

**EFFECT OF MOBILE BANKING ON LIQUIDITY OF COMMERCIAL
BANKS IN KENYA**

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DECLARATION

I declare that this project is my own original work and has not been presented for an award of any degree in any University.

Sign  _____

Date 6TH NOVEMBER 2022

NAJMA ABDIKANI AHMED

D63/38946/2020

This project has been presented with my approval as the University supervisor.

Sign  _____

Date 24TH NOVEMBER 2022

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DEDICATION

My dissertation is dedicated to my family and my siblings. My heartfelt appreciation goes out to my parents, my dear mother, Suuri Mohamed and my father, Abdikani Ahmed whose words of encouragement and encouragement to persevere continue to ring in my ears. Najal, Nadira, and Nawal, my three sisters, have never left my side and are very special.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
ATM	Automated Teller Machine
BI	Behavioral Intention
BSE	Bombay Stock Exchange
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
FED	Federal Reserve Bank
GMM	Generalized Method of Moments
ICT	Information Communication Technology
KNBS	Kenya National Bureau of Statistics
LQD	Liquidity
PEOU	Perceived Ease Of Use
PU	Perceived Use
SPSS	Statistical Package For Social Sciences
TAM	Technology Advancement Model
UAE	United Arab Emirates

ABSTRACT

This study sought to establish the effect of mobile banking on liquidity of commercial banks in Kenya through a causal research design. Researcher collected secondary data from 39 commercial banks in Kenya between 2017 and 2021. The data was sourced from bank supervision reports from the Central Bank of Kenya (CBK). The data will be collected using data collection sheet. This study utilized quantitative data analysis techniques via STATA 17. The statistical tests of significance that will be carried out will include F-test as well as t-test. The findings showed that the average liquidity of commercial banks was 2.6965%; mobile banking showed a mean of Ksh. 4.4797 billion; bank size showed a mean of 4.05729; while asset quality showed a mean of 21.3960% indicating low non -performing loan among the banks. The study found that mobile banking and asset quality had a positive effect on the liquidity of commercial banks. However, capital adequacy had a negative effect while bank size had no significant effect on liquidity of commercial banks. This study concludes that mobile banking and asset quality have a positive effect on liquidity of commercial banks in Kenya. The study further concludes that capital adequacy has a negative effect on liquidity of commercial banks in Kenya. Further, bank size has no significant effect on liquidity of commercial banks in Kenya. This study recommends that commercial banks increase the usage of mobile banking by their customers. This study also recommends that the commercial banks in Kenya increase the risk weighted assets in the asset portfolio reducing the core capital to risk weighted assets ratio hence increasing liquidity levels within the banks. This can be done by releasing capital from areas of inefficient capital usage. Commercial banks in Kenya should increase their asset quality through increased loans under follow up.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

In modern times, Kenya has been experiencing significant growth in the usage of mobile forms of banking by commercial banks. These are ascribed to advanced technology use in the banking industry. Accessing banking services in Kenya and the rest of Africa has been enhanced by usage of mobile banking. Mobile banking is linked to liquidity by transactions conducted through them measured by the value per volume of transactions. The need by banks to increase growth through transactions, quality services, and reduced infrastructural costs has led to adoption of mobile banking. Increased mobile banking transactions increase the liquidity of banks.

The study relied on financial intermediation theory, technology advancement model (TAM) and liquidity preference theory to explain the relationship between mobile banking against liquidity. Financial intermediation theory explains the contribution of mobile banking to banks' intermediation process and consequently their liquidity. Technology advancement model which explains the process of accepting technology innovations reveals why many banks are using mobile banking. Liquidity preference theory explains the motives of the demand for money and in this context, the theory will explain how these transactions from the motives influence liquidity through mobile banking.

Fin Access (2019) found out that Kenya has been ranked as the third most financially inclusive nation in Africa after Seychelles and South Africa. CBK in conjunction with KNBS also established that about 83% of Kenyans have access to formal financial services while 11% are excluded. World Bank Group (2020) states that about 1.7 billion people remain unbanked in the whole world and 17% of this is from Sub-Saharan Africa. Recent cases of mergers and acquisitions in the banking industry reveal that liquidity management practices are not effective hence the need to conduct this study and establish whether there is an association between mobile forms of banking, and commercial banks' liquidity in Kenya.

1.1.1 Mobile Banking

Tam et al (2017) define the mobile form of banking as an amenity provided by fiscal establishments such as banks to allow their customers to conduct financial transactions remotely and to also access their services just by using a mobile device for instance phone. Vaidya (2011)

defines mobile banking as the package provided by banks and other financial institutions to allow the customer to perform financial transactions remotely with handheld devices such as mobile phones, smartphones, and tablets. Mobile network companies in Kenya have partnered with Commercial Banks to offer mobile money services like Mpesa to reach the unbanked and increase the customer base. It is considered the most effective approach as one only needs a phone to access all banking services at a cost that is either in form of internet or credit which is very low compared to the costs associated with physically visiting a bank. It involves the use of a registered line provided by the telecommunication network provider or the bank itself, or software called an app developed by the financial institution to access banking services. This service is available on a 24-hour basis unlike traditional banking. Mobile banking provides a user with services of obtaining account balances, a list of latest transactions, remotely checking deposits, electronic bill payments, loan requests, statement access, and funds transfers.

The variables of the study, that is, mobile banking had been previously measured by the amount of money transacted and the volume of transactions calculated as the value per volume of transactions. Other researchers have used the number of mobile subscribers in place of the volume of transactions calculated as the value per number of mobile subscribers. Mobile banking can also be measured by the number of subscribers registered within a period. Data on transactions related to mobile banking will be used by most researchers in measuring these variables.

1.1.2 Firm Liquidity

Hummel (2006), states that liquidity is the capacity of a bank to meet its financial obligations as and to when they fall outstanding. According to him, the main challenge of banks is maintaining liquidity under all reasonable conditions. FED (2019) describes liquidity in relation to cash and other assets available for banks to quickly meet obligations that are short-term in financial and business nature. CBK (2020) defines liquidity as the capability of a bank to meet its obligations as and to when they become payable without incurring undesirable losses. In my opinion, liquidity is the amount of cash and easily cash convertible assets available for meeting financial obligations as and to when they payable.

According to Onyiriuba (2016), the management of bank liquidity risk in developing nations tends to be ineffective. Managing liquidity should be a regular process necessitating banks to screen and project cash flows relating to a bank to make sure that adequate liquidity level is maintained. This

involves sustaining the balance around current assets and current liabilities. Primary liabilities of individual banks are as a result of client deposits (banks owe the owners) while primary assets are in for of reserves and loans (owed to the bank). Liquidity is directly linked to cash deposits and withdrawals through agency and mobile banking and this brought to the attention of the researcher to establish whether there is a relationship between them. Statutory management and receiverships by regulatory authorities of banks are also an aspect of interest in this study. Banks with strong agency and mobile banking tend to outperform those without these variables. A liquidity crisis may arise when the clients of the bank feel that the bank might be unable to generate adequate cash to meet their needs without incurring financial losses leading to a bank run. This, therefore, may hinder the effectiveness of a bank's operations.

Gabilondo (2016) states that liquidity is measured by liquidity ratio and the same is compared to the set rate by the main bank regulators within an economy. The ratio is calculated normally by dividing current assets by current liabilities. For banks, the cost of liquidity is a vital measure of the value of a bank and its success. Lower costs of liquidity create stronger profits, increase the stability of banks, and assurance among investors, clients, and regulators within the banking industry. Banks' liquidity depends solely on customers' deposits which are directly and indirectly linked to mobile banking.

1.1.3 Mobile Banking and Liquidity

The liquidity of banks increases as the number of transactions increases. Mobile banking is directly and indirectly involved in carrying out transactions, for instance, deposits and withdrawals. Mobile holders contribute to either an increase or a decrease in liquidity levels. Mobile banking operates beyond the normal bank working hours and depending on the type of transaction, for instance, deposits or withdrawals, there is a likeliness of either a positive or negative change to liquidity level. Mobile holders must also be liquid for them to conduct transactions.

Empirically, mobile banking and liquidity has produced differing results. Udin, Bujang and Beli (2019) undertook an investigation on effect of technology on banks' liquidity risk on Southeast Asian commercial bank. The study found that mobile banking significantly improved bank liquidity ratio. Ahamed (2021) studied determinants relating to liquidity risk within commercial banking institutions in Bangladesh. The outcomes showed that adoption of mobile banking possessed a negative influence on liquidity. Pascal and Ochei (2019) studied financial technology

in relation to liquidity within Nigerian banking sector. The investigation displayed that mobile banking produced an insignificant impact on liquidity of Deposit Money Banks.

1.1.4 Commercial banks in Kenya

42 banks make up Kenya's commercial lending sector, that is subsequently subdivided into 3 major groups based on a preset composition of their net assets, capital and reserves, share of deposits, and loan portfolio. According to established standards, big group institutions were all those banks that aggregate weighted score is larger than 5% (or tier 1 banks). Banks categorized as medium grouping bankers (or tier 2 banks) have a weighted composite measure of 1 to 5 %, whereas banks classed as small group banks have a weighted composite measure of less than 1 % (or tier 3 banks). There are now 8 Tier 1, 11 Tier 2, and 21 Tier 3 ones in Kenya (CBK, 2020).

The usage of mobile payments in Kenya reached a record peak in December 2021 when customers traded Ksh. 622.14 billions on smartphones from Ksh. 605.69 billions in 2020, as per CBK's stats on digital money. The last five years has shown increased value of mobile banking transactions. In 2017, 332.62 billion shillings were transacted across mobile phones. This growth in mobile money is attributed to an increase in the usage of digital transactions by firms. The CBK minimum required rate for liquidity is 20%. The average rate of liquidity for banks from 2017 to 2020 was 44% and 48.1%, 48.6%, 49.7% and 66.5% respectively (CBK Annual reports). This shows that commercial banking sector in Kenya has been experiencing increasing liquidity and mobile banking.

1.2 Research Problem

Mobile banking which is a result of technological advancement has been embraced by most banks and this means increased value and volume of transactions in the banks in terms of deposits and withdrawals, therefore, affecting their liquidity levels. Recent cases of banks being put under receivership or merging to avoid dissolution or liquidation show that the problem of liquidity within banks is on the rise. The increased current assets due to adoption of mobile banking shows that mobile banking increases liquidity levels in a firm.

The commercial banks in Kenya have shown increased liquidity in the recent years. The minimum prescribed liquidity ratio by CBK stands at 20% and in the year 2021, the ratio had increased to twice the CBK required rate. As of December 2021, the mean liquidity ratio was 56.2 %, up from

the 54.5 % recorded in December 2020. A faster rise in overall liquid assets than in overall short-term liabilities were primarily responsible for the rise in overall liquidity ratio. An increased level of liquidity in the Kenyan commercial banks means that when the financial obligations of banks arise, most will meet them without incurring any additional costs like liquidation costs, legal costs, and reputation costs.

Researches done on mobile banking and liquidity exist. Udin, Bujang and Beli (2019) undertook an investigation on the effect of technology on banks' liquidity risk on Southeast Asian commercial bank. The study found that mobile banking significantly improved bank liquidity ratio. Ahamed (2021) studied determining factors of liquidity risk within commercial banks in Bangladesh. Findings displayed that adoption of mobile banking possessed an inverse influence on liquidity. Pascal and Ochei (2019) studied financial technology and liquidity in Nigerian banking sector. Mobile banking produced an insignificant impact upon liquidity of Deposit Money Banks.

In Kenya, Mohamed (2019) studied the influence of mobile banking on financial performance of commercial banks in Kenya. Study despite adopting mobile banking as a concept, related it to financial performance other than liquidity. Obadia and Kumungunyi (2022) studied the influence of mobile banking on financial performances of listed tier 1 Kenyan banking institutions; Ombongi (2021) studied influence of agency banking on liquidity of commercial banking institutions in Kenya; while Ongore (2017) studied the determinants of liquidity of commercial banks in Kenya. These studies have adopted differing concepts. For example, Mohamed (2019); and Obadia and Kumungunyi (2022) studied financial performance other than liquidity. Further, Ongore (2017) studied the determinants of liquidity other than relating it to mobile banking. The studies also adopted different methodologies. This shows that research gaps exist in the area of mobile banking and liquidity. What the effect of mobile banking on liquidity of commercial banks in Kenya?

1.3 Research Objective

To establish the effect of mobile banking on liquidity of commercial banks in Kenya

1.4 Value of the Study

In general, this research will be of significant benefit to theory, policy, and practice. In the area of theory, the survey will be a source of rich info for academicians, institutions, and other scholars.

The knowledge of the study variables will be applied widely in theory and can be used as a foundation for the development of important tenets in the banking industry both locally and internationally.

In policy, the survey will be of great importance to the regulators within the banking industry since it will give a general overview of mobile banking and liquidity of commercial banks. Since most banks have adopted these forms of banking, it is therefore to the advantage of regulatory authorities to use the findings in formulating policies that will influence the banking sector positively and also review the available policies for the benefit of the economy and the banks in operation. Policymaking authorities will use the results to explore present and impending concerns in the banking industry.

In practice, banking management and financial analysts will be able to assess a bank's performance in terms of liquidity against that of its peers in the banking sector and its past liquidity levels to determine a suitable acceptable level of liquidity required for banks in relation to using mobile form of banking. Professionals oriented to the banking world will also use the findings to evaluate and relate issues in banks concerning liquidity or mobile forms of banking. The findings can also help benchmark and carry out research activities within various banking and non-banking institutions.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter contained theoretical foundations and the empirical studies relating to mobile banking and financial performance. The chapter also contains literature on determinants of liquidity of commercial banks as well as conceptual framework.

2.2 Theoretical Review

2.2.1 Financial Intermediation Theory

Allen et al (1997) state that financial intermediation involves a medium between two parties to facilitate financial transactions through a financial intermediary who is usually commercial banks, investment banks, stockbrokers, pension funds, insurance companies, and stock exchanges. Financial intermediation enables the transfer of funds from lenders to borrowers that is from those with surplus funds to those with a deficit but in an indirect manner. Smith et al (1976) said that the role of a financial intermediary is to create a specialized financial commodity. The commodity is a derived demand and, in this study, the demand is for banking services.

Money moves in to and out of the bank accounts through mobile banking. This platform act as intermediaries between the commercial banks and their clients. They enhance liquidity through the transactions conducted through them. Liquidity has a direct relationship to these platforms theoretically. The theory is relevant because as the banks are receiving deposits from customers or lenders, they also in turn lend the same to those who need it and this involves cash-in and cash-out transactions through mobile banking.

2.2.2 Technological Acceptance Model

Davis created the technology acceptance model (tam) (1989). According to the technology acceptance paradigm, consumer adoption of a technological tool depends on how easy it is for them to use and how valuable it is. According to Warshaw et al (1989), this model on technological advancement suggests that when those using technology are presented with new technology, there are aspects that determine when and how technology will be used which are; PU, PEOU, and external variables. According to Davis (1989), PU is the extent to which people are certain that using a specific technology system would boost job performance.

Davis also defined PEOU as the extent to which a person is certain that using a certain technological system would be very easy. This means that if the technology is easy to use then the barriers are dominated and if otherwise, no one will have a positive attitude towards it. The importance of this theory is that it will help us understand the process of adapting to new technological inventions and developments like mobile banking as well as ensure a better prediction of the use of new information.

2.2.3 Liquidity Preference Theory

Drawing from Keynes (1936), the theory relates to the demand for money. Keynes developed this concept to explain the determination of interest rates through the demand and supply of money. He states that the money demand is dependent on interest cost foregone by not holding bonds, stocks, or other liquid assets. In the Keynesian analysis, interest is a cost for foregone liquidity. Keynes states that money is considered the greatest liquid asset, for instance, the easier an asset can be converted to money, the more liquid the asset is. In this theorem, demand for money is resolute by three motives which are the motive for transactions, motive for precautions, and the motive for speculations.

In the motive for transactions, he states that people want liquidity as an assurance to elementary transactions since their income is not regularly obtainable. The amount of liquidity required is resolute by the level of income and the two have a direct relationship. The motive for precautions states that people need liquidity to cover for the social unexpected events that need unusual spending. A speculative motive is a situation where liquidity is required to cover the anticipated future events and spending like foreseeing a fall in interest rates leading to holding more money. This can be presented graphically where the interest rate is resolute by the interface of the money supply curve and the money demand curve, that is, where the demand for money equals the money supply. Banks' liquidity greatly depends on these motives, and mobile banking contribute directly to enhancing the motives that are through their services. This theory is relevant because it will help the researcher understand what leads to transactions from various bank customers through mobile banking and the desire of banks to remain liquid.

2.3 Determinants of Liquidity of Commercial Banks

2.3.1 Capital adequacy

The 3 major streams of funding for bankers include shareholder capital, reserves and surplus, and loaned funds. Because it gauges the percentage of a financial institution's capitalization which is backed by shareholders' equity, capital adequacy is indeed a reliable indicator of a lender's resilience and stability. An institution is much less hazardous with greater its capital adequacy ratios, that might necessitate a bigger investment in liquid assets.

According to scientific investigations, capital adequacy possess a favorable and considerable impact on liquidity (Singh et al., 2016; Al-Homaidi et al., 2019). Djan et al (2015), in contrast, offer proof of an inverted link involving capital adequacy ratio and liquidity.

2.3.2 Bank Size

Bank size is a key element described through economies of scale. Because it produces a huge quantity of items, a big organization has cheaper production costs than a small business. Bank size is gauged via natural logarithm of the value of total assets. The total amount of current and non-current assets used in its regular conduct of operations is referred to as the bank size. Bigger institutions were anticipated to perform better than smaller banking institutions to scale-related efficiencies that enable them to distribute existing fixed costs across a broader variety of operations.

Ahamed (2021) established bank size having positive relation with liquidity. Study indicated that big firms experience high levels of liquidity. This is supported by Mahmood, Khalid, Waheed and Arif (2019) who displayed that bank size had a positive relation with liquidity of banks. Singh and Sharma (2016) established bank size possessed a negative influence on liquidity. This was based on the costs that come with big size which increases the current liabilities leading to higher liquidity risk.

2.3.3 Asset Quality

The credit risk connected to overall loan and stock portfolios, other investments, off-balance sheets activities, and other factors is represented by investment overall quality. The comparative volatility of assets contained in a portfolio is evaluated by asset quality. One of the elements that influences a financial institution's liquidity is asset quality. A financial institution's asset quality is determined by its susceptibility to particular risks, movements in non-performing loans, and total lending (Baral, 2005).

Ayuni and Anggraeni, A. (2022) indicated that the liquidity of a firm was influenced by the asset quality. They found, in their study that asset quality affected liquidity of firms positively in that it led to reduced credit risk hence reducing the liquidity risk. On the other hand, Al-Homaidi, Tabash, Farhan and Almaqtari (2019) displayed that asset quality was a key determinant of liquidity. They found asset quality as having had negative influence on liquidity of commercial banks. Sopan and Dutta (2018) also found that asset quality possessed a negative relation with liquidity of commercial banks.

2.4 Empirical Studies

2.4.1 International Studies

Five major banks in particular Asian nations were used in Udin, Bujang, and Beli's (2019) investigation into the connection around technology and bank liquidity from years 2012 to 2017. The Online subscription, cellular cellphone, Automated Teller Machines (ATM), and Internet security were employed in this research as stand-ins for technology. The significant relationship across the variables and random effect models were tested utilizing particular statically panels dataset approach. The results indicate that these relationships around the bank liquidity ratio and ATMs and mobile phones is considerable, indicating that impact of an increase in ATM and mobile phone usage on bank deposits will be seen.

Using the level of income economies, Udin, Bujang, Noemi, and Said (2021) calculated the impact of macroeconomic and ICT on bank's liquidity risks in the Asia and the Pacific region. The sampling comprised 24 nations in Asia and the Pacific since the nations were chosen depending upon accessibility of statistics. The study was conducted from 2011 to 2017. Stata 15 was used to analyze the panel regression data and evaluate the report's assumption. The outcome was examined using the Hausman Specification test and the Pooled OLS. This investigation discovered that using an ATM was indeed a beneficial and important transaction technique. Fixed broadband and mobile telephony both produced varied outcomes. Because of the lack of conviction in conducting bank transactions, it was discovered that Cybersecurity was a crucial issue that will effect bank liquidity risk.

Ahamed (2021) investigated the factors that affect liquidity risk in Bangladeshi financial institutions. 23 institutions' information spanning 2005 to 2018 were utilized for the investigation,

and panel data were used for the linear regression. Asset size is one of the bank-specific characteristics that has a bad association with liquidity risk. The liquidity condition and liquidity ratio typically higher and lower with bigger that institution gets. The capital adequacy ratio and return on equity possess a slight but favorable link with liquidity risks. This relationship between the ratio of loan balance to assets and the institutions' liquidity risk is favorable. Finally, adoption of mobile and electronic banking influenced liquidity negatively.

Focusing on a panel cointegration method, Al-Homaidi, Tabash, Farhan, and Almaqtari (2019) conducted an investigation on factors that affect the liquidity of Indian listed commercial bankers. The investigation used a panel of 37 financial institutions listed on Bombay Stock Exchange (BSE) in India through 2008 to 2017 and used either GMM and pooling, fixed, and random effect modelling to them. The banks' LQD was used as a variable y that was tested versus factors that were simultaneously bank- and macroeconomic-specific. According to the findings, among bank-specific variables, bank size, capital adequacy ratio, deposits ratio, operational efficiency ratio, and return on assets ratio are discovered to possess a substantial beneficial impact on LQD. Nevertheless, it is discovered that LQD is significantly harmed by the assets quality ratio, assets management ratio, return on equity ratio, and net interest margin ratio.

Hussain, Kijkasiwat, Ijaz and Deari (2022) studied the determinants of systematic and unsystematic liquidity risk in Islamic banks. A selection of Islamic banks from Pakistan, Qatar, Malaysia, the United Arab Emirates, Bangladesh, Bahrain, and Saudi Arabia were used throughout the investigation spanning 2008 to 2019. Researchers discover that the findings are inconsistent and varied between nations when they estimated the models independently for every one utilizing Least Square estimation techniques. The findings also demonstrate that main non-systematic variables in defining the liquidity risk of Islamic banks are non-performing loans, bank size, leverage ratio, and returns on assets. This research confirms how weak Islamic banks are when it comes to controlling liquidity risk.

Pascal and Ochei (2019) did a study on financial technology and liquidity in Nigerian banking sector. The researching design was indeed a case research. The investigation used quarterly time series data spanning the first quarter of 2009 through the 4th quarter of 2018 during a nine-year timeframe. In order to approximate the models, secondary information was also gathered. Loan-to-deposit ratio served as a stand-in for the dependent variable, and automated teller machine, point

of sale, digital banking, and electronic clearing system served as stand-ins for the predictor factors. For this investigation, a unit root analysis was used as a pre-estimation procedure, so the parameters were static at the initial difference. To determine overall short run behavior and long run relationships of models, investigation used Auto Regressive Distributed Lag. According to investigation results, automated teller machines in Nigerian deposit money banks had a considerable influence on liquidity compared to mobile banking, which had a negligible effect.

2.4.2 Kenyan Studies

Mohamed (2019) conducted research on how Kenyan commercial banks' financial performance was impacted by mobile banking. Investigation made use of descriptive research methodologies. Senior staff of 43 banks with licenses from the Central Bank of Kenya make up the survey's key demographic. A sampling of 335 workers from banks was selected using simple randomized selection. Personal administration of structured questions was used to collect primary data. The Kenya Bankers Association, the Communication Authority, and Central Bank of Kenya publications were utilized to obtain secondary type of data. With the help of SPSS Version 22.0, data analysis was carried out. Frequency, percentage, mean, mode, and median expressions were used to present descriptive data. Multiple regressions and Spearman Inferences were used to display statistical techniques. There was a straightforward linear regression involving every among the 3 and the outcome variable. According to the report, major banks' financial success was improved by mobile banking.

A survey on overall impacts of mobile banking on overall financial performance of listed Tier 1 Kenyan commercial banks was conducted by Obadia and Kumungunyi in 2022. To investigate the cause-and-effect connection amongst the parameters, the investigation used a causal research design. There were different levels of the targeted demographic for this investigation. The survey's primary targeted group was the organizational level, in which it focused on six banks that were still in existence as of the end of 2016. Open-ended and closed-ended questionnaires were given to respondents in order to gather primary data. Secondary data was taken from the yearly supervisory documents printed by Central Bank of Kenya and banks' yearly accounting documents that were published in their financial statements. Excel Spreadsheet 2016 and (SPSS)software were used to conduct the investigation. The impact of mobile banking on financial performance of Kenya's Listed Tier One Banking Institutions were investigated using regression analysis. The

study findings established that mobile banking has a negative but insignificant connection with financial performance.

Ongore (2017) undertook a research on determinants of liquidity of commercial bankers in Kenya. This explanatory study is grounded on secondary data mined from commercial banks for ten years from 2005 to 2016. 37 major banks are taken into account in the investigation. Thirteen of those organizations have foreign ownership, while 24 were locally held. The analysis employed a multivariate linear regression model with t-statistics. The results demonstrated that bank-specific variables possessed considerable impact on Kenya's commercial banks' liquidity. The financial performance was not significantly moderated by ownership identity.

Ombongi (2021) studied influence of agency banking on liquidity of commercial banking institutions in Kenya. Data collected for analysis related to five years from 2016 to 2020. This data was secondary and was extracted from CBK and the individual banks' websites. The research's dependent variable was liquidity while the independent variables included; agency banking, mobile banking, bank size (Assets), and the CAR. Liquidity was measured by the current ratio, that is, for the commercial banks while agency banking, assets, and CAR were measured by agency transaction value per total transacted value for a bank, the total value of assets and total capital to total risk-weighted assets respectively. At a 95% significance level, the research proved that the dependent and independent parameters had a moderately positive association.

2.5 Conceptual Framework

Independent Variable

Dependent Variable

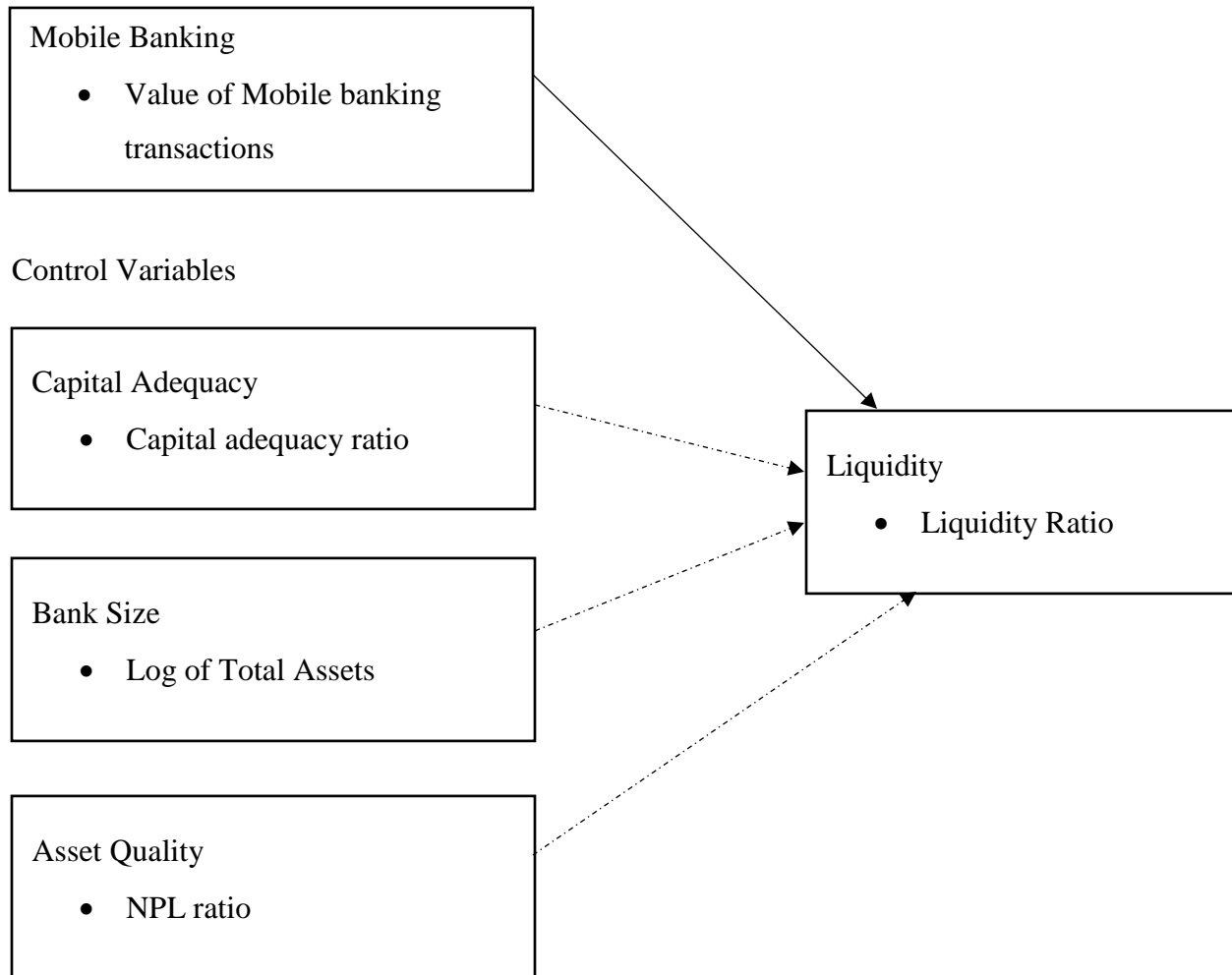


Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review

The survey aims to determine how mobile banking affects Kenyan commercial banks' liquidity. Both empirical and theoretical literature on risk management and performance has been reviewed in this chapter. The empirical studies displayed conflicting results with some showing positive while others showed negative or no relationship between mobile banking and liquidity of firms. The local studies show that various gaps existed in mobile banking and liquidity. Studies looked at different concepts, based on different contexts and differing methodologies. This study seeks fill the gap by looking at effect of mobile banking on liquidity of commercial banks in Kenya.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodologies adopted in this survey. Specifically, it gives research design, population, data collection and data analysis.

3.2 Research Design

This survey adopted a causal research design. Causal research design enables a scholar to show cause-effect relationship between variables (Atmowardoyo, 2018). The design also enables the researcher to adopt quantitative analytical techniques to describe the status of the variables. This design was adopted for this study as it enabled researcher to establish effect of mobile banking on liquidity of commercial banks in Kenya with ease.

3.3 Population

All commercial banks in Kenya between 2017 and 2021 formed the populace. Based on data from Central Bank of Kenya (CBK), there were 39 commercial banks in Kenya between 2017 and 2021. Commercial banks showed increased liquidity issues with the period between 2017 and 2021. Within the same period, the sector experienced increased adoption of mobile banking by the individual firms.

3.4 Data Collection

This study collected secondary data from 39 commercial banks in Kenya between 2017 and 2021 (Appendix I). The data was gathered from banking supervision reports from CBK. Data was collected via data collection sheet (Appendix II). Data sheet contained data in absolute values in million Kenya Shillings.

3.5 Data Analysis

This survey utilized quantitative data analysis techniques. Data was cleaned, coded and entered into STATA 17 for analysis. The data was analyzed via descriptive and regression statistics. Descriptive ones consisted of mean, standard deviation, minimum and maximum. Regression analysis involved the use of regression model. The model was based on annual data.

3.5.1 Diagnostic Tests

This study undertook various tests to determine suitability of the data for analysis. This included Multicollinearity, normality and heteroscedasticity. Multicollinearity test was done to show

whether there is linearity among the predicting variables. This was checked via Variance inflation factor. The null hypothesis, that there exists no linearity among predictor variables, is rejected when VIF values are above 5. Normality was done to check on whether the data follows a normal distribution. Shapiro Wilk test was done for normality. The null hypothesis, that data follows a normal distribution, is rejected where the significance values are below 0.05. Heteroskedasticity was checked to see whether the error term is constant over time. It will be checked via Breusch Pagan test. The null hypothesis, that error term is constant over time, is rejected where the pvalue of the statistics is below 0.05.

3.5.2 Analytical Model

The analytical model was:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Y Liquidity as measured by liquidity ratio

α Regression constant

β_1 - β_4 Regression coefficients of predictors

X_1 Mobile banking as indicated by value of mobile banking transactions

X_2 Capital adequacy as gauged by core capital to risk weighted assets ratio

X_3 Bank Size as measured by natural logarithm of assets

X_4 Asset quality as measured by non-performing loans ratio

3.5.3 Significance Tests

The statistical tests of significance that was carried out will include F-test as well as t-test. F-test was done to check significance of analytical model. This was done via the Analysis of Variance (ANOVA). On the other hand, T-test was done to test for individual predictor variables. T-statistics was got from the regression coefficient table.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presented and interpreted results based on objectives and variables adopted in the study. A total of 38 banks had full data for five years giving a total of 190 data points.

4.2 Descriptive statistics

Table 4.1: Descriptive statistics

	N	Unit	Minimum	Maximum	Mean	Std. Deviation
Liquidity	190	%	.00	73.35	2.6965	8.37045
Mobile banking	190	Natural Log	4.16	4.76	4.4797	.21364
Capital adequacy	190	%	2.26	94.50	20.5148	11.96716
Bank Size	190	Natural Log	-3.00	13.68	9.4588	4.05729
Asset quality	190	%	.00	264.51	21.3960	28.42899

From the findings, the average liquidity of commercial banks was 2.6965% indicating low liquidity ratio levels among the commercial banks. The liquidity of commercial banks had a standard deviation of 8.37%. This displays that liquidity varied greatly across commercial banks with some having high liquidity. Moreover, mobile banking showed a mean of 4.48 indicating very low mobile banking transactions among banks. Nevertheless, capital adequacy displayed a mean of 20.5148% showing that the banks were generally low in terms of capital weighed to assets ratio. However, bank size showed a mean log of 4.06 indicating banks were generally low in terms of assets. Finally, asset quality showed a mean of 21.40% indicating low non -performing loan among the banks.

4.3 Diagnostic Tests

Table 4.2: Normality Test

	Shapiro-Wilk		
	Statistic	df	Sig.
Liquidity	.292	190	.000
Mobile banking	.879	190	.000
Capital adequacy	.810	190	.000
Bank Size	.697	190	.000
Asset quality	.071	190	.000

The Shapiro-Wilk test results for normality revealed that the parameters exhibited significance scores under 5%, according to the investigator. As a result, the investigator concluded that overall data for variables does not exhibit normal distributions and rejected the null hypothesis that the dataset is normally spread.

Table 4.3: Multicollinearity Test

	Collinearity Statistics	
	Tolerance	VIF
Mobile banking	.907	1.102
Capital adequacy	.983	1.017
Bank Size	.932	1.073
Asset quality	.986	1.014

In order to check on whether Multicollinearity existed in dataset, Variance Inflation Factor (VIF) was adopted. Collinearity statistics show that the VIF values for the variables was less than 2 indicating that there was a very low level of Multicollinearity in the data. The researcher concludes that Multicollinearity is not a problem in the data.

Table 4.4: Heteroskedasticity Test

----- Breusch-Pagan and Koenker test statistics and sig-values -----

	LM	Sig
BP	1.398	.845
Koenker	.138	.998

Null hypothesis: heteroskedasticity not present (homoskedasticity)

if sig-value less than 0.05, reject the null hypothesis

From the Breusch pagan results, the statistics of 1.398 show a significance of 0.845. The significance was below 0.05 indicating that the null hypothesis should be rejected. Researcher therefore concludes that there was no heteroscedasticity in variable data utilized in this research.

4.4 Correlation Analysis

Table 4.5: Correlation Analysis

		Liquidity	Mobile banking	Capital adequacy	Bank Size	Asset quality
Liquidity	Pearson	1				
	Correlation					
	Sig. (2-tailed)					
Mobile banking	N	190				
	Pearson	.320	1			
	Correlation					
Capital adequacy	Sig. (2-tailed)	.000				
	N	190	190			
	Pearson	-.241	.126	1		
Bank Size	Correlation					
	Sig. (2-tailed)	.001	.083			
	N	190	190	190		
Asset quality	Pearson	.088	.258	.030	1	
	Correlation					
	Sig. (2-tailed)	.227	.000	.678		
	N	190	190	190	190	
	Pearson	.161	.136	.097	-.107	1
	Correlation					
	Sig. (2-tailed)	.027	.062	.181	.142	
	N	190	190	190	190	190

Outcomes depict that mobile banking had a weak, positive relationship with liquidity ($r=0.320$; $p=0.000$). However, Capital adequacy displayed a weak negative relation with liquidity ($r=-.241$; $p=0.001$). On the other hand, bank size displayed an insignificant relation with liquidity ($r=0.088$; $p=0.227$) while asset quality had a positively weak relation with liquidity ($r=0.161$; $p=0.027$).

Asset quality

4.5 Regression Analysis

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733 ^a	.538	.528	1.50418
a. Predictors: (Constant), Asset quality, Bank Size, Capital adequacy, Mobile banking				

Predictors variables showed a correlation (R) of 0.733 against liquidity. This shows predictors variables (asset quality, bank size, capital adequacy, Mobile banking) possessed a strong relationship with liquidity of commercial banks in Kenya. Summary also shows an R squared of 0.538 indicating predictor variables contribute 53.8% to fluctuation in liquidity of commercial banks in Kenya. This show that mobile banking, capital adequacy, bank size, and asset quality are the major factors influencing liquidity of commercial banking institutions in Kenya.

Table 4.7: Analysis of Variance

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	110.311	4	27.578	21.125	.000 ^a
	Residual	241.511	185	1.305		
	Total	351.822	189			

a. Predictors: (Constant), Asset quality, Bank Size, Capital adequacy, Mobile banking
b. Dependent Variable: Liquidity

Calculated F-statistics (21.125) was higher than the critical F-statistics (2.42) signifying that regression model fits the data. F-statistics showed that overall model was significant since the p value was less than 5%. This signifies that regression model fits data and predictor variables have a significant effect on liquidity of commercial banks in Kenya.

Table 4.8: Regression Coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.802	1.330		2.859	.005
	Mobile banking	.487	.155	.409	3.142	.002
	Capital adequacy	-.279	.139	-.245	-2.007	.046
	Bank Size	.041	.195	.037	.210	.832
	Asset quality	.167	.076	.159	2.206	.029
a. Dependent Variable: Liquidity						

The findings from the research data show that when predictor variables (mobile banking, capital adequacy, bank size, and asset quality) were held constant, liquidity of commercial banks would stand at 3.802. The coefficients also showed that mobile banking had a regression coefficient of 0.487 and significant value of 0.002. This indicates that a unit increase in mobile banking would increase liquidity significantly. A unit increase in capital adequacy would reduce liquidity significantly as shown by regression coefficient of -0.279 and significance value of 0.046. On the other hand, increased bank size had no significant change on liquidity as shown by regression coefficient of 0.041 and significance value of 0.832. Finally, a unitary increment in asset quality would increase liquidity significantly as shown by regression coefficient of 0.167 and significance value of 0.029.

4.6 Discussions

The outcomes exhibited that increased mobile banking led to mobile banking had a positive effect on liquidity. Findings are similar to those of Mohamed (2019) who found that mobile banking enhanced liquidity. However, the findings differ with those of Ahamed (2021) who found that adoption of mobile banking influenced liquidity negatively. The findings also differed with those of Pascal and Ochei (2019) who found that there was an insignificant impact of mobile banking on liquidity.

The findings showed that increased capital adequacy (core capital to risk weighted assets) led to decrease in liquidity. This indicates that capital adequacy possessed negative effect on liquidity of commercial banks. The results concur with those of Djan, Stephen, Bawuah, Halidu and Kuutol (2015) who found that an inverse relationship existed between capital adequacy and liquidity. They however differ with those of Al-Homaidi et al. (2019) who found that capital adequacy affected liquidity positively.

The findings showed that increase in bank size had no significant effect on bank's liquidity. This indicates that bank size possessed an insignificant effect on liquidity of commercial banks. This shows that firm size is not a significant factor influencing liquidity of commercial banks. The findings are different from the outcomes of a study by Ahamed (2021) who found that bank size had a positive relationship with liquidity. They also differ with Singh and Sharma's (2016) who found that bank size had a negative effect on liquidity.

The findings showed that increase in asset quality led to an increase in liquidity of commercial banks. This shows that asset quality had a positive effect on liquidity of commercial banks. Increased asset quality would increase the firm's liquidity. The results are in support of those of Ayuni and Anggraeni (2022) who found that asset quality affected liquidity of firms positively. They are differing from those of Al-Homaidi, Tabash, Farhan and Almaqtari (2019) who found that asset quality had a negative effect on liquidity.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gave summary and conclusions based on findings. Chapter contain recommendations as well as the limitations of the study.

5.2 Summary of Findings

The study sought to establish effect of mobile banking on liquidity of commercial banks in Kenya. From the findings, mobile banking, capital adequacy, bank size, and asset quality showed a strong combined relation with liquidity of commercial banks. The outcomes also showed that mobile banking, capital adequacy, bank size, and asset quality contributed 53.8% fluctuation in liquidity of banks. The findings also showed that increased mobile banking would increase liquidity of commercial banks. This signified that a mobile banking possessed a positive effect on liquidity.

The results also showed that increase in capital adequacy reduced liquidity of commercial banks. This is an indication that capital adequacy had a negative effect on liquidity of commercial banks. The bank size was found to cause no significant increase in liquidity of commercial banks. This shows that bank size had no significant increase in liquidity of commercial banks. Increase in asset quality was found to increase the liquidity of commercial banks. This indicates that asset quality possessed a positive effect on liquidity of commercial banks.

5.3 Conclusions

From the outcomes, mobile banking had a positive effect on liquidity. This showed that increased mobile banking would increase liquidity of the commercial banks. Researchers concluded that mobile banking possessed positive effect on liquidity of commercial banks in Kenya. This means that improved mobile banking improves liquidity of commercial banks.

The results further showed that capital adequacy had a negative effect on liquidity of commercial banks. This indicated that an increase in capital adequacy reduced liquidity of commercial banks. Therefore, this study concludes that capital adequacy has a negative effect on liquidity of commercial banks in Kenya. It means that firms with high capital adequacy experience low levels of liquidity.

Further, bank size had no significant effect on liquidity of commercial banks. Therefore, increased bank size did not cause any significant increase in liquidity of commercial banks. Researcher, hence, concludes that bank size has no significant effect on liquidity of commercial banks in Kenya. This shows that bank size is not a significant factor influencing liquidity of commercial banks in Kenya.

From the results, asset quality had a positive effect on the liquidity of commercial banks. It shows that an increased asset quality would increase the liquidity of commercial banks. Research concludes that asset quality possessed a positive effect on liquidity of commercial banks in Kenya. This shows that the banks with high asset quality experience high levels of liquidity. From the model summary, the study concludes that mobile banking, capital adequacy, bank size, and asset quality are the major factors influencing liquidity of commercial banks in Kenya.

5.4 Policy Recommendations

This study concludes that mobile banking possessed positive influence on liquidity of commercial banks in Kenya. This means that if the banks increased the transactions via mobile banking, they would experience increased liquidity levels. This study recommends that commercial banks increase the usage of mobile banking by their customers. This can be done in conjunction with the government which should create a favorable policy framework for mobile banking in Kenya.

The study further concludes that capital adequacy possessed a negative effect on liquidity of commercial banks in Kenya. It means that if firms increased their capital adequacy, in terms of core capital to risk weighted assets, they would experience reduced levels of liquidity. Researcher recommends that commercial banks in Kenya increase risk weighted assets in the asset portfolio. This would reduce the core capital to risk weighted assets ratio hence increasing liquidity levels within the banks. This can be done by releasing capital from areas of inefficient capital usage.

Asset quality possess a positive effect on liquidity of commercial banks in Kenya. This shows that the banks with high asset quality experience high levels of liquidity. This research recommends that commercial banks in Kenya increase their asset quality through increased loans under follow up. This would increase the liquidity levels among the banks.

5.5 Limitations of the study

The survey established effect of mobile banking on liquidity of commercial banks in Kenya. This creates restrictions focused on commercial banks which may limit the application of the findings on other financial institutions in Kenya. The study focused on listed commercial banks limits the study. The study is also limited to mobile banking and liquidity as the key variables for the study. The research adopted specific measures of the variables which limited the study. The research timeframe placed restrictions on the investigation. The investigation only used secondary data, while primary data investigations were anticipated for comparability. Future research suggestions were made in order to address the drawbacks.

5.6 Recommendations for Future Studies

From limitations, researcher recommends that future studies focus on similar topic based on other measures of mobile banking and liquidity. They can also look at other factors influencing liquidity of commercial banks in Kenya. The studies also must focus on other financial institutions like microfinance banks, Saccos or microfinance institutions other than commercial banks. Other studies can focus on other periods other than 5-year period. The adoption of primary data is recommended in future studies.

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APPENDICES

Appendix I: List of Commercial Banks in Kenya

1. ABC Bank
2. Absa Bank Kenya
3. Access Bank Kenya
4. Bank of Africa
5. Bank of Baroda
6. Bank of India
7. Citibank
8. Consolidated Bank of Kenya
9. Cooperative Bank of Kenya
10. Credit Bank
11. Development Bank of Kenya
12. Diamond Trust Bank
13. Dubai Islamic Bank
14. Ecobank Kenya
15. Equity Bank Kenya
16. Family Bank
17. First Community Bank
18. Guaranty Trust Bank Kenya
19. Guardian Bank
20. Gulf African Bank
21. Habib Bank AG Zurich
22. Housing Finance Company of Kenya
23. I&M Bank
24. Kingdom Bank Limited
25. Kenya Commercial Bank
26. Mayfair Bank
27. Middle East Bank Kenya
28. M Oriental Bank

29. National Bank of Kenya
 30. NCBA Bank Kenya
 31. Paramount Universal Bank
 32. Prime Bank (Kenya)
 33. SBM Bank Kenya
 34. Sidian Bank
 35. Spire Bank
 36. Stanbic Holdings Plc
 37. Standard Chartered Kenya
 38. United Bank for Africa
 39. Victoria Commercial Bank
- Source: Central Bank of Kenya (2021)

Appendix II: Data Collection Sheet

	Liquidity Ratio	Mobile Banking Transactions	Core capital	Risk weighted assets	Total Assets	Deposits	Gross total loans	Gross Non-performing loans
		Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M
2017								
2018								
2019								
2020								
2021								

Appendix III: Research Data

Bank	Year	Mobile banking	Core capital	Risk weighted assets	Total Assets	Deposits	Gross total loans	Gross NPLs
		Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M	Ksh. M
Absa Bank Kenya Plc	2017	116.464	38768.000	243728.000	271682.000	7950.000	156843.000	2666.000
	2018	103.812	37788.041	261752.219	325363.000	8083.000	186984.000	13910.000
	2019	90.298	38832.488	277812.947	374109.200	242375.000	244395.000	13519.000
	2020	76.240	102218.000	654393.000	758345.000	257706.000	544837.000	66810.000
	2021	64.148	47870.000	328712.000	428746.000	275546.000	256465.000	19817.000
	2021	116.464	1549.000	7499.000	0.210	10899.000	3405.000	2587.000
African Banking Corporation Ltd	2017	116.464	2488.000	19239.000	19302.000	33335.000	6867.000	13265.000
	2018	103.812	2956.579	19408.413	27213.000	21974.000	14108.000	2942.000
	2019	90.298	2428.895	20005.291	75377.850	22981.000	20115.000	3258.000
	2020	76.240	70268.000	566959.000	667650.000	28082.000	307324.000	51781.000
	2021	64.148	2519.000	20448.000	0.570	31449.000	18332.000	2528.000
Bank of Africa (K) Ltd	2017	116.464	4946.000	44275.000	6505.000	77694.000	26430.000	3917.000
	2018	103.812	3423.941	30952.640	6857.000	30181.000	3064.000	1227.000
	2019	90.298	1510.566	24545.787	11865.610	33329.000	7000.000	870.000
	2020	76.240	60707.000	341742.000	283569.000	27977.000	259698.000	35995.000
	2021	64.148	2543.000	21403.000	0.650	27796.000	23654.000	4665.000
Bank of Baroda (Kenya) Limited	2017	116.464	16203.000	52365.000	96132.000	44825.000	68153.000	27658.000
	2018	103.812	20038.296	58280.792	123014.000	102007.000	133166.000	21661.000
	2019	90.298	22634.933	69827.913	143311.340	119341.000	152807.000	20058.000
	2020	76.240	47561.000	229366.000	377936.000	138406.000	229677.000	17099.000
	2021	64.148	28679.000	95644.000	180381.000	149920.000	79236.000	26542.000
Bank of India	2017	116.464	10665.000	20508.000	76438.000	189305.000	5680.000	592.000
	2018	103.812	12460.848	28787.492	85639.000	49256.000	43439.000	3903.000
	2019	90.298	14813.135	30964.343	62543.240	46755.000	54389.000	4126.000

	2020	76.240	43715.000	297314.000	325873.000	56912.000	176597.000	25038.000
	2021	64.148	20010.000	38666.000	86867.000	65776.000	37408.000	12850.000
Citibank N.A. Kenya	2017	116.464	19037.000	77348.000	98232.000	65461.000	7741.000	809.000
	2018	103.812	18677.814	68086.955	98534.000	57761.000	66123.000	31461.000
	2019	90.298	18596.723	68493.696	96570.190	65335.000	144483.000	25175.000
	2020	76.240	42208.000	223976.000	491614.000	81190.000	165948.000	19747.000
	2021	64.148	17888.000	98723.000	130940.000	103206.000	39339.000	8673.000
Consolidated Bank of Kenya Limited	2017	116.464	58859.000	357310.000	9541.000	285990.000	235342.000	11901.000
	2018	103.812	55214.858	367430.410	9887.000	8824.000	6172.000	1069.000
	2019	90.298	1152.391	10125.914	8652.480	8796.000	7313.000	1263.000
	2020	76.240	40940.000	256472.000	318986.000	9287.000	160665.000	20178.000
	2021	64.148	433.000	13179.000	0.220	11386.000	6359.000	739.000
Co-operative Bank of Kenya Ltd	2017	116.464	354.000	11686.000	382830.000	8855.000	139406.000	17621.000
	2018	103.812	25276.163	160962.878	408304.000	304593.000	257566.000	28953.000
	2019	90.298	2837.260	20069.349	449616.470	17347.000	281516.000	31156.000
	2020	76.240	39240.000	247251.000	166313.000	370085.000	152711.000	22337.000
	2021	64.148	78843.000	502186.000	540387.000	399441.000	255664.000	40909.000
Credit Bank Ltd	2017	116.464	2594.000	16679.000	10295.000	11485.000	6680.000	17669.000
	2018	103.812	2628.938	18756.441	10515.000	14392.000	10027.000	2539.000
	2019	90.298	2649.048	9381.519	8466.280	6029.000	9801.000	2632.000
	2020	76.240	26670.000	86842.000	106454.000	18149.000	74774.000	26438.000
	2021	64.148	1673.000	21234.000	0.410	20365.000	19037.000	5487.000
Development Bank of Kenya Ltd	2017	116.464	1617.000	8060.000	10577.000	7665.000	10710.000	1122.000
	2018	103.812	1778.266	8936.475	15323.000	6822.000	10031.000	2879.000
	2019	90.298	44555.022	233853.549	12393.780	221038.000	9892.000	3341.000
	2020	76.240	22559.000	58365.000	312189.000	8279.000	63111.000	9391.000
	2021	64.148	2283.000	13232.000	0.300	8937.000	10218.000	2995.000
Diamond Trust Bank Kenya Limited	2017	116.464	35344.000	204039.000	109942.000	209254.000	38080.000	1724.000
	2018	103.812	39935.899	213677.904	115143.000	224440.000	47023.000	8138.000
	2019	90.298	1002.344	6839.081	287250.600	6512.000	60677.000	8244.000
	2020	76.240	18091.000	82243.000	75129.000	235048.000	51151.000	6342.000

	2021	64.148	49790.000	250695.000	326377.000	237455.000	171866.000	27151.000
DIB Bank Kenya Ltd	2017	116.464	1269.000	1811.000	5121.000	1285.000	46928.000	2596.000
	2018	103.812	1174.336	3932.028	5251.000	3198.000	6109.000	2686.000
	2019	90.298	5774.511	42533.091	8987.920	66321.000	6153.000	2632.000
	2020	76.240	17145.000	35693.000	116204.000	10149.000	41836.000	10799.000
	2021	64.148	1793.000	11379.000	0.290	11926.000	3128.000	202.000
Ecobank Kenya Ltd	2017	116.464	5767.000	37495.000	13456.000	45856.000	43943.000	2310.000
	2018	103.812	5627.881	34582.816	10236.000	47188.000	8018.000	773.000
	2019	90.298	62469.024	476759.743	57083.280	381138.000	8929.000	1411.000
	2020	76.240	11344.000	74824.000	90591.000	85021.000	44531.000	4838.000
	2021	64.148	6359.000	44481.000	103388.000	94549.000	53765.000	1020.000
Equity Bank Kenya Ltd	2017	116.464	59198.000	374209.000	406402.000	298703.000	221698.000	12615.000
	2018	103.812	55864.207	400288.769	438509.000	341782.000	231026.000	17064.000
	2019	90.298	11244.237	70978.185	507525.240	58332.000	290564.000	26185.000
	2020	76.240	7355.000	46180.000	79190.000	502423.000	36760.000	16225.000
	2021	64.148	93843.000	704636.000	877415.000	652204.000	420774.000	35470.000
Family Bank Ltd.	2017	116.464	10832.000	66207.000	56631.000	47627.000	118459.000	10571.000
	2018	103.812	10706.525	65186.401	66910.000	48806.000	38188.000	2821.000
	2019	90.298	617.150	13962.683	78857.130	16285.000	45822.000	4555.000
	2020	76.240	6578.000	76037.000	37653.000	70577.000	39726.000	1120.000
	2021	64.148	12985.000	83080.000	111683.000	84712.000	47577.000	5199.000
First Community Bank Ltd	2017	116.464	1407.000	13173.000	24804.000	14783.000	21456.000	10359.000
	2018	103.812	774.637	11828.591	25323.000	15541.000	18620.000	4232.000
	2019	90.298	5421.718	20643.540	16386.450	18932.000	22546.000	3556.700
	2020	76.240	6097.000	35151.000	31267.000	19038.000	22928.000	4028.000
	2021	64.148	1116.000	21511.000	0.380	21513.000	8072.000	6010.000
Guaranty Trust Bank Ltd	2017	103.812	5257.000	19923.000	54191.000	16601.000	7232.000	1595.000
	2018	90.298	5074.402	18810.854	54464.000	16760.000	23616.000	2572.000
	2019	76.240	2523.757	12345.662	36072.410	13078.000	27068.000	3613.000
	2020	64.148	5804.000	44549.000	37890.000	21316.000	25442.000	1679.000
	2021	116.464	5606.000	23226.000	0.710	22315.000	26337.000	8352.000

Guardian Bank Limited	2017	116.464	2307.000	11746.000	14465.000	13120.000	18887.000	2106.000
	2018	103.812	2420.413	11241.904	16186.000	13336.000	10691.000	4940.000
	2019	90.298	4262.768	34347.247	16088.320	27818.000	13608.000	4699.000
	2020	76.240	5413.000	20794.000	27212.000	13238.000	26884.000	4377.000
	2021	64.148	2755.000	11324.000	0.310	14348.000	7665.000	1257.000
Gulf African Bank Ltd	2017	103.812	4247.000	29847.000	53456.000	26105.000	0.000	877.000
	2018	90.298	4344.181	32834.897	57083.000	26689.000	27255.000	819.000
	2019	76.240	2875.701	10731.752	15358.070	20532.000	27226.000	1116.000
	2020	64.148	4640.000	31903.000	126842.000	29972.000	21850.000	8689.000
	2021	116.464	4844.000	30962.000	0.620	29171.000	23834.000	2820.000
Habib Bank AG Zurich	2017	116.464	2770.000	10505.000	31316.000	13808.000	0.000	0.000
	2018	103.812	2862.779	11880.588	32337.000	16390.000	14733.000	3192.000
	2019	90.298	5812.771	44679.426	24823.460	38004.000	24542.000	4783.000
	2020	76.240	4052.000	7625.000	21947.000	22082.000	21961.000	3425.000
	2021	64.148	2750.000	8902.000	0.460	24583.000	22552.000	627.000
HFC Ltd	2017	116.464	8298.000	53576.000	3548.000	36981.000	20144.000	14758.000
	2018	103.812	6925.770	48940.357	5361.000	35445.000	2132.000	154.000
	2019	90.298	37847.066	209981.453	112028.750	195841.000	5114.000	50.000
	2020	76.240	3622.000	46280.000	32643.000	41196.000	20409.000	2337.000
	2021	64.148	3172.000	38441.000	0.860	38395.000	31291.000	4342.000
I & M Bank Ltd	2017	116.464	29790.000	173455.000	183953.000	134247.000	126983.000	435.000
	2018	103.812	34201.410	199699.818	229161.000	177250.000	118271.000	9271.000
	2019	90.298	678.505	8147.944	254252.170	4795.000	281516.000	30516.000
	2020	76.240	3506.000	31047.000	11022.000	219167.000	17512.000	2017.000
	2021	64.148	38325.000	247142.000	307802.000	235557.000	172615.000	18563.000
KCB Bank Kenya Ltd	2017	116.464	71970.000	483986.000	555630.000	5612.000	411666.000	34182.000
	2018	103.812	1259.015	5593.083	621723.000	486613.000	434361.000	30012.000
	2019	90.298	90200.466	577236.270	674301.720	536830.000	468258.000	34786.000
	2020	76.240	2870.000	22156.000	33500.000	591067.000	15714.000	3269.000
	2021	64.148	109467.000	676511.000	826395.000	634258.000	584441.000	92193.000
Kingdom Bank Ltd	2017	116.464	2283.000	12156.000	11745.000	445398.000	0.000	0.000

	2018	103.812	87957.222	537572.619	12887.000	4787.000	7646.000	1850.000
	2019	90.298	1036.015	5836.904	9317.700	9188.000	7455.000	2196.000
	2020	76.240	2826.000	11255.000	11378.000	5081.000	20980.000	996.000
	2021	64.148	1051.000	7058.000	0.290	6380.000	7212.000	1934.000
Mayfair CIB Bank Ltd	2017	116.464	2780.000	8506.000	5637.000	7463.000	12330.000	1962.000
	2018	103.812	1023.539	2475.148	8351.000	5615.000	6451.000	581.000
	2019	90.298	1086.257	3506.605	6860.300	7293.000	7177.000	787.000
	2020	76.240	2649.000	12030.000	16858.000	9749.000	14572.000	5258.000
	2021	64.148	4100.000	10170.000	0.290	8903.000	9858.000	2712.000
Middle East Bank (K) Ltd	2017	116.464	1169.000	1237.000	18708.000	2080.000	6345.000	8287.000
	2018	103.812	2575.020	8674.913	25329.000	4147.000	13440.000	1113.000
	2019	90.298	2606.842	7858.628	35122.980	7138.000	15846.000	1592.000
	2020	76.240	2546.000	8712.000	18743.000	8082.000	8907.000	6787.000
	2021	64.148	1311.000	5128.000	0.180	9565.000	5649.000	212.000
M-Oriental Commercial Bank Ltd	2017	103.812	1143.000	2717.000	12851.000	3908.000	20771.000	17.000
	2018	90.298	1018.894	4303.343	15332.000	7405.000	9715.000	960.000
	2019	76.240	6579.626	67262.493	26451.640	97079.000	10766.000	944.000
	2020	64.148	2534.000	21095.000	12985.000	9605.000	9248.000	1181.000
	2021	116.464	2594.000	9117.000	0.260	10343.000	7934.000	1518.000
National Bank of Kenya Ltd	2017	116.464	3503.000	87998.000	25985.000	100165.000	33589.000	3535.000
	2018	103.812	2091.915	92765.531	33326.000	105244.000	26255.000	9509.000
	2019	90.298	62561.322	350879.900	21540.740	360305.000	24118.000	8998.000
	2020	76.240	2395.000	12114.000	17222.000	112672.000	10149.000	3420.000
	2021	64.148	10288.000	81309.000	146543.000	124113.000	58165.000	6088.000
Paramount Bank Ltd	2017	116.464	1555.000	5974.000	17360.000	7729.000	13746.000	778.000
	2018	103.812	1574.544	5517.940	17805.000	8126.000	19153.000	1347.000
	2019	90.298	21471.831	53266.941	28680.490	81345.000	14872.000	1212.000
	2020	76.240	2246.000	21331.000	94428.000	9265.000	7742.000	1812.000
	2021	64.148	1878.000	6721.000	0.220	10197.000	6648.000	524.000
Prime Bank Ltd	2017	116.464	11176.000	52478.000	69051.000	58951.000	3242.000	1438.000
	2018	103.812	19313.389	53829.261	62689.000	71467.000	49215.000	13334.000

	2019	90.298	7830.795	33983.208	108785.530	50573.000	49335.000	12316.000
	2020	76.240	1747.000	7064.000	30612.000	88594.000	3481.000	159.000
	2021	64.148	24286.000	59274.000	126482.000	97222.000	73529.000	11056.000
SBM Bank Kenya Ltd	2017	116.464	1020.000	6331.000	62127.000	6842.000	0.000	0.000
	2018	103.812	6952.209	28664.566	70648.000	51044.000	23602.000	16311.000
	2019	90.298	3698.408	27479.534	72519.360	18014.000	38932.000	14980.000
	2020	76.240	1620.000	10291.000	12886.000	57094.000	7883.000	1346.000
	2021	64.148	7437.000	49250.000	81958.000	61503.000	22486.000	3623.000
Sidian Bank Ltd	2017	116.464	3325.000	20377.000	15803.000	14140.000	9929.000	2349.000
	2018	103.812	3875.451	27021.094	21521.000	20525.000	13342.000	2526.000
	2019	90.298	1412.110	6463.765	18762.840	4553.000	15797.000	2747.000
	2020	76.240	1413.000	6699.000	12729.000	23770.000	6847.000	836.000
	2021	64.148	4028.000	34874.000	0.600	27576.000	17784.000	5022.000
Spire Bank Limited	2017	116.464	987.000	9537.000	11148.000	6822.000	10995.000	9478.000
	2018	103.812	1.671	7.099	9223.000	7090.000	3184.000	603.000
	2019	90.298	36157.351	238222.002	8584.540	205516.000	5067.000	67.000
	2020	76.240	1209.000	4371.000	44917.000	4793.000	7639.000	790.000
	2021	64.148	319.000	2638.000	0.050	1781.000	2808.000	1342.000
Stanbic Bank Kenya Ltd	2017	116.464	32569.000	206090.000	239408.000	178696.000	135443.000	18714.000
	2018	103.812	33237.245	227294.222	280953.000	212282.000	144434.000	21115.000
	2019	90.298	35701.874	242802.511	292705.140	236461.000	155307.000	18799.000
	2020	76.240	1026.000	7427.000	13263.000	233493.000	3827.000	2711.000
	2021	64.148	44136.000	288178.000	319199.000	242384.000	147917.000	23283.000
Standard Chartered Bank Kenya Ltd	2017	103.812	35628.000	228112.000	285125.000	226051.000	107038.000	7798.000
	2018	90.298	35459.462	214581.736	281516.000	220784.000	155498.000	16644.000
	2019	76.240	62770.438	410346.536	302295.900	330113.000	205304.000	19345.000
	2020	64.148	836.000	17453.000	54478.000	256951.000	8789.000	125.000
	2021	116.464	40822.000	262840.000	335111.000	265852.000	200941.000	22504.000
UBA Kenya Bank Ltd	2017	116.464	2162.000	5575.000	16320.000	4194.000	10303.000	1421.000
	2018	103.812	2174.218	6557.499	17880.000	12964.000	9112.000	6344.000
	2019	90.298	2241.806	8837.363	10443.300	13600.000	11833.000	6083.000

	2020	76.240	828.000	11740.000	5114.000	15544.000	5056.000	129.000
	2021	64.148	823.000	6545.000	0.190	12240.000	9965.000	1492.000
Victoria Commercial Bank Limited	2017	116.464	5363.000	24265.000	27628.000	18886.000	16371.000	2481.000
	2018	103.812	5663.581	29424.874	49081.000	24339.000	22810.000	696.000
	2019	90.298	5827.565	31604.573	29082.400	27350.000	24578.000	1204.000
	2020	76.240	2634.000	4263.000	10147.000	28806.000	3178.000	1295.000
	2021	64.148	6423.000	41194.000	0.740	34048.000	27223.000	4389.000