210	11.7	110.4	20
	2020	3	1	2.64	322	70.92	280	15.6	147.2	20
	2020	4	1	2.28	161	47.28	140	7.8	73.6	21
	2021	1	1	2.4	100.6	53.04	87.2	6	40.1	25
	2021	2	1	7.2	301.8	77.35	261.6	10	120.3	29
	2021	3	1	9.6	402.4	48.62	348.8	14.4	160.4	27
	2021	4	1	4.8	201.2	41.99	174.4	9.6	80.2	27
UWEZO	2018	3	0	-10.8	90	56.8	54	37.6	6.4	108
	2018	4	0	-5.4	45	28.4	27	18.8	3.2	104
	2019	1	0	-3.1	16.8	11.7	16.32	5.5	2.5	77
	2019	2	0	-9.3	50.4	35.1	23.8	16.5	7.5	75
	2019	3	1	-12.4	67.2	46.8	14.96	22	10	70
	2019	4	1	-6.2	33.6	23.4	12.92	11	5	74
	2020	1	1	-1.8	32.16	10	5.85	6.2	1	92
	2020	2	1	-5.4	46.9	30	9.75	18.6	3	95
	2020	3	1	-7.2	29.48	40	14.04	24.8	4	95

	2020	4	1	-3.6	25.46	20	9.36	12.4	2	98
	2021	1	1	-3.1	64.95	36.8	0	0	2	715
	2021	2	1	-9.3	108.25	110.4	0	0	6	719
	2021	3	1	-12.4	155.88	147.2	0	0	8	722
	2021	4	1	-6.2	103.92	73.6	0	0	4	724
DARAJA	2018	3	0	-12.8	68.8	9.2	16.8	5.6	48.4	25
	2018	4	0	-6.4	34.4	4.6	8.4	2.8	24.2	17
	2019	1	0	-4.8	13.3	-0.9	1	1.7	10.7	9
	2019	2	0	-8	39.9	-2.7	3	5.1	32.1	7
	2019	3	1	-11.52	53.2	-3.6	4	6.8	42.8	9
	2019	4	1	-7.68	26.6	-1.8	2	3.4	21.4	7
	2020	1	1	-4	12.4	-7.2	0.2	1.6	9.7	7
	2020	2	1	-12	37.2	-12	0.6	4.8	29.1	5
	2020	3	1	-16	49.6	-17.28	0.8	6.4	38.8	6
	2020	4	1	-8	24.8	-11.52	0.4	3.2	19.4	6
	2021	1	1	-3	12	-3.7	0.1	2.25	10.3	5
	2021	2	1	-9	36	-11.1	0.3	3.75	30.9	3
	2021	3	1	-12	48	-14.8	0.4	5.4	41.2	4

	2021	4	1	-6	24	-7.4	0.2	3.6	20.6	4
MAISHA	2018	3	0	-47.6	115.6	3.2	55.2	26	104.8	27
	2018	4	0	-23.8	57.8	1.6	27.6	13	52.4	25
	2019	1	0	-3.8	126.4	79.9	18.8	8.6	44.6	28
	2019	2	0	-11.4	379.2	239.7	56.4	25.8	133.8	30
	2019	3	1	-15.2	505.6	319.6	75.2	34.4	178.4	32
	2019	4	1	-7.6	252.8	159.8	37.6	17.2	89.2	30
	2020	1	1	9.75	166.5	129.6	30.7	16	78.1	27
	2020	2	1	16.25	499.5	216	92.1	48	234.3	23
	2020	3	1	23.4	666	311.04	122.8	64	312.4	25
	2020	4	1	15.6	333	207.36	61.4	32	156.2	25
	2021	1	1	-17.8	148	68.6	15.2	28.6	47.8	29
	2021	2	1	-53.4	444	205.8	45.6	85.8	143.4	30
	2021	3	1	-71.2	592	274.4	60.8	114.4	191.2	31
	2021	4	1	-35.6	296	137.2	30.4	57.2	95.6	30
CENTURY	2018	3	0	-10	172.4	26.4	78	17.5	136.4	43.6
	2018	4	0	-5	86.2	13.2	39	11	68.2	46
	2019	1	0	-4.3	34.8	2.2	18.7	8.55	25.6	23

	2019	2	0	-12.9	104.4	6.6	56.1	13.5	76.8	19
	2019	3	1	-17.2	139.2	8.8	74.8	18	102.4	18
	2019	4	1	-8.6	69.6	4.4	37.4	9	51.2	20
	2020	1	1	-14.4	29.6	-9.36	11.4	7.3	27	21
	2020	2	1	-21	88.8	-13.65	34.2	21.9	81	25
	2020	3	1	-13.2	118.4	-8.58	45.6	29.2	108	23
	2020	4	1	-11.4	59.2	-7.41	22.8	14.6	54	23
	2021	1	1	-0.8	40.2	-4.6	27.12	9.3	38.8	41
	2021	2	1	-2.4	120.6	-13.8	39.55	27.9	116.4	42
	2021	3	1	-3.2	160.8	-18.4	24.86	37.2	155.2	42
	2021	4	1	-1.6	80.4	-9.2	21.47	18.6	77.6	43
CHOICE	2018	3	0	-9.24	39.2	-12	8.8	1.98	43.2	4
	2018	4	0	-7.98	19.6	-6	4.4	1.71	21.6	2
	2019	1	0	-2.9	7.9	-3.5	1.1	0.9	8.3	1
	2019	2	0	-8.7	23.7	-10.5	3.3	2.7	24.9	2
	2019	3	1	-11.6	31.6	-14	4.4	3.6	33.2	2
	2019	4	1	-5.8	15.8	-7	2.2	1.8	16.6	3
	2020	1	1	-2.6	5.4	-6.5	1.44	0.8	9.8	0.9

2020	2	1	-7.8	16.2	-19.5	2.1	2.4	29.4	1
2020	3	1	-10.4	21.6	-26	1.32	3.2	39.2	1
2020	4	1	-5.2	10.8	-13	1.14	1.6	19.6	1.1
2021	1	1	-2.4	4.5	-21.84	0.7	0.7	11.5	27
2021	2	1	-7.2	13.5	-31.85	2.1	2.1	34.5	29
2021	3	1	-9.6	18	-20.02	2.8	2.8	46	29
2021	4	1	-4.8	9	-17.29	1.4	1.4	23	31