EFFECTS OF LIQUIDITY RISK ON FINANCIAL PRFORMANCE OF

COMMERCIAL BANKS IN KENYA

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DECLARATION

I declare that this research project is my original work and it has never been presented to the University of Nairobi or any other institution for any degree or any other academic award.

Signature_____   **Date**_____

Kagai Florrah
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I confirm that the work reported in this research project proposal has been carried out by the candidate under my supervision.

Signed……………………………   **Date………………………………**

Dr. Cyrus Iraya
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Blessings to You All

DEDICATION

To Almighty God who provided spiritual guidance and a positive mind.

I dedicate this project to my husband Philip Kamau, and to my parents and my siblings.

May the Almighty God Bless You All

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ABREVIATIONS AND ACRONYMS

CAMEL - Capital, Asset, Management Quality, Earning & Liquidity

CBK - Central Bank of Kenya

CMA - Capital Market Authority

GDP - Gross Domestic Product

GoK - Government of Kenya

IMF - International Monetary Fund

KCPA - Kenya Credit Providers Association

LCR - Liquidity Coverage Ratio

NBE - National Bank of Ethiopia

NSFR - Net Stable Funding Ratio

ROA - Return on Assets

ROE - Return of Equity

SACCOs - Savings and Credit Cooperative Societies

SPSS - Statistical Package for Social Sciences

USA - United States of America

ABSTRACT

Today's business environment is extremely volatile. Interference of business norms is not only subjected to externalities but also to internal perspectives. Yes, competition is a major source of change and success in many areas but internal self-sufficiency and management has also proved to be an unavoidable stakeholder. In the banking industry, which is the focus of this research project, internal soundness contributes a great deal on market sustainability. Otherwise shortcomings prevail and failure becomes difficult to manage. Liquidity risk remains to be among major exposures, to an extent that it hold the highest factor rate. Banks must then ensure that they hold high liquidity levels. However, there also exists a divergent school of thought arguing that too much and too low liquidity imparts negatively on profits. Therefore raising two question on how to establish an optimum level of liquidity and its effects on financial performance. This research project focuses on the effects of liquidity risk on financial performance of banks by narrowing down to commercial banks in Kenya. To establish literature base, related scholarly writing have been analysed against the shiftability theory, finance distress theory and commercial loan theory. This study uses liquidity coverage ratio and net loans issued to measure liquidity risk while bank size and capital adequacy are used as control variables. Financial performance has also been depicted using return on equity. The study utilizes descriptive research design and a census banks population. The population include all 41 commercial banks in Kenya. Collection of quantitative data on the key parameters was done by use of a study guide. Data analysis was then carried out by use SPSS Version 21.0 and emulated through use of correlation and regression. Validity of the regression model was also established by use various diagnostic tests that include normality, homoscedasticity and multicollinearity. A response rate of 85% was attained as data from 7 banks was not adequately established. Diagnostic tests were performed accordingly on the analysis model. The coefficient of determinant (R^2) indicated a statistical value at 38.3 %, depicting that the model explains only 38.3% of the return on assets which in this case denotes financial performance. This shows that there are other factors that affect return on equity apart from liquidity coverage ratio and loans issued and the control variables (bank size and capital adequacy). Correlation analysis shows a positive correlation between return on assets and Liquidity coverage ratio at 0.0016, net loans issued at 0.567 and bank size at 0.597. Capital adequacy was found to have a negative effect at -0.07. From regression it was established that liquidity coverage ratio, had a positive significant effect on financial performance of commercial banks in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The banking industry, just like any other business environment (Karadagli, 2012), has experienced significant changes in the recent decades. Changes that have since led to the rise and spread of tactful and prudent financial approaches. Among the changes we have liberalized financial systems (Hahm, 2004), globalization (Vujakovic, 2010) and technological integration (Wazovi, 2013). Together, these changes have created an innovative inter-dependence and interactive node between distanced financial markets and players; in a manner that the world can now be viewed as a financial global village. Consequential to these changes, the industry has seen dramatic increment of asset pull that makes commercial banks indispensable functional parts of every country's economy (Ogilo, Omwoyo & Onsomu, 2018). However, these banks increasingly face different kinds of fiercer and exponential risks that include liquidity risk, operational risk, strategic risk, legal and compliance risk, market risk and credit risk. In particular, liquidity risk stands out as the most volatile as it is a direct attribute of activity transformation within the financial intermediation function of a bank. And with the increase in assets that include insurance products (Broome & Markham, 2000), the risk gets even higher, profoundly affecting banks' financial performance.

To provide an understanding of the operationalization of liquidity risk and levels against commercial banks' financial performance responses, this study is guided by the Finance Distress Theory (Beaver, 1996), the Shiftability Theory of Liquidity by Moulton (1915) and Commercial Loan Theory by Smith (1776). Finance distress theory indicates that firms

assume a distress state when they can no longer oblige to their financial obligations. Shiftability theory assert that liquidity level can be in a better position if the assets at hand can be sold or shifted to another prospective holder for cash. Commercial loan theory equally insists that banks should hold short-term maturity assets to settle inventory obligations. The three theories try to explain the inherent dependability relationship between liquidity status and resulting financial performance of commercial banks. It is preferable that banks exhibit optimal portfolio liquidity levels that sufficiently serve expected financial performance and obligations.

From the traditional role, banks are required to accept diverse customer or client deposits that are based on short-term maturities and in return cautiously grant long term maturity-based loans to a number of qualified and verifiable borrowers (Memmel & Scherteler, 2010). The role is mandatory and is a delegated function of Central Banks (Smaghi, 2007; Anjili, 2014). By all means, this deposit taking and borrowing role expose all commercial banks to liquidity risks which subsequently impact on their respective financial performance. It is therefore a generally accepted financial and economic health concern that liquidity policies be drafted by regulators and cascaded down to commercial banks in the effort to improve performance and reduce failure. Performance of commercial banks translates directly to the holistic state of financial and economic sectors.

1.1.1 Liquidity Risk

Liquidity risk is defined by Banks (2005) as uncertainty on economic loss that a bank might incur due to lack of cash and cash equivalents that are operationally vital. Drehmann and Nikolaou (2009) on the other hand terms liquidity risk as a bank's propensity level(s) of

exposure to lack of ability to settle its obligations with immediacy when due and as expected. Both definitions view the risk as a capacity hindrance upon expected and unexpected obligations. According to Farag, Harland and Nixon (2013), the risk is experienced in two forms that include market liquidity risk and funding liquidity risk. The former involves banks' inability to cash out on their assets without suffering large discounts while the latter involves banks having insufficient collateral and cash to immediately settle debts owed to customers and counterparts. The essence of bank being liquid is to reduce the chances of getting insolvent, hostile windups or receivership placements.

Liquidity risks are measured by use of liquidity gap and quick ratio (Saunders & Cornet, 2006). Liquidity gap also known as maturity gap is depicted by Mwangi (2014) to be a mismatch between liabilities and assets –assets that are highly liquefiable. In simple terms, liquidity gap is the difference between a bank's liabilities and its assets. According to Central Bank of Barbados (2008) and Central Bank of Kenya Report (2013), this mismatch is to a great extent highly likely to be responsible for the exposure of financial institutions to liquidity risk. This gap can either be positive or negative depending on the prevailing situation: that is if the there is a leftover of assets after covering all the liabilities then the situation is said to be positive unless otherwise. To measure liquidity gap, two liquidity mearement units are used and they include the liquidity coverage ratio (LCR) and the capital adequacy. These units have been recommended by Muriithi and Waweru (2017) and Ogilo et al. (2018).

Capital adequacy is the major determinant of liquidity risk. Mugenyah (2015) argues that those banks that operate under a much higher capital adequacy platform are highly likely to experience less risk exposure. Equally, Bonfim and Kim (2011) make the same argument.

Shen, Chen, Kao, and Yeh (2009) also note that banks that need to borrow enormous sum from the money market face a more extensive liquidity risk. These banks normally belong to a bracket of groups of banks that operate at a smaller working capital and reserves. But it does not entirely rule out the possibility of those banks with higher reserves draining in the risk. Liquidity prudence must be observed by all commercial banks.

1.1.2 Financial Performance

Financial performance is a subjective measure of how best a firm can utilize assets from its primary business to create revenue (Mutua, 2014). Nyongesa (2016) perceives this performance as an outcome on a firm's efficient usage of its operating assets within the underlying objective of maximizing revenue. Considerably, it can then be concluded that the bases of financial performance are engrained within the wellbeing of the bank(s) in subject. However, this wellbeing does not include exposure to risky predicaments like liquidity risks. Duttweiler (2009) argue that this sound wellbeing can only be made possible through prudent management decisions and policy objectives that touch on provisioning polices, capital adequacy and level of liquidity. Holmstrom and Tirole (2000) asserts that many banks make short term investments in highly liquid assets which on the other hand act as a liquidity shock buffer. This paper focuses on financial performance selectively from the liquidity perspective.

According to Crane (n.d), banking risks and financial performance share a common but alternating platform; management of one pronounces the other. In his justification, he states that banking risks like liquidity level, solvency, repayment capacity and operational efficiency status directly determine a bank's financial performance. It's therefore necessary for every bank to undertake financial performance assessments thorough various criteria

which include C.A.M.E.L (Afoladi & Adawale, 2013), net interest margin (Murthy & Sree, 2003), ROA (Mutua, 2014) and ROE (Muriithi & Waweru, 2017) against various risks in order to track, identify and take corrective actions when necessary. CAMELS involves measure of capital adequacy, asset quality, management proficiency, earnings and liquidity. The ROA, ROE and net interest margin measures are not only used in determining financial performance of a bank, but also as a base for structuring and implementing liquidity risk related contingent plans.

For this study to align financial performance to liquidity risk, return on asset ratio was utilized. With highly positive liquidity gaps that translate to low liquidity risk, Commercial banks are expected to record stable and high returns on equity otherwise failure crops in. In Kenya alone, outrageous liquidity management effects have been felt by a number of banks; with Chase Bank, Charterhouse Bank and Imperial Bank getting to the extreme and consequentially earning a receivership placement from the Central Bank of Kenya (CBK).

1.1.3 Liquidity Risk and Financial Performance

The financial performance of a bank is based on the bank's ability to settle its obligations in time and with immediacy. At a point where a bank is said to have failed financial, then a defaulting case is experience with shareholders and possibly depositors start incurring losses (Drehmann & Nikolaou, 2009). Outcomes of this situation is the growth of funding liquidity situation to a more complicated funding liquidity risk situation –funding liquidity is immediately-based while funding liquidity risk is futuristic (IMF, 2008). From the IMF's observations, the derived relationship between financial performance and liquidity risk can then be termed as a two-way causal. Meaning that low liquidity risk favours financial performance and vice versa. However, the positive level of liquidity that a bank should

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exhibit is not expected to be too skewed, but optimally determined. This is due to idling gap of non-performing liquefiable assets that can be caused by high liquidity levels. According to Wairimu (2017), the nexus between liquidity and financial performance is equally subjected to control variables that include subjective bank size and inflation rates in the market.

To balance the liquidity and performance aspect, the stock-flow concept is used. According to Drehmann, Elliot and Kapadia (2007), a bank's financial performance depends on how it satisfies demand for money. Meaning that at all points in time outflows of money should be equal or less stock held plus inflows of money by the bank. Drehmann (2007) indicates that illiquidity is experienced when there's a negative stock-flow ratio in the net-liquidity demand side. In this case, stock held represents the net central bank money. The corrective mechanism in the event that outflows are larger than combined inflows and stock include borrowing from interbank market or depositors, accessing the central bank or selling assets; of course at different prices. Otherwise, with the excess liquidity levels the bank(s) can sell excess to the market and create that optimal level required for maximum asset performance. In support of this relationship, Konadu (2009) and Mwangi (2014) insist that liquidity influences profitability. Anjichi (2014) equally assert that liability and asset management affects financial performance in a positive way. However, Vanket, Mikulka and Magstadt (2010) from PricewaterhouseCoopers argue otherwise; posing borne of contention on whether there exists instances when banks should consider illiquidity as a fair position.

1.1.4 Commercial Banking Sector in Kenya

An analysis of the banking industry in Africa done by KCPA (2010) argues that the Kenyan banking sector is the continent's largest in terms of assets and number of full-fledged operating banks. Odunga, Nyangweso and Nkobe (2013) further indicates that this scenario

may not only be an infer reality in Africa but also globally. The same assertion has also been held by Cytonn Investments (2015) who believes that Kenya is overbanked in proportionate to the national population census. In their comparison, Cytonn reviewed South Africa's 19 banks on a population of 55 million and Nigeria's 22 Banks on a population of 180 million against Kenya's 43 banks on a population of 45 million. According to Olongo (2013), Mwangi (2014[2]), Mugenyah (2015) and CBK (2017) the 43 include 42 commercial banks and 1 mortgage financing company. CBK (2017) further indicate existence of 13 microfinance banks, 9 offices representing foreign banks, 19 money remittance providers, 3 credit reference bureaus, 73 forex bureaus and 8 non-operating bank holding companies. Out of the 43 banks, 3 are owned by government through majority shares. Of the 40, 25 banks that include the only mortgage financier are locally owned.

This Sector is governed by Companies Act and the Banking Act among fiscal, monetary and operational policies issued by the Capital Market Authority (CMA) and CBK (Nyongesa, 2016). CBK further classifies the banks accordance to weighted composite index of assets, profitability, reserves and capital. To some extent and with other factors considered, the weight of each bank depicts its exposure level to liquidity risk. With weight index of above 5, banks that are perceived to have high liquidity levels in Kenya include Kenya Commercial of Bank, Co-operative Bank, Equity Bank, Standard Chartered Bank, Diamond Trust Bank, Barclays Bank, Commercial Bank of Africa and Stanbic Bank of Kenya (Musyimi, 2016; CBK, 2017). The 8 banks control 65.99% of the banking market share. The total sector capital adequacy by end of 2017 stood at 18.8 %, above the 14.5 % regulatory requirement.

The CBK and CMA are the organs mandated with the task of ensuring sound control to ensure solvency, liquidity and proper functioning of the sector. In particular to liquidity,

section 19 of the Banking Act of Kenya requires all banks to hold a minimum liquid asset base of 20% (Mugenyah, 2015; GoK, 2015). To carry out this task, the CBK adopts "the Capital Adequacy, Asset Quality, Management Quality, Earnings and Liquidity (CAMEL)" system of rating. This rating system aims at ensuring early anticipation and correction of liquidity risk stands among banks, and also to avoid instances like those experiences in 2016, whereby CBK placed Chase Bank, Charterhouse Bank and Imperial Bank under receivership.

1.2 Research Problem

Effective liquidity management ensures that liquidity risks are mitigated, at the same time regulations put forth are adhered to. Whilst of this being seen as some kind of bureaucracy, commercial banks among other financial firms experience sustainable operations. Kumar and Yadav (2013) agree that liquidity tracking reduces chances of their occurring an adverse and unwanted insolvency situation. The assumption behind liquidity management assert that risk can still be eminent as long as a bank's internal policies and objective to industry regulations do not factor in prudent liquidity-related operations and regulation; and not even having higher asset and profit base truly guarantees (Shen et al., 2009).

The Kenyan banking sector, as indicated by Cytonn investment (2015) and KCPA (2010), is extremely sophisticated: having a high populace of banks –arguably, the highest in Africa. A sector of such unusually magnitude faces a number of competitive challenges, among them being liquidity risks (Muthama, 2015: Obulutsa & Merriman, 2014: Dang, 2011). Fortunately but though not enough, this risks have been defined and measures put forth by the CBK and CMA under Companies and Banking Acts of Kenya. According to CBK (2017), banks in Kenya are categorized into three categories that include large, medium and small banks. The

categories have different levels of exposure to liquidity risk but none is clearly off the likelihood to fall victim.

There exists a broad examination on Liquidity risks and financial performance. Lakstutiene and Krusinkas (2010) examined Lithuanian banks liquidity on a periodic range of 2004 to 2007, established a positive relationship between economic banking crisis and liquidity levels. Berger and Bouwman (2009) on bank liquidity creation indicate that bank liquidity creation is positively correlated with bank value. Berger and Bouwman (2010) equally on bank liquidity creation did evaluate monetary policies and financial crises. More studies include Diamond (2007) on banks and liquidity creation; Jenkinson (2008); Pricewatercooper (2010); Anjum (2012); Lartey, Antwi and Boadi (2013).

Locally, Nyongesa (2016) indicates an approximation of 24.5% variation of return on assets resulting from capital adequacy, asset quality and management efficiency. Mugenyah (2015) examined the determinants of banks' liquidity risk and posted that ownership type, size and leverage act significantly. Odunga et al. (2013) did a study on liquidity, capital adequacy and operating efficiency establishing that the opposing ratios positively and significantly affect operating efficiency. Interestingly, Anjichi (2014) recommended banks to reduce their liquidity holding. Mwangi (2014) established the existence of positive relationship between liquidity and performance of microfinances. Other studies include Muthama (2015), Kibuchi (2015) and Musyimi (2016).

As analyzed herein, there are many prior studies that have been conducted on liquidity. However, the analysis concluded that in spite of the attempt of many studies to tackle liquidity in the financial sector, there still existed no specific and enough information that

show how liquidity risk affected financial performance of commercial banks in Kenya. Since management is sensitive to the context within which liquidity is practiced and there is no universally accepted approach toward its surety, there was need to investigate. This study then intends to bridge this gap by answering the research question: What are the effects of liquidity risks on financial performance of commercial banks in Kenya?

1.3 Research Objective

The objective of this study was to establish the liquidity risk and its effects on financial performance of commercial banks in Kenya.

1.4 Value of the Study

Academicians and researchers in the line of finance will benefit from this study as they will find it a useful instrument in providing information that can provide great contribution to literature. This is because the study will definitely contribute to existence of prudent information on liquidity risk and financial performance. And more importantly, in relation to commercial banks in Kenya.

This study will also help banks not only in Kenya but also outside Kenya in making informed decisions on whether to increase or reduce the capital reserves and operationalize favourable liquidity policies. Through the determination of liquidity risk(s), commercial banks shall have reliable information on the merits and demerits of holding different levels of liquidity. The study will also give foreign and local investors information-based chance to examine their prospective investment banks before making final investment decisions.

The banking regulators and evaluation team(s) will also find this research useful as it will provide them with insight on liquidity risk participatory statistics of Kenya. In this regard,

they can be able to adequately propose improvements on deregulations and regulations with

focus on better result delivery.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review from previous studies on liquidity risk and financial performance. It entails a review on the foundational theories, determinants of liquidity risk, empirical studies, conceptual framework and summary of literature review.

2.2 Theoretical Foundation

This study is based on the Shiftability theory, finance distress theory and commercial loan theory perspective. The theories are discussed in relation to liquidity risk and financial performance of commercial banks.

2.2.1 Shiftability Theory

Shiftability theory was developed by Moulton (1915). The theory is founded on the anticipated income doctrine and the commercial loan theory. Shiftability theory posts that banks can protect themselves from liquidity risks injected by massive withdrawals if they hold highly shift-enabled credit instruments in form of liquidity reserves. Further, the theory argues that the instruments should not only be shift-enabled but also be able to be sold to other investors and lenders. With this approach, a proportionate mix of illiquid loans and highly liquid primary and secondary securities is maintained by banks. According to Roger et al. (2004), primary securities include reserved cash assets while secondary include non-cash securities held for conversion in case of a liquidity crisis. According to Osoro and Muturi (2015), the inherent 'shiftability' points at the transfer of the instruments to the central bank as the last resort lender.

Maaka (2013) post that the inclusion to the reserves are treasury bills, prime banker's acceptances and commercial papers. He argues that the three securities are highly marketable due to their short-term maturity. The theory is highly effective due to what Allen and Gale (2004) call as its ability to soften the tension within loan provisions; from the perspective that secondary security reserves held by a bank can be exchanged for cash. Major cases involving successful shiftability involvements include the 1930's USA financial market distress (Mugenyah, 2015) and the 2007 global financial crisis (Musembi, Ali & Kingi, 2016). The prior case saw rapid voluminous growth of short-term USA government obligations while in the latter a liquidity crisis was experienced in interbank markets. From the two reference cases it can be concluded that during the period of distress and without shift-enabled security reserves, banks will face severe liquidity challenges. Worse is that during this distress financial periods, markets' confidence and credit worthiness diminishes.

The theory provides commercial banks with options and information on to circumvent liquidity distress. As already identified with the three banks that are currently under CBK receivership and observation, the banking sector in Kenya is equally venerable to this liquidity risks and it is every bank's obligation to explore and execute every possible remedy. Through shiftability theory, this study makes assumption that all commercial banks in Kenya understand their individual and collective sectoral role towards the health of the Kenyan economy and expectations from stakeholders as far as liquidity is concerned. Vis-à-vis the assumption, this study then interrogates the awareness and financial performance.

2.2.2 Finance Distress Theory

Finance distress theory states that firms will always be susceptible to liquidity risk as long as they are not able to keep, service and balance both inflow and outflows. The theory

originates from corporate distress modelling by Baldwin and Scott (1983) and Beaver (1996). The theory emulates distress in different aspects that include failure to meet and settle obligations and bankruptcy. It further indicates that in most cases structural changes, unexplained reduction on dividends, and mergers and absorption are clear signs of the distress. Whitaker (1999) argues that though finance distress is majorly caused by poor financial risk management, economic conditions can also facilitate the process by causing reduction in the inflows as maturity of long-term debt transform normally. The theory highly applies in the finance sector, more especially in commercial banking environment due to the deposit taking and loan provision functions of banks.

For banks to avoid exposure to finance distress which might eventually lead to liquidity risk, measures should be put in place to ensure that there exist highly liquefiable assets to counter and settle maturing obligations (Murithi, 2016). Taking into consideration the financial inventory model by Drehmann, Elliot and Kapadia (2007), banks should at all points in time ensure that outflows of money are equal or less money stock held plus inflows. This is to ensure that banks hold excess inventory to settle both planned and unplanned obligations. If there exists uncertainty on maintaining the inventory model, the banks should then be able to sell their assets at a price that does not lead to losing the particular asset's value. Unlike shiftability theory which puts more deterministic weight on a bank's preparedness, finance distress theory insists that market condition play a vital role in getting a bank to illiquidity state.

In Kenya, commercial banks' liquidity risk is highly influenced by the market factor which includes level of competition. Maniagi (2018) posts that the Kenyan financial market has an imbalanced state of supply-demand, insisting that the high financial supply sometimes

dictates the banks out of risk-oriented policies, increasing exposure to poor financial performance. Considerably then the finance distress theory provides this study with an understanding of how banks are vulnerable to liquidity risk.

2.2.3 Commercial Loan Theory

Also known as real bills doctrine, commercial loan theory was developed by Smith (1776). The theory posts that commercial banks should operate their inventory requirement based on self-liquidating loans and short-term assets. Self-liquidating loans require the loan offered to manage its own repayment; in that if a bank funds production of a certain service then the loan repayment is based on proceeds from offering of the service. Ouma (2015) portrays that when banks finance self-liquidating loans they actually increase the chances of asset conversion. And from the easily convertible assets they then get high chances of meeting their obligations as need arise.

With the theory's specifics, the approach is highly feasible in ensuring that liquidity levels are maintained. In this case, a higher percentage of self-liquidating loans ensures that there is a positive balance between the bank's inventory models. Holding of short-term assets like treasury bills and commercial papers ensure easy conversion too in case need arise. According to critics cited by Ouma (2015) and downfalls indicated by Maaka (2013), the commercial loan theory in not sufficient enough in a perfect competitive setup. As the theory insists on self-liquidating loans, it ignores withdrawals that are made within a short period of time. Another consideration is the loaning portfolio which might include financing mortgages; which will take long time before they start repayment. The commercial loan theory does not consider loans of such perspective, against the economic norm.

In spite of the theory facing major criticism, it still contains substantial liquidity management philosophy from which policies can be drawn to manage liquidity risk. From the theory's perspective, banks can make prudent considerations on how to come up with a balance between holding securities that are highly liquid and those that are highly illiquid. This study draws from commercial loan theory the commercial banks' decisional capacity involving the choices of getting highly liquid.

2.3 Major Determinants of Liquidity Risk

Liquidity risk forms not only as an internal organizational facet but equally as an aspect that is injected by the environment, more so from the financial market point of view. The open systems-perspective involved equally informs its dimensions. Respectively, it can therefore be established that a number of factors determine the prevalence level and occurrence of liquidity risk. This factors include exchange rate that comprise of intermediate and independent float exchange regime, liquidity asset ratio, crisis realization, loan to total asset ratio, inflation rates, public expenditure share on GDP, interest rates on lending, prudential regulations capital adequacy and bank size. Of these factors major one include liquidity asset ratio, capital adequacy ratio, loan to total asset ratio and bank size.

2.3.1 Liquid Asset Ratio

Liquidity asset ratio is a measure of the percentage of highly convertible assets against the bank's total assets (Mulandi, 2016). The assumption behind preference for holding highly liquid assets is that banks will find it easy to service their obligations as they get due. Vodova (2013) posts that the propensity to convert this assets into ready cash directly translates into reduced liquidity risk even though too much net holding might negatively affect profitability,

more so in the long term. Due to market forces, it becomes difficult for banks to derive an optimal balance between illiquid and highly liquid assets.

For commercial banks to ascertain levels of liquidity, Mugenyah (2015) indicates that they have to classify liquid assets into two; less risky assets and risky assets. He further argues that risky assets include those securities that are long term and medium based and that are not likely to attract instant conversion when needed. Selling of risky securities might attract a negative value. Less risky assets include cash at hand and reserves at the central bank. Less risky category includes treasury bills. Moore (2010) agrees with Vodova (2013) that the technicalities involving calibration between getting highly liquid and anticipating profits though difficult takes centre stage in most cases and many financial strategists seem to differ on which of the two goes an extra mile in promoting stakeholders' interests. The fact that when the combination is poorly determined to the extent that the levels of liquidity risk and profit are triggered, means that Liquid asset ratio is a feasible determinant of propensity to liquidity risk.

2.3.2 Capital Adequacy Ratio

According to Mugenyah (2015) and Mulandi (2016), capital adequacy ratio indicates the amount of customer deposits against the bank's core capital. And as a regulatory requirement, banks are expected to operate at a certain minimum capital adequacy ratio. According to Ayere (2012), the ratio is not only a measure of how strong a bank is financially in funding its obligations but also in withstanding its operational costs. With a higher ratio, it is argued that banks will have enough capital to diversify into additional business.

According to a study by Leykun (2016), there exists two different perspectives concerning the relationship between liquidity creation and bank's capital. From the perspectives that have also highlighted by Diamond and Rajan (2001), high capital base hampers creation of liquidity through crowding-out of deposits and the financial fragility structure effects. In this case, fragility structure is characterized by low capital and favours creation of liquidity. On the other hand, high ratios of capital might reduce liquidity creation by crowding out deposits. Considering all existing perspectives and the uniqueness of inherent operating environment, commercial banks should optimally determine their capital adequacy ratio.

2.3.3 Loan to Total Asset Ratio

The ratio depicts the total loan shares against the entire assets of a commercial bank (Arena, 2005). It reflects a measure of how illiquid a portfolio of assets is and its effects in exposing banks to default risk. Leykun (2016) argues that when the loan to total asset ratio is high the banks are considered to be highly illiquid. This argument is based on the ideology that loans are illiquid assets and that when they are growing at a higher rate compared to total assets the asset portfolio of illiquid assets increases. This therefore means that the level of liquidity held by a bank is highly influenced by the demand on loan and growth of the loan.

This financial ratio and relationship between loans and total assets provides the rationale within which commercial banks make their operational plans and build their business portfolios. As a rule of thumb towards alignment and loan engagement, every commercial bank is supposed to have internal policies on loan to asset ratio. These policies supplement the prudential regulations imposed by the regulator: The Central Bank of Kenya in the case of Kenya. The justification on the internal policies has been highlighted by Leykun (2016)

who asserts that the regulations by the NBE in Ethiopia have never been enough to keep local banks off exposure to liquidity risk.

2.3.4 Bank Size

From the perspective of Oyiro (2017) and Vodova (2013), bank size is a variant of capital adequacy that is characterized by level and rates of overall bank growth. As a determinant of liquidity risk, growth of banks translates into growth of total assets as well as the capacity to inspire demand confidence which in return mobilizes customer deposits. Equally, a high growth rate provides security towards provision of more loans. Big sized banks with capital base that is above market average are also known to be strict in observing regulations and their internal policies. It is also evident that banks that have high growth rate and those that are large sized have large portions of reserves at the Central Bank, hence the correlation between bank size and liquidity levels.

With the reserves alone, last resort borrowing bailout is highly guaranteed. In Kenya, the bank size factor is a major consideration when establishing one's propensity to liquidity risk. As evident in the recent financial crisis events, Barclays Bank faced a lot of challenges but due to its size and resource pull it managed to keep itself off the failure mark. However, Chase Bank, Charterhouse Bank and Imperial Bank failed and one of the most probable reasons why it was difficult for them to turn around was their size and ability to pull diagnostic resources.

2.4 Empirical Studies

Lakstutiene and Krusinskas (2010) examined liquidity creation of Lithunian banks between 2004 and 2008. The study used systematic literature analysis, generalization of logic

comparatives and descriptive statistics methods and liquidity gap model that was borrowed from Deep and Schaefer (2004). According to the objective, the aim of the study was to establish the relationship between liquidity and banks' equity; deposits, loans and country's GDP. Findings indicate that levels of liquidity grew steadily between 2004 and 2007 but then suddenly dropped in 2008 by a margin equivalent to the last two year growth rate. It was also identified that by large, the flourishing levels of liquidity were attributes of the short-term loans and growth in the deposit category. This study has a number of shortcomings that include contextual and period disparity and lack of linking liquidity to financial performance.

A study by Lartey, Antwi and Boadi (2013) looks at listed banks in Ghana with an aim of identifying the relationship between profitability and liquidity. Using descriptive research design, the study used a sample size of nine listed banks from which response was obtained from seven of them. Secondary data was obtained from published official and internally controlled documents and series analysis performed accordingly. Findings established that liquidity strength of the listed banks declined progressively from 2005 to 2010. Though the relationship between profitability and liquidity was found to be positive, it was also noted that it was declining and becoming weaker with time. The study has a time lapse of almost 8 years with a contextual gap and a focus on profitability instead of financial performance.

Focusing on determinants of liquidity among commercial banks in Slivakia, Vodova (2013) considered macroeconomic and specific data within a period of ten years: between 2001 and 2010. To measure liquidity, the study used liquidity ratios and liquidity gap with assumption that when whenever there exists a positive gap between liabilities and assets a deficit is equated. Regression analysis was used to determine weight of the liquidity determinants. Findings depict a drop in liquidity levels due to the effects of financial crises. It was also

established that liquidity decreases when profitability is prioritised and big banks resolve their liquidity situations through Central bank assistance as lender of last resort and interbank market. It was also established that rate of inflation, interest rate and non-performing loans do not affect liquidity. Research gap in this study are the same as those in Lakstutiene and Krusinskas (2010).

Leykun (2016) analysed on the determinants of liquidity in commercial banks, focusing on Ethiopia. The study was limited to period gap of 2005 and 2014 –when the country was experiencing high growth rates and great transformation in the banking sector. Objectives of the study included examining the effects of capital adequacy, share of deposits in total liabilities, share of loans in total assets and operational efficiency on liquidity risk. The study equally looked at the effect of competition and market power on liquidity risk. Findings indicate that among the major determinants of liquidity we have the loan to total asset ratio, capital adequacy ratio and share of total deposits in total liabilities. Shortcomings on this study include those experienced in Lakstutiene and Krusinskas (2010) and Vodova (2013).

Osoro and Muturi (2015) examined the effects of liquidity risk of financial performance of SACCOs and established a clear correlation. Findings show that 44 % of SACCOs operating in Kisii County were cancelled due to poor financial performance while in 2008 a significant number of was delicenced due to defiance to minimum liquidity requirement. From a sample size of 20 SACCOs it was established that capital adequacy has significant influence on ROA. On the other hand, capital leverage and asset quality have minimal impact on mobilizing deposits as a form of enhancing liquidity. The only shortcoming of this study is the focus on SACCOs rather than on commercial banks.

Mugenyah (2015) carried out a study on determinants of liquidity risk among commercial banks in Kenya. Using descriptive design, a census study was undertaken within a period frame of 2010 and 2014. Data from CBK and banks' websites was obtained and subjected to regression analysis. Findings indicate a positive relationship between capital adequacy and liquid asset ratio and liquidity risk. However, a negative relation was established with ownership type and leverage. It was concluded that bank managers should focus on liquidity asset ratio and capital adequacy. Shortcomings of this study include those in Vodova (2013).

Mulandi (2016) examined the relationship between operational risk and liquidity of commercial banks. Using descriptive survey design and a census approach, the study used asset quality, capital and liquidity adequacy and bank size to explain the operational risk within the banking environment. A negative relation was established between operational risk and liquidity, bank size, asset quality and capital adequacy. On the other hand, operational risk was found to have an inverse relation with ownership. This study exhibits a gap by focusing on operational performance instead on financial performance.

Using a descriptive design approach, Oyiro (2017) investigated the determinants of liquidity in listed manufacturing companies. The study focused on data from 2011 to 2015 and used a census approach to collect secondary data from financial statements. From findings, it was established that liquidity in manufacturing companies is determined by company size, inventory turnover and debtor turnover. However, the three factors impacted differently, with inventory turnover having a strong positive correlation while the other two exhibited a much weaker correlation. An extra observation performed on rate of inflation turned out inconclusive. This study has a contextual gap and partial conceptual disparity but still remains instrumental in tracing liquidity within the manufacturing sector.

2.5 Conceptual Framework

According to Mugenda and Mugenda (2003), a conceptual framework of variables which represent a characteristic measure that is subject to various attributes. These variables are sub-divided into independent and dependent ones. Kombo and Tromp (2006) assert that independent variables usually accommodate changes that influence on dependent variables. Figure 2.1 depicts the variables involved here in this study.

Figure 2.1: Conceptual Framework

Independent Variables   **Dependent Variables**

Liquidity Risk
- Liquidity Coverage Ratio
- Capital Adequacy

Financial Performance
- Return on Assets

Control Variables

Macroeconomic and Institutional factors:
- Bank Size
- Issued Loans
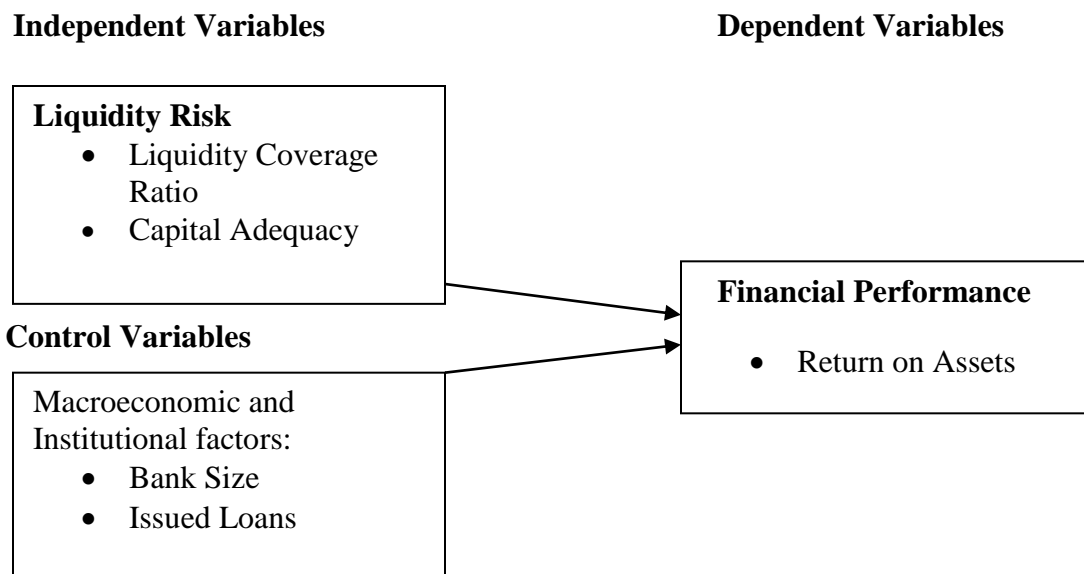
Source: Researcher (2018)

2.6 Summary of Literature Review

Using shiftability theory, finance distress theory and commercial loan theory to analyse on effects of liquidity risk on financial performance, diverse literature shows the positioning of liquidity risk management within the banking sector. Evidence shows that there already exists widespread conscious handling of liquidity levels, with the regulator of the banking industry putting forth mandatory prudential regulations that aim at seeing sanity in banking

business portfolios. A part from the mandatory prudential regulations, some banks have engaged in self-discipline, creating predetermined policies on loan provisions and cash at hand. Theoretically, the importance of ensuring optimum liquidity levels has also been immense translating into long term success. However, a move from theorization to establishing the realities behind the theories needs to be examined.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methods that were be used in conducting this study. It comprises of research design, target population, sample and sampling criterion, data collection and data analysis techniques and procedure.

3.2 Research design

This study used descriptive research design. The design was deemed ideal for this study as it is used to answer the what, which and how of the involved variables. Descriptive design, according to Mugenda and Mugenda (2003), is most appropriate when seeking to find out about the phenomenon status. The design comprises making descriptions of the target elements at the same time trying to build and enrich the already known.

3.3 Target Population

Research population is referred to as a collection of all elements about which reference is based upon (Cooper & Schindler, 2008). The target population in this study involves all active commercial banks in Kenya. According to CBK (2017), the total number of registered banks in Kenya is 43. Out of the 43, two of them are under receivership while one is under statutory management. Consequently, the total target population for this study comprises of the 41 banks. A census study was carried out on the 41 banks.

3.4 Data Collection

This study utilizes secondary quantitative data that was extracted from audited and published financial statements. Collection of the data was done by use of a study guide. The study

guide collected data on liquidity status and financial performance. Taking a data collection form approach, the study guide was subjected to the specific measures involved in measuring liquidity gap as well as those involved in financial performance.

3.5 Data Analysis

The collected quantitative data was analysed by use of inferential and descriptive statistics. The analysis of collected data has been carried out by use of Statistical Package for Social Sciences (SPSS) version 21.0 and emulated through descriptive and inferential statistics. Inferentially, linear correlation is computed herein to establish the relationship. The study equally uses multi-linear regression analysis model to establish the effect of liquidity risk, bank size and inflation rate on financial performance variable.

3.5.1 Diagnostic Tests

Diagnostic tests are statistical procedures rolled out to test the validity of the regression analysis in a particular statistical environment. The tests are used in assessing the statistical assumptions of the multi-linear regression through examining how the variables are based on either statistical outlier or largely effective towards the model's predictions. In this case outlier means inter-observations skewness. The assumptions that was tested in this study include normality, linearity, homoscedasticity and multicollinearity.

Using Kolmogorov-Smirnov test, normality tests the assumption that response variable residual are normally distributed around the mean. Linearity tested the assumption that components in X and constant provision are statistically related to those in Y. Through Durbin-Watson statistic, autocorrelation tests the assumption that there exists similarity between specified time series and its lead value within successive intervals.

Homoscedasticity is based on the hypothetical existence and non-existence of a constant variance of error. When the variance of the error term is constant over population whereas variance of Y is constant and does not depend on X, homoscedasticity prevails. If the variance of the error term is not constant then heteroscedasticity prevails. On the other hand, multicollinearity is a measure of variation in linearity among independent variables and it occurs when there exists exact or nearly exact linear relationship between independent variables. Multicollinearity is established through a scale of zero (0) and one (1) within correlation matrices. Zero (0) indicates complete linear relation between variables while one (1) indicates independence. Multicollinearity increases with the move towards zero (0).

3.5.2 Analytical Model

A regression model of two independent variables, two control variables and one dependent variable was used. The independent and control variables include liquidity coverage ratio, net interest funding, bank size and inflation rate while the dependent variable is return on equity. The variable outcomes were assigned codes to enable analytical modelling. The analytical model is informed by the following concept:

$$Y = f(X_1, X_2, X_3 \ldots)$$

The multiple regression model to be used will be as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Key:

Y = Return on Assets

X_1 = Liquidity Ratio

X_2 = Loans Issued

X_3 = Bank Size

X_4 = Capital Adequacy

β_0 = Constant Coefficient of intercept

$\beta_1, \beta_2, \beta_3$ & β_4 = Coefficient of Variable X_1, X_2, X_3 & X_4

3.5.3 Test of Significance

Test of significance was be carried out by use of F-distribution, commonly known as F-test. If calculated F is higher than the table value then it is concluded that there exists significant correlation at 95% confidence level. However, if the f-calculated value is lower than the table value then it is concluded that the model is not significant. Operationally, the test was carried out to test the significance of the association between return on equity and control variables. Coefficient of determination will then explain the proportionate variance influenced by control variables.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter covers the analysis of findings, results and discussions of the data acquired from the various responses. The analysis is based on the study objective which include establishing the liquidity risk and its effects on financial performance of commercial banks in Kenya.

4.2 Response Rate

The study utilized secondary quantitative data that was extracted from four year (2013-2017) financial reports of various commercial banks in Kenya as indicated in table 4.1 below. Out of 41 targeted commercial banks, data was only found on 35 of them which represent 85% response rate. This response rate is considered excellent to make conclusions for the study. This is justified by Mugenda and Mugenda (2003) who observes that a 50% response rate is adequate, 60% and above is good, and 70% is very good while 80% and over is excellent.

Table 4.1: Commercial Banks that Provided Response

BANK NAME	BANK NUMBER
KCB Bank	1
Equity Bank	2
Cooperative	3
Barclays	4
Standard Chartered	5
CFC Stanbic	6
DTB	7
I & M	8
NIC	9

Citibank	10
CBA	11
Family Bank	12
Baroda	13
National	14
Ecobank	15
Prime	16
BOA	17
Bank of India	18
GT	19
Gulf	20
Sidian	21
Victoria	22
Zurich	23
Jamii Bora	24
ABC	25
Oriental	26
Guardian	28
Trans-national	29
Development	30
First Commmunity	31
Paramount	32
Credit	33
Middle East	34

UBA		35

4.3 Diagnostic Tests

4.3.1 Test of Normality for the Response Variable

Here we test the assumption that the residuals of the response variable are normally distributed around the mean. Various statistical methods can be used to test normality. The study will use Skewness and Kurtosis to test for normality. The statistic value of Kurtosis and Skewness shows the flatness or sharpness of data, and leanness of data to the right or to the left respectively. The standard practice is that the Kurtosis and Skewness scores that is not within the range of +3 to -3 shows that the population from which the variable is obtained is not normally distributed. The variable is considered to fail the test and therefore data is transformed by either using natural log of the data, inverse proportions among other transformational methods.

Table 4.2: Normality Test

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Y = ROA	-.948	.184	1.477	.365
X1 = Liquidity Ratio	.243	.184	-.185	.365
X2 = Issued Loans	.174	.184	-.915	.365
X3 = Bank Size	.181	.184	-1.230	.365
X4 = Capital Adequacy	1.371	.184	2.812	.365
Valid N (listwise)				

Source: Author, 2018

The Kurtosis and the Skewness Value shows that all the variables are within the range of +3 and -3. The data is therefore considered to be obtained from a normally distributed population.

4.3.2 Test for Homoscedasticity

The other important assumption for multiple linear regression model is that the variance of the error term is constant. Heteroscedasticity is said to prevail in case the errors does not have a constant variance, otherwise it will be termed as homoscedasticity. To test for homoscedasticity, White test was used based on the following hypothesis.

H0: There is no heteroscedasticity

H1: There is heteroscedasticity

ἄ= 0.05

Table 4.3: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.619[a]	.383	.369	2.1854653	1.687

a. Predictors: (Constant), X4 = Capital Adequacy, X1 = Liquidity Ratio, X3 = Bank Size, X2 = Issued Loans

b. Dependent Variable: Y = ROA

From the table 4.3, Coefficient of determination R^2=0.383 revealed that the model only explain 38.3% of the variables.

Table 4.4: Chi-Square

Test	Chi-square calculated $\chi2 = nR2$	Chi-square tabulated, ă= 0.05 $\chi2ă(p)$, where p = k+1
White test	9.975	17.03

Source: SPSS Output

The results from the table above shows that the calculated value of chi-square is less than the tabulated value of chi-square at 0.05 significant level hence we reject the null hypothesis which indicates that 'no heteroscedasticity.' The data therefore can be said to be homoscedasticity.

4.3.3 Test for Multi Collinearity

Multicollinearity test was determined by the use of VIF factors. The Variable inflation factors determine whether there is collinearity between the variables or not. According to the standard practice, values with VIF factors above 10 are said to contain collinearity, in which case the variables that contain multicollinearity are dropped from the model.

Table 4.5: Multi Collinearity Test

Model		95.0% Confidence Interval for B		Collinearity Statistics	
		Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-17.013	-9.384		
	X2 = Liquidity Ratio	-.069	.034	.991	1.009
	X2 = Issued Loans	-.561	1.356	.067	4.952
	X3 = Bank Size	.091	1.954	.073	3.634

		.012	.103	.725	1.379
X4 = Capital Adequacy					

Source: Author, 2018

According to the table 4.5, all the VIF values for all the variables are below 10 and we therefore conclude that there is no presence of multi collinearity.

4.4 Descriptive Statistics

Data for all the variables is described in the form of the mean of each variable and the variation from the mean. The outliers for each variable are also highlighted as shown in the table 4.6 below.

Table 4.6: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
Y = ROA	175	-8.0000	7.7000	2.327143	2.7510980
X2 = Liquidity Ratio	175	24.8000	55.7000	39.883429	6.4154277
X2 = Issued Loans	175	6.6657	12.9280	10.119711	1.3197573
X3 = Bank Size	175	8.2188	13.2279	10.672350	1.2964504
X4 = Capital Adequacy	175	5.1000	59.0000	22.554857	8.4158558
Valid N (listwise)	175				

Source: Author, 2018

Financial performance was determined by the use of ROA, where the average return on assets was 2.33% with a standard deviation of 2.75%. This is explained that the average

performance of the commercial banks in the study period showed that the total assets of the company generated profits in average of 2.33% of the assets employed. The outliers were maximum of 7.7% and minimum of -8%.

Liquidity Ratio on the other hand had a mean of 39.88% with a standard deviation of 6.4%. The liquidity ratio, showed the total liquid assets that the commercial bank may use to offset the current liabilities as and when they fall due. There is a minimum statutory requirement for this ratio where commercial banks should not have a liquidity ratio of below 20%. The outliers for this variable are a maximum of 55.7% and a minimum of 24.8%.

The log of total loans issued was also determined. The more loans a commercial banks issue, the less the liquidity and the higher the performance margin which depends on the quality of the loans issued. The mean of total loans was at 10.12 with standard deviation of 1.32 and outliers at 12.93 and 6.67.

The size of the commercial bank was also determined by the total assets employed by the commercial bank. The natural log of this value was used in the analysis which showed a mean of 10.67 with 1.3 standard deviation and outliers at 8.22 and 13.23.

Capital adequacy which showed the total owners capital that the shareholders of the commercial banks contribute over the total risky assets. It shows how much the owners' capital cover the risky assets in the instance that the company winds up. The average was at 22.56% with 8.4% standard deviation. Outliers stood at 59% and 5.1%.

4.5 Correlation Analysis

This is used to determine the Pearson's Correlation that explains the correlation between the variables. Correlation is either positive or negative. Positive correlation means that increasing the independent variable causes the dependent variable to increase as well while negative correlation, the increase in independent variable causes the dependent variable to decrease.

Table 4.7: Correlation Analysis

	Y = ROA	*X1 = Liquidity Ratio*	*X2 = Issued Loans*	*X3 = Bank Size*	*X4 = Capital Adequacy*
Y = ROA	1				
X1 = Liquidity Ratio	0.016037006	1			
X2 = Issued Loans	0.566945445	0.091860419	1		
X3 = Bank Size	0.596588205	0.089482759	0.96089744	1	
X4 = Capital Adequacy	-0.069567148	-0.01573395	-0.446758919	-0.352729609	1

Source: Author, 2018

The correlation between the independent variables and the dependent variables all show a positive correlation which means that increase in all the variables would result to increase in the dependent variable. Liquidity and capital adequacy have weak correlation as the values are close to zero, while Loans Issued and the Bank size have strong positive correlations.

4.6 Regression Analysis

Dependent variable include Return on Assets while independent variables include Liquidity Ratio, Net loans Issued, Bank Size and Capital adequacy.

Given the general form of the multiple linear regression model; the hypothesized study model is as follows:

$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \text{ę}$

Where

Y= Return on Assets, X_1= Liquidity Coverage Ratio, X_2= Net Loans Issued, X_3= Bank Size, and X_4= Capital Adequacy

than ă= 0.05.

4.6.1 Regression Model Summary

Table 4.8: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.619[a]	.383	.369	2.1854653	1.687

The table 4.8 shows that the coefficient of determination (R squared) is 38.3% which shows that the model can explain the dependent variable up to the extent of 38.3%. The other 61.7% of the changes in dependent variable can be explained by other factors outside the model. The Durbin Watson Value shows the presence or absence of autocorrelations in the model. A score of 4 and above shows presence of autocorrelations while less than 4 shows absence. There is therefore no presence of autocorrelations in our model.

4.6.2: One way ANOVA

This is used to determine the F statistic that was used to determine the significance of the model. The null hypothesis of the study is that there is no effect of liquidity on financial performance of commercial banks in Kenya. The null hypothesis is rejected is the F calculated is greater than F critical value. The Significance of the model is determined by comparing the p value with the alpha value of 0.05. If p value is less than 0.05 then the model is significant.

Table 4.9: ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	504.962	4	126.241	26.431	.000[b]
1	Residual	811.964	170	4.776		
	Total	1316.926	174			

a. Dependent Variable: Y = ROA

b. Predictors: (Constant), X4 = Capital Adequacy, X2 = Liquidity Ratio, X3 = Bank Size, X2 = Issued Loans

The Anova table shows that the F calculated value is 26.431 while the F critical value at 4 and 170 degrees of freedom at alpha of 0.05 is 2.4. The F calculated is greater and therefore we reject the null hypothesis. The p value is 0.000 which is less than 0.05 and we therefore conclude that the effect is significant. The study therefore concludes that there is a positive statistically significant effect of liquidity on financial performance of commercial banks in Kenya.

4.6.3 Regression Coefficients

Table 4.10: Coefficients Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-13.198	1.932		-6.831	.000
	X1 = Liquidity Ratio	-.018	.026	-.041	-.680	.497
1	X2 = Issued Loans	.398	.485	.191	.819	.414
	X3 = Bank Size	1.022	.472	.482	2.167	.032
	X4 = Capital Adequacy	.057	.023	.176	2.482	.014

Source: Author, 2018

The predicting equation of the model therefore becomes

$Y = -13.198 - 0.018X_1 + 0.398 X_2 + 1.022 X_3 + 0.057X_4 + 1.932$

4.7 Results, Findings and Discussions

The main findings of the study is that there exists a positive significant relationship between liquidity and financial performance of commercial banks in Kenya. The study rejected the null hypothesis of the F statistic as the calculated F value was greater than the critical F value. The study was significant since the p value was less than 0.05. We conclude that the effect of liquidity is positive since the correlation of liquidity against financial performance is positive. This means that increasing liquidity in a commercial bank in Kenya would result in the increase in financial performance albeit in small quantities.

The study also found that the total loans issued had a positive correlation with financial performance. This means that increase in loans issued led to increase in financial performance as the commercial banks increased their margins that consequently meant that financial performance would increase. The correlation was strong since it was closer to 1 than it was closer to zero.

Bank size was also positively correlated and the correlation was strong. This shows that larger banks had better financial performance than smaller banks as they were able to enjoy economies of scale and large discounts from bulk purchasing that improved their financial performance.

Capital adequacy had a positive weak correlation against financial performance. Increase in the capital adequacy ratio also resulted in increase in financial performance. This could be explained by the fact that increase in capital adequacy decreased bankruptcy risks tht therefore enhanced the financial performance of the commercial banks.

The findings are consistent with the results by Deep & Schaefer (2004) who found positive relationship between liquidity and financial performance of MFBs. Similar results areexhibited by Leykun (2016) in Ethiopia and Mugenyah (2015) in Kenya. There is however a contradictory findings by Vodova (2013) who found out that liquidity decreased when profitability was prioritized.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This section presents the summary, conclusions and recommendations based on the findings of the study. The section then look at the implications of the findings of the study to the financial institution. Limitations of the study and recommendations for further research have also been highlighted.

5.2 Summary of the Study

The study survey was taken from 35 banks out of 42 commercial banks of Kenya representing 85% response rate. Using a multiple regression model, the data obtained from various commercial banks was used to regress ROA against (liquidity coverage ratio, net loans issued, bank size and capital adequacy). The analysis on the relationship between the variables revealed that an overall significant relationship (P=0.00) was attained. All the four factors were found to be positively related to ROA, While the model was generally found to be significant, only bank size and loans issued was found to be holding exceptionally high significance related to ROA given a p-value less than 0.05. From the analysis, overall correlation value of 0.595 was established which shows a high relationship between dependent and independent variables.

5.3 Conclusions

In this study selected variables (liquidity coverage ratio, net loans issued, bank size and capital adequacy) of selected commercial banks of Kenya were modeled using multiple linear regression to establish the factors that affect Return of Assets (ROA) of the commercial banks of Kenya. Return on Assets was used as a proxy for profitability. Specifically, the

study aimed to ascertain the relationship between ROA and the selected variable (liquidity coverage ratio, net loans issued, bank size and capital adequacy), and to identify the variable that affect ROA of the banks. The following four internal factors were regressed on ROA; liquidity coverage ratio, net loans issued, bank size and capital adequacy.

The study ascertained that the selected internal variables explained 38.3% of the variability in ROA of commercial banks of Kenya. Bank size and Loans issued were found to be a statistically significant determinant of ROA. Thus it was concluded that Bank size and Loans Issued are the most important determinants of ROA of commercial banks of Kenya.

5.4 Implications of the Study

The study found out that the selected factors only explain 38% of the variability in ROA implying that there exist other factors either internal to the institution or external that influence the ROA .The study also established that Bank size is the most important factor in influencing the ROA of Commercial banks of Kenya. Therefore, commercial banks management has to be wise in controlling growth in sizes to enable the bank realize profits. This study also found liquidity coverage ratio, and capital adequacy not to be statistically significant to the higher end in influencing ROA of commercial banks in Kenya; however, from literature we know these factors have been found to affect ROA of commercial banks of Kenya. Therefore, to achieve greater ROA, commercial banks of Kenya have to be wise in underwriting to minimize risk.

5.5 Limitations of the Study and Recommendations for Future Research

The findings of the study provide a basis upon which further research can be carried out. The study covered only five year. However the performance of any business is subject to time and

thus the study period could have an implication on the findings of the study. The study therefore recommend that future research be carried to cover a longer time period, more than five year so as to account for variations in profitability due to time.

This study modeled a few selected factors to determine whether they influence profitability of commercial banks of Kenya. However, we know that there are more internal and external factors that influence profitability. For instance we have efficiency, among other factors that has been indicated by Connelly and Limpaphayom (2004) and William and Segal (2004) as major determinants of profitability. There is also the regulatory environment as an external factor that plays a very significant role. It is therefore recommended that future research considers both internal and external factors.

The current study utilized the multiple linear regression model; in real life, it is not easy to find data that meets all the assumptions of this model. Therefore, a more robust model is recommended in future research.

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APPENDICES

Appendix I: List of Commercial Banks in Kenya

	Banks	Core Capital	Total Capital
1	KCB Bank Kenya Ltd	71,970	78,020
2	Equity Bank Kenya Ltd	59,198	61,902
3	Co - operative Bank of Kenya Ltd	58,859	81,048
4	Barclays Bank of Kenya Ltd	38,768	43,934
5	Standard Chartered Bank (K) Ltd	35,628	42,242
6	Diamond Trust Bank (K) Ltd	35,344	38,790
7	Stanbic Bank Kenya Ltd	32,569	36,208
8	I & M Bank Ltd	29,790	32,227
9	NIC Bank Kenya PLC	27,652	32,964
10	Commercial Bank of Africa Ltd	20,394	26,130
11	Citibank N.A. Kenya	19,037	19,763
12	Bank of Baroda (K) Ltd	16,203	16,909
13	Prime Bank Ltd	11,176	11,796
14	Family Bank Ltd	10,832	13,147
15	Bank of India	10,665	11,069
16	HFC Ltd	8,298	9,109
17	Ecobank Kenya Ltd	5,767	5,995
18	Victoria Commercial Bank Ltd	5,363	5,517
19	Guaranty Trust Bank (Kenya) Ltd	5,257	5,354
20	Bank of Africa (K) Ltd	4,946	6,986
21	Gulf African Bank Ltd	4,247	4,836
22	National Bank of Kenya Ltd	3,503	4,771
23	Sidian Bank Ltd	3,325	3,354
24	M - Oriental Commercial Bank Ltd	2,780	2,887
25	Habib Bank A.G. Zurich	2,770	2,842
26	Credit Bank Ltd	2,594	2,644
27	African Banking Corporation Ltd	2,488	2,906
28	Guardian Bank Ltd	2,307	2,375
29	Jamii Bora Bank Ltd	2,283	2,349
30	UBA Kenya Bank Ltd	2,162	2,162
31	Transnational Bank Ltd	1,888	2,010
32	Development Bank of Kenya Ltd	1,617	1,898
33	Paramount Bank Ltd	1,555	1,638
34	First Community Bank Ltd	1,407	2,021
35	DIB Bank Kenya Ltd	1,269	1,269
36	Mayfair Bank Ltd	1,169	1,169
37	Middle East Bank (K) Ltd	1,143	1,157
38	SBM Bank (Kenya) Ltd	1,020	1,041
39	Spire Bank Ltd	987	1,206
40	Consolidated Bank of Kenya Ltd	354	595
41	Chase Bank Kenya Ltd**	-	-
42	Imperial Bank Ltd**	-	-
43	Charterhouse Bank Ltd*	-	-
	Total	**548,582**	**624,239**

*Banks under statutory management
**Banks in receivership

Source: Extracted from CBK (2017)

Appendix II: Study Guide

This form contains data from all registered banks within a period of 5 years, ending 2017 with exclusion of the three banks under receivership and statutory management.

Bank Name/ Holding Name…………………………………………………………..

Variable	Description	Year				
		2013	**2014**	**2015**	**2016**	**2017**
Liquidity Coverage Ratio	HQLAs/Net Cash Outflows					
Net Stable Funding	ASF (Capital + Liabilities)					
	RSF (Cash + Short-Term Unsecured Traded Instruments + Off-Balance Sheet Exposures					
Bank Size	Total Assets					
Inflation rate	As defined by CBK					

Return on Equity	Net Income Before tax					
	Total Equity Capital					

Key:

HQLAs = High quality liquid assets

ASF = Available amount of stable funding

RSF = Required amount of stable funding