

# Effect of Liquidity Risk Determinants on the Financial Performance of Commercial Banks Listed at the Nairobi Securities Exchange

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*Abstract : Commercial banks play a crucial role of providing liquidity in the financial market. In performing this role, banks are inherently exposed to liquidity risk. Liquidity risk arises from the fundamental role of banks in the maturity transformation of short term deposits into long term loans. The overall objective of this study was to determine the effect of liquidity risk determinants on financial performance of commercial banks listed at the Nairobi Securities Exchange. The specific objectives of the study were; to examine the effect of liquidity level on financial performance of listed commercial banks and to examine the effect of capital adequacy on financial performance of listed commercial banks. The research used a descriptive survey research design. The target population comprised of the 11 commercial banks listed at the Nairobi Securities Exchange. The study made use of primary and secondary data. A questionnaire was used to collect the primary data. A sample of 42 members of the assets and liabilities management committee was used. Secondary data was collected from banks annual reports submitted to the Central Bank of Kenya. Stratified sampling technique was used to select members of the sample. The study found that liquidity level had a positive effect on return on assets for listed commercial banks but the effect was not significant. The study found that capital adequacy had a significant positive effect on return on assets for commercial banks listed on the Nairobi Securities Exchange. The study concluded that that liquidity levels had a positive effect on financial performance of listed commercial banks but the effect was not significant. It also concluded that capital adequacy had a positive and significant effect on the financial performance of listed commercial banks. The study recommended that to optimize financial performance, commercial banks listed on the Nairobi Securities Exchange should identify and maintain optimal levels of liquidity. The study recommended that listed commercial banks should increase the amount of core capital since capital*

*adequacy was noted to have a positive effect on financial performance.*

*Key Words: Capital Adequacy, Liquidity Level and Financial Performance.*

## 1. INTRODUCTION

### 1.1 Background of the Study

The main role of banks in the financial system is to provide liquidity through intermediation. Banks intermediate between depositors and investors and provide illiquid loans to borrowers which are funded with liquid deposits from the depositors. In performing this role, banks transform short maturities into longer maturities in order to create funding liquidity for investors and to promote the efficient allocation of resources in the system (Strahan, 2008). This leaves the banks exposed to a maturity mismatch. This mismatch can cause instability in the bank in its role as provider of liquidity upon demand to depositors-through deposit transactions, or borrowers-through committed lines of credit (Drehmann and Nikolaou, 2009).

Liquidity risk arises from the fundamental role of banks in the maturity transformation of short term deposits into long term loans. It is the inability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. It is the risk that a bank will be unable to meet its obligations as they come due because of the inability to liquidate assets or inadequate funding sources (Decker, 2010). BIS (2008) explain that bank's liquidity is the ability to fund increases in assets and meet obligations as they come due.

BIS (2008) recommend that a bank's senior management should develop policies and a culture in accordance with the banks articulated liquidity risk tolerance. Directors of banks should at least annually review a report on the bank's liquidity risk position, approve effective policies on liquidity

risk management, and ensure the effectiveness of the senior management. In addition, banks should take into account the liquidity risk arising from all activities of the banks thereby aligning the incentives of the banks' individual business lines with their actual risk exposures for the banks as a whole.

In Kenya commercial banks dominate the financial sector and as such the process of financial intermediation in the country depends heavily on commercial banks (Kiganda, 2014). Kenyan commercial banks are licensed and regulated pursuant to the provisions of the Banking Act and the regulations and prudential guidelines issued by the Central Bank of Kenya. Central bank of Kenya regulations requires commercial banks to maintain a liquidity buffer of twenty percent (CBK, 2015). In a country where commercial banks dominate the financial sector a liquidity shortage from the commercial banks would have an immense implication on the economic growth of the country. Listing at the Nairobi Securities Exchange can be considered an important aspect for a bank as will provide a bank with an easier access to capital markets where it can issue securities to finance a liquidity gap.

Liquidity risk needs to be monitored as part of the enterprise-wide risk management process, taking into account market risk and credit risk to ensure stability in the balance sheet and dynamic management of liquidity risk (Decker, 2010). Jenkinson (2008) notes that liquidity risk not only affects the performance of a bank but also its reputation. A bank may lose the confidence of its depositors if funds are not timely provided to them. The bank's reputation may become at stake in this situation.

### 1.2 Statement of the Problem

Several studies have evaluated the effect of liquidity risk on financial performance of commercial banks. Lartey et al (2013) found a weak positive relationship between the liquidity risk and the profitability of Ghana's listed banks. However (Bourke, 1989), Kosmidou and Pasiouras (2005) found a significant positive relationship between liquidity risk and bank profits. Li, (2007) concluded that the effect of liquidity risk on profitability is mixed and not significant. Locally several studies have used measures of liquidity risk in evaluating the determinants of commercial banks performance. Muteti (2012) noted that the effect of liquidity risk on financial performance was inconclusive. Maaka (2013) noted that liquidity risk had a negative effect on bank profitability. Ogilo and Mugenya (2015) found that capital adequacy and leverage were significant

determinants of liquidity risk while liquid asset ratio, ownership type and bank size didn't have a significant effect on liquidity risk.

Based on the reviewed studies, the empirical evidence on the effect of liquidity risk on financial performance is mixed. Commercial banks manage liquidity risk by managing certain aspects of banks performance such as customer deposits, loans; capital adequacy and asset quality Ogilo and Mugenya (2015). The ability of commercial banks to manage liquidity risk is affected by macroeconomic factors such as inflation (Vodova, 2011; Bunda and Desquilbet, 2008) and gross domestic product (Valla, 2006; Angora and Roulet, 2011). The effect of liquidity risk on financial performance of commercial banks cannot be regarded as conclusive. This study sought to examine the effect of liquidity risk determinants on financial performance of commercial banks by taking a different perspective; by examining how liquidity level and capital adequacy affect financial performance of commercial banks.

### 1.3 Objectives of the study

#### 1.3.1 General objective

The main objective of the study was to determine how liquidity risk determinants affect financial performance of commercial banks listed at the NSE.

#### 1.3.2 Specific Objectives

The specific objectives were to;

- i To determine the effect of liquidity level on financial performance of commercial banks listed at the NSE in Kenya.
- ii To determine the effect of capital adequacy on financial performance of commercial banks listed at the NSE in Kenya.

## 2. LITERATURE REVIEW

### 2.1 Introduction

This chapter reviews various theories suggested to explain liquidity risk within financial institutions, related empirical evidence and a discussion of the hypothesized variables. The chapter is organized to start with the theoretical framework, conceptual framework, and discussion of research variable and empirical review, followed by critical review of the literature, summary of literature and finally research gaps.

### 2.2 Theoretical Framework

The theoretical framework of the study will involve the theories expounded to explain the occurrence of liquidity risk among financial institutions. The

theories reviewed include; shift ability theory, financial intermediation theory and risk absorption hypothesis.

### **2.2.1 Shift ability Theory**

This theory was developed by Moulton in 1918. This theory posits that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This point of view contends that a bank's liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount Market stands ready to purchase the asset offered for discount. Thus this theory recognizes and contends that shift ability, marketability or transferability of a bank's assets is a basis for ensuring liquidity. This theory further contends that highly marketable security held by a bank is an excellent source of liquidity (Maaka, 2013).

The theory came to focus following the 2007 global financial crisis as the interbank markets run short of liquidity. Brunnetti, Fillipo and Harris (2011) argued that the subprime crisis demonstrated potentially serious liquidity problems in the interbank market.. Tirole (2010) pointed that during the period of distress, banks may find it difficult to obtain the desired liquidity since the confidence of the market may have seriously affected and credit worthiness would invariably be lacking.

### **2.2.2 Financial Intermediation Theory**

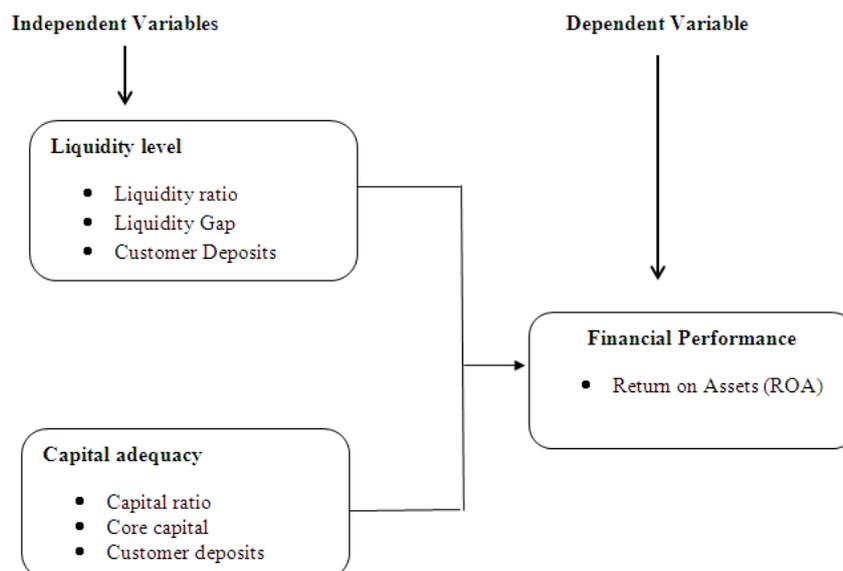
Diamond (1984) analyzed the provision of liquidity (the transformation of illiquid assets into liquid liabilities) by banks. They argued that investors (depositors) are risk averse and uncertain about the timing of their future consumption needs. Without an intermediary, all investors are locked into illiquid long term investments that yield high payoffs only to those who consume late. Those who must consume early receive low payoffs because early consumption requires premature liquidation of long-term investments. Banks can improve on a competitive market by providing

better risk sharing among agents who need to consume at different times. An intermediary promising investors a higher payoff for early consumption and a lower payoff for late consumption relative to the non-intermediated case enhances risk sharing and welfare.

Allen and Santomero (1998) offered a different dimension in the role of financial intermediation by considering the role of financial intermediaries in risk management. They argued that risk management has become a key area of intermediary activity. Intermediaries facilitate risk transfer and dealing with the increasing complex maze of financial instruments and markets. They note that by dealing in financial assets, intermediaries are by definition in the financial risk business. By virtue of the fact that they originate, trade, or service financial assets, intermediaries are managing and trading risk. Risks inherent in financial assets is decomposed into three subgroups; risks that can be eliminated or avoided by business practices; risks that can be transferred to other participants; risks that must be actively managed at the firm level (Kimani, 2015). Liquidity risk within commercial banks is often managed through transfer such as through deposit insurance or managed internally by compliance with guidelines issued by respective central banks and regulatory authorities.

### **2.3 Conceptual Framework**

Theories provide a conceptual framework, so that knowledge, both existing and new, can be interpreted for empirical application in comprehensive manner. In this study the conceptual framework comprise of two independent variables and one dependent variable. The selection of variables was based on previous relevant studies.



**Figure 2.1 Conceptual framework**

Figure 2.1 shows the conceptualization of the dependent and independent variables of the related study. The independent variables of this study indicate the statistics that will be used to measure effects of liquidity risk determinants. They include liquidity level and capital adequacy, the dependent variable is financial performance which was measured by return on assets (ROA).

**2.3.1 Liquidity Level**

Loans to customer deposits the ratio, measured as the ratio between credit granted and deposits taken from customers provide a broad structural characterization of banks’ liquidity risks. Since customers deposits are a broadly stable funding source, those banks that finance most or all of their credit with deposits should, all else same, be less exposed to liquidity risk. On the other hand banks that show a large funding gap, that is, a very high loan-to-deposit ratio, will be more exposed to liquidity risk, as they will need to rely on wholesale funding markets. As a result banks in which wholesale market funding as a percentage of assets is higher will be more sensitive to refinancing risk (Brunnermeier, 2009).

**2.3.2 Capital Adequacy**

Bonfim and Kim (2012) define capital adequacy is the Tier 1 capital ratio determined as core capital divided by total deposits. Ayele (2012) points that capital adequacy is a measure of a bank’s financial strength, in terms of its ability to withstand operational costs and fund liquidity. Capital adequacy also indicates the ability of bank to undertake additional business. The size of capital

provides financial flexibility for bank and financial institution. Ongore and Kasu (2013) argued that capital adequacy ratio shows the internal strength of the bank to withstand losses during crisis.

**2.3.3 Measurement of Financial Performance**

Metcalf & Titard (1976) pointed out that the financial performance is to convey an understanding of some financial aspects of a firm and its analysis identifies the financial strengths and weaknesses of the firm. Mwangi (2010) did a study on the effect of financial structure on the financial performance of firms listed at the NSE. He collected data using structured questionnaires. The study identified a strong positive relationship between short term debt financing and the firms’ return on equity, liquidity, and return on investment. This hypothesis was contrasted by a number of studies, to them the benefit of short term debt financing is less than its negative aspects, and hence argue that firms will always prefer to fund investments by internal sources first before considering external sources of funds (Jensen and Meckling, 1976).

Commonly used indicators of financial performance of commercial banks include return on assets (ROA), return on Equity (ROE) and net interest margin. Khrawish (2011) define return on assets as the ratio of income to total asset. It measures the ability of the bank management to generate income by utilizing company assets at their disposal. It indicates the efficiency of the management of a company in generating net income from all the resources of the institution. Return on equity is the ratio of net income after

taxes divided by total equity capital. ROE is what the shareholders look in return for their investment. It represents the rate of return earned on the funds invested in the bank by its shareholders. ROE reflects how effectively a bank management is using shareholder funds (Khravish, 2011).

### 3. RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter addresses the research design that was used to achieve the aims and objectives of the study. Part 3.2 discusses the research design and the justification is given. The target population, sampling frame, sample size and sampling technique, data collection methods, data collection procedures, pilot test, data processing and analysis, statistical model and testing that was used in the study are described in part 3.2 to 3.9.

#### 3.2 Research Design

According to Shaughnessy, Zechmeister and Zechmeister (2002) there are many different types of research designs that can be used in research. This study used descriptive research design. Kothari (2004) indicates that, descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. Zikmund (2003) notes that, the main characteristic of this method is that the researcher has no control over the variables; he can only report what has happened or what is happening. The design is appropriate for the study as it will involve fact finding and reporting facts as they existed. Morgan (2007) explained that the advantage of this design is that the researcher is able to use various forms of data as well as incorporating human experience. The results will be reported using descriptive and inferential statistics.

#### 3.3 Target Population

Population is the entire group of individuals, events or objects with some observable characteristics (Mugenda and Mugenda, 2003). Kitchenham and Pflieger (2002) assert that a target population is a group of individuals to whom the survey applies. Other scholars (Enarson, Kennedy & Miller, 2004) define target population as the collection of individuals about whom conclusions and inferences are made. Mugenda and Mugenda (2004) assert that target population is that population to which a researcher wants to generalize the results of his study. The target population was the 11 commercial banks listed at the Nairobi Securities Exchange between 2011 and 2015. This period is

selected as it was preceded by the 2007/09 global financial crisis that brought banks liquidity into focus (Vodova, 2011).

#### 3.4 Sampling Frame

According to Zikmund (2010) a sampling frame is the list of elements from which the sample may be drawn. Sampling frame is also defined as a list of elements from which a sample is actually drawn (Cooper & Schindler, 2011). For the purpose of this study sampling frame constitutes the members of the assets and liability management committee (ALCO) for each of the commercial banks listed at the NSE.

#### 3.5 Sampling Size and Sampling Technique

The term sample is defined in various ways by different scholars. Bryman (2008) and Spiegel (2008) define a sample as a part of the total population. However, Kothari (2004) defines a sample as a collection of units chosen from the universe to represent it. The sample should be as representative as possible of the entire population.

In this study the sampling frame consists of the members of the assets and liabilities management committee for each of the list of commercial banks listed the NSE. The targeted sample size for this study is 42 respondents comprising 58.48 % of the members of the ALCO for the 11 listed commercial banks. After identifying the ALCO members for each bank, the sample were selected using stratified random sampling.

#### 3.6 Data Collection Methods

The study used a questionnaire and a record survey sheet to obtain primary data and secondary data respectively. Data for the variables was collected from financial statements using a record survey sheet. Using record survey sheet, important figures from statements of comprehensive income and financial position were recorded for subsequent analysis. Data was obtained from Nairobi Securities Exchange Handbook and respective banks website. The data collected span a period of five years covering the period 2011 to 2015. The reason to restrict the period of the study to five years is because it constitutes the latest data which will be readily available for this period. Primary data was obtained using a questionnaire structured according to each of the research objective

### 3.7 Data Collection Procedures

The data was collected through the use of record survey sheet and a self-administered questionnaire. Record survey sheet will be used to collect secondary data from financial statements that were obtained from the Nairobi Securities Exchange Handbook, Central Bank of Kenya and the respective banks website. Questionnaires were used by the researcher to obtain information or data from the respondents. Cooper and Schindler (2011) support the use of self-administered questionnaires in descriptive studies because they cost less.

### 3.8 Data Processing and Analysis

Data was analyzed using multiple regression methodology in accordance with the objectives of the study. Correlation analysis was used to determine the relationship between liquidity risk determinants and financial performance. To establish the effect of liquidity risk determinants on financial performance, liquidity level and capital adequacy was regressed on return on assets. Data was analyzed using statistical software for social scientists version 22.

#### 3.8.1 Model Specification

The multiple regression models used to establish the determinants of liquidity risk was of the specific form;

$$ROA = \alpha + \beta_1 LIQ + \beta_2 CAR + \varepsilon_i$$

Where:

$\alpha$  = constant term

$\beta_1 \beta_2$  = Coefficients for the independent variables

ROA= Return on assets

LIQ= Liquidity level

CAR=Capital adequacy ratio

$\varepsilon_i$  = Error term

#### 3.9.2 Test of Statistical Significance

The statistical significance of each independent variable explaining liquidity risk was tested using student t-test at 5% level of significance. F-test was

**Table 4.5 Effect of Liquidity level on financial performance**

Statement	N	Mean	Std. Deviation
Adequate liquidity is paramount to the financial performance of commercial banks	37	1.6	0.5
The liquidity gap (loan less deposits) is an important determinant of financial performance for commercial banks	37	1.6	0.6
Banks that maintain a high level of liquid assets perform better financially	37	2.3	1.1
Increase in the minimum liquidity requirement for commercial banks would have a negative effect on financial performance of commercial banks	37	2.3	1.0
Commercial banks keep a regular watch over their liquidity ratios to comply with statutory requirements	37	1.7	0.6

used to evaluate the overall significance of the regression model. The coefficient of determination,  $R^2$  was used to assess the strength of the overall regression model.

## RESEARCH FINDINGS AND DISCUSSION

### 4.1 Analysis of Findings

The variables Liquidity level and Capital Adequacy were used in this study as independent variables whilst the variable Financial Performance was used as dependent variable. The following section presents the research finding for each of the objectives in the study. The respondents were asked to indicate the extent to which they agreed or disagreed with specific statements on each aspect of financial performance of listed commercial banks. The data obtained was analyzed using mean scores and standard deviations. A mean score of 1.5 or less implies that the respondents strongly agree with the statement, 1.6 to 2.5 implies respondents agreed while 2.6 to 3.5 not sure. A mean score of 3.6 to 4 implies respondents disagreed. A standard deviation of less than 1 means that there were no significant variations in responses while greater than 1 implies that there were significant variations in the responses.

#### 4.1.1 The effect of liquidity level on financial performance of commercial banks listed at the NSE in Kenya

To establish the effect of liquidity level on financial performance of commercial banks, the respondents were asked to indicate whether they agreed or disagreed with some statements. The results obtained are shown on table 4.5 below and table 4.6 in appendix IV.

Statement	N	Mean	Std. Deviation
Adequate liquidity is paramount to the financial performance of commercial banks	37	1.6	0.5
The liquidity gap (loan less deposits) is an important determinant of financial performance for commercial banks	37	1.6	0.6
Banks that maintain a high level of liquid assets perform better financially	37	2.3	1.1
Increase in the minimum liquidity requirement for commercial banks would have a negative effect on financial performance of commercial banks	37	2.3	1.0
Commercial banks keep a regular watch over their liquidity ratios to comply with statutory requirements	37	1.7	0.6
Overall	37	1.6	0.6

Table 4.5 shows that the respondents agree that adequate liquidity is paramount to the financial performance of commercial banks (1.6) and liquidity gap is an important determinant of financial performance for commercial banks (1.6). Also the respondent agree that banks that maintain a high level of liquid assets perform better financially (2.3) they also agree that increase in the minimum liquidity requirement for commercial banks would have a negative effect on financial performance of commercial banks. The respondents agreed that commercial banks keep a effect of capital adequacy on the financial performance of commercial banks are presented in table 4.7

regular watch over their liquidity ratios to comply with statutory requirements (1.7). The overall standard deviation of 0.6 indicates that there were no significant variations in the responses.

#### 4.1.2 Effect of capital adequacy on financial performance of commercial banks listed at the NSE in Kenya

Results on whether the respondents agreed or disagreed to various statements relating to the

**Table 4.7 Effect of Capital Adequacy on Financial Performance**

Statement	N	Mean	Std. Deviation
The amount of capital in a bank affect the banks liquidity level	37	1.6	0.5
Banks with a high level of core capital perform better financially	37	1.6	0.5
An increase in statutory capital for commercial banks would improve the financial performance	37	2.0	0.9
The ratio of core capital to customers deposit is an important financial performance measure for commercial banks	37	1.7	0.6
Overall	37	1.7	0.6

Table 4.7 indicate that the respondents agreed that the amount of bank capital affect the liquidity level of commercial banks (1.6) they also agreed that banks with high level of core capital perform better financially (1.6). Further the respondents agreed that increase in statutory capital for commercial banks would improve banks financial performance (2.0). The respondents also agreed that the ratio of core capital to customer deposits was an important measure of financial performance. The overall

standard deviation of 0.6 indicates that there were no significant variations in the responses.

#### 4.2 Correlation Analysis between Return on assets, Liquidity level and Capital adequacy

A correlation coefficient is a statistic that describes the degree of linear association between two variables. The table below shows the correlation between return on assets, liquidity level, and capital adequacy

**Table 4.13 Correlation Matrix: Correlation between Return on Assets, Liquidity level, and Capital adequacy**

		Return on assets	Liquidity level	Capital adequacy	Asset quality	Inflation
Return on assets	Pearson Correlation	1	.302	.794	.424	-.590
	Sig. (2-tailed)		.193	.024*	.018*	.429*
	N	37	37	37	37	37
Liquidity Level	Pearson Correlation		1	.201	-.224	.117
	Sig. (2-tailed)			.232	.013*	.491
	N		37	37	37	37
Capital adequacy	Pearson Correlation			1	-.097	-.763
	Sig. (2-tailed)				.569	.015*
	N			37	37	37

\* Correlation is significant at the 0.05 level (2-tailed).

Table 4.13 shows that return on assets and liquidity had a correlation coefficient of 0.302 with a p-value of 0.193. This showed that return on assets and liquidity level had a positive correlation. The correlation was not significant at 5% level of significance since the p-value 0.193 is greater than 0.05. Return on assets and capital adequacy had a correlation coefficient of 0.794 with a p-value of 0.024. This result showed that return on assets and capital adequacy had a positive correlation and the correlation was significant at 5% as the p-value 0.024 is less than 0.05. The correlation is significant since p-value 0.018 is less than 0.05.

The correlation was thus not significant at 5% level of significance since the p-value 0.429 is greater than 0.05.

#### 4.3 Regression Analysis

To evaluate the effect of liquidity level, capital adequacy, asset quality and inflation the respondent's response to these variables were regressed on a five year average return on assets for the listed commercial banks. The results of this regression are presented in table 4.14:

**Table 4.14 Regression coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
Constant	.053	.016		3.369	.002
Liquidity level	.003	.006	.094	.479	.635
Capital adequacy	.004	.001	.127	4.704	.024

The result in table 4.14 showed that the regression had a constant of 0.053. Liquidity has a coefficient of 0.003 with a p-value of 0.635. Capital adequacy had a coefficient of 0.004 with a p-value of 0.024. The resulting regression model was:

$$ROA=0.053+0.003LIQ+0.004CAR$$

The constant value of 0.053 indicates the return on assets that would be obtained when liquidity level, capital adequacy, asset quality and inflation were

zero. This can be interpreted as the level of return on assets not influenced by liquidity level, capital adequacy, asset quality and inflation. The coefficient of liquidity 0.003 indicates the increase in return on assets that would occur due to a unit change in a banks liquidity level. The coefficient of capital adequacy 0.004 indicates the increase in return on assets that are associated to a unit increase in the amount of bank capital.

**Table 4.15 Analysis of variance (ANOVA)**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.111	5	.022	11.032	.017 <sup>a</sup>
Residual	.062	31	.002		

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Total	.173	36
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Table 4.15 showed the result of analysis of variance. The analysis indicates the overall significance of the variable in a regression on the dependent variable. The F ratio was found to be 11.032 with a significance probability of 0.017.

**Table 4.16 Model summary**

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Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.801 <sup>a</sup>	.642	.326	.044721

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The coefficient of determination was found to be 0.642 as reported in table 4.16. This result showed that variation in liquidity level, capital adequacy, asset quality and inflation explained 64.2% of the variation in return on assets.

#### 4.4 Discussion of Findings

The overall objective of this study was to determine how liquidity risk determinants affect financial performance of commercial banks listed at the NSE. The identified liquidity risk determinants were liquidity level, capital adequacy, asset quality and inflation specifically the study sought to examine the effect of liquidity level, and capital adequacy on financial performance of commercial banks listed at the NSE in Kenya.

Liquidity is the ability of a commercial bank to meet its obligation as they fall due. This study found that liquidity is paramount to the financial performance of commercial banks. Liquidity gap was found to be an important determinant of financial performance of commercial banks listed on the NSE. Also the study noted that banks with high level of liquid assets perform better financially. These findings concur with those of Ajibike and Aremu (2015) that liquidity risk (liquidity gap) was a major determinant of commercial bank profitability. The study noted that increase in the minimum liquidity requirement for commercial banks would have a negative effect on financial performance of commercial banks. This finding could be attributed to the opportunity cost of holding liquid assets as noted in Aspachs et al (2005). Compliance with liquidity guidelines issued by regulators is important for commercial banks consistent with the findings of this study that commercial banks keep a regular watch over their liquidity ratios to comply with statutory requirements. The study did not reject the hypothesis that liquidity level does not have a significant effect on financial performance of commercial banks listed on the NSE. This contradicted the finding by Makaa (2013) who found that liquidity had a significant negative effect on financial performance of commercial banks.

The amount of capital in a bank influences its flexibility and the ability to take on additional business. This study found that capital adequacy had a positive effect on return on assets. This indicated that banks with higher levels of capital perform better financially. This concurred with the findings of Trabelsi (2015). Consistent to this line of argument is the finding of this study that increase in the amount of statutory capital would improve financial performance of commercial banks listed on the NSE. Similar to Bonfim & Kim (2011) the study noted that the amount of bank capital affects the liquidity risk of commercial banks.

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of findings

##### 5.1.1 The effect of liquidity level on financial performance of commercial banks listed at the NSE in Kenya

The study hypothesized that liquidity level does not have a significant effect on financial performance of commercial banks listed at the NSE in Kenya. It was found that liquidity level had a positive effect on return on assets but the effect was not significant. Hence the null hypothesis could not be rejected. With respect to this objective the study found that adequate liquidity was paramount to the financial performance of commercial banks listed on the NSE, liquidity gap was an important determinant of financial performance of commercial banks listed on the NSE and also found that commercial banks that maintain a high level of liquidity perform better financially. The study also found that increase in the minimum liquidity requirement for commercial banks would have a negative effect on financial performance of commercial banks and that commercial banks listed on the NSE keep a regular watch over their liquidity ratios to ensure compliance with statutory requirements. The study found that the hypothesis that liquidity level did not

have a significant effect on financial performance of commercial banks listed on the NSE could not be rejected at 5% level of significance.

### 5.1.2 Effect of capital adequacy on financial performance of commercial banks listed at the NSE in Kenya

The study hypothesized that capital adequacy does not have a significant effect on financial performance of commercial banks listed at the NSE in Kenya. It was found that capital adequacy had a positive effect on return on assets and the effect was significant. The null hypothesis was therefore rejected. The study found that banks with high level of core capital perform better financially and that increase in statutory capital for commercial banks listed on the NSE would improve banks financial performance. Further it was found that the amount of bank capital affect the liquidity level of commercial banks.

### 5.2 Conclusions

This study sought to determine the effect of liquidity level on the financial performance of commercial banks listed on the NSE. The study concluded that liquidity levels had a positive effect on financial performance of listed commercial banks but the effect was not significant. Further it was concluded that adequate liquidity is of paramount importance in the financial performance of commercial banks listed on the NSE. The study also concluded that liquidity gap is an important determinant of financial performance of commercial banks. The study also concluded that that an increase in the minimum liquidity ratio requirement for commercial banks would adversely affect financial performance. Further the study concluded that listed commercial banks do comply with the minimum statutory liquidity ratio.

The second objective of the study was to determine the effect of capital adequacy on financial performance of commercial banks listed on the NSE. The study concluded that capital adequacy had a positive and significant effect on the financial performance of listed commercial banks. Further the study concluded following; the amount of banks capital affected the liquidity level of commercial banks, banks with high level of core capital perform better financially, an increase in statutory capital would improve the financial performance for commercial banks listed on the NSE and that the ratio of core capital to customers deposit were an important measure of financial performance for commercial banks.

### 5.3 Recommendations

Based on the first objective the study recommends that since liquidity levels had a positive effect on financial performance and was noted as being of paramount importance in the performance of commercial banks, the listed commercial banks should maintain their levels of liquidity at optimal levels. Also the study recommended that commercial banks should manage the liquidity gap carefully as it was noted to be an important determinant of financial performance. Further the study recommends that the regulator of commercial banks should be cautious about increasing the minimum liquidity ratio as this would adversely affect the financial performance of commercial banks.

On the second objective the study recommends that listed commercial banks should increase the amount of core capital since capital adequacy was noted to have a positive and significant effect on financial performance and also because the amount of banks capital affected the banks liquidity risk. Further the ratio of core capital to customers deposit was an important measure of financial performance.

### 5.5 Suggestions for Further Research

This study considered only one macroeconomic variable-inflation. Further research may evaluate the effect of other macroeconomic variables such as GDP growth and broad money supply on the financial performance of commercial banks. Additional research may consider evaluating the effect the effect of liquidity risk determinants on the non-listed commercial banks, microfinance institutions and savings and credit societies. Further additional research may evaluate the effect of credit risk management on the financial performance of commercial banks in Kenya. In addition future research may evaluate the effect of interest rate regulation on the financial performance of commercial banks in Kenya.

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