

**THE RELATIONSHIP BETWEEN LIQUIDITY RISK AND FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

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DECLARATION

I declare that this is my original work and has not been presented for a degree in any other university.

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DEDICATION

To my family for support and understanding especially to my wife Alice Kerubo Akunga who stood by me and supported me both morally and financially during my working on this proposal

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ABSTRACT

Liquidity risk is considered as one of the serious concern and challenge for the modern era banks. A bank having good asset quality, strong earnings and sufficient capital may fail if it is not maintaining adequate liquidity. Towards this end, the research sought to establish the relationship between liquidity risk and financial performance of commercial banks in Kenya.

The study adopted correlation research design where data was retrieved from the balance sheets, income statements and notes of 33 Kenyan banks during 2008-2012. Multiple regressions was applied to assess the impact of liquidity risk on banks' profitability. The findings of the study were that profitability of the commercial bank in Kenya is negatively affected due to increase in the liquidity gap and leverage. With a significant liquidity gap, the banks may have to borrow from the repo market even at a higher rate thereby pushing up the cost of banks. The level of customer deposit was also found to positively affect the bank's profitability and it will therefore be encouraged for banks to open more branches in the country. The period studied in this paper is 2008-2012, due to availability of the data. However, the sample period does not impair the findings since the sample includes 14 banks, which constitute the main part of the Kenyan banking system. Only profitability was considered in the study and there is need to consider other variables such as the economic condition prevailing in a given period.

TABLE OF CONTENTS

DECLARATION	ii
ABSTRACT	iii
CHAPTER ONE: INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Liquidity Risk	2
1.1.2 Financial Performance	4
1.1.3 Effect of Liquidity Risk on Financial Performance of Commercial banks	5
1.1.4 Commercial Banks in Kenya	6
1.2 Research Problem.....	8
1.3 Objectives of the Study.....	10
1.4 Value of the Study.....	10
CHAPTER TWO: LITERATURE REVIEW	12
2.1 Introduction.....	12
2.2 Theoretical Framework Underlying the Study	12
2.2.1 Commercial Loan (Traditional) Theory and Liquidity	12
2.2.2 The Shiftability Theory of Liquidity	13
2.2.3 Anticipated Income Theory of Liquidity.....	14
2.3 Liquidity Risk in Commercial Banks	15
2.3.1 Interest Rate Risk	16
2.3.2 Credit and Solvency Risks.....	17
2.4 Liquidity risk and performance of banks.....	17
2.5 Managing Liquidity Risk.....	19
2.6 Determinants of Financial Performance	21
2.7 Empirical Studies	24
2.8 Chapter Summary.....	28
CHAPTER THREE: RESEARCH METHODOLOGY	30
3.1 Introduction.....	30
3.2 Research Design.....	30
3.3 Population of the Study	30
3.4 Data Collection	31

3.5 Data Analysis	31
3.5.1 Analytical Model.....	32
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION	34
4.1 Introduction.....	34
4.2 Descriptive Statistics	34
4.3 Inferential Statistics.....	35
4.3.1 Correlation Coefficient	36
4.3.2 Multiple Regression	38
4.3.3 Multiple Regression Model	39
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	41
5.1 Introduction.....	41
5.2 Summary.....	41
5.3 Conclusion	42
5.4 Recommendations	43
REFERENCES	44
APPENDIX I: LIST OF COMMERCIAL BANKS	48

LIST OF TABLES

Table 4.1: Descriptive Statistics	34
Table 4.2: Correlation Table.....	37
Table 4.3: Model Summary for PBT with Control Variables	38
Table 4.4: Multiple Regression.....	39

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Risk is a natural element of business and community life. It is a condition that raises the chance of losses/gains and the uncertain potential events which could manipulate the success of financial institutions (Crowe, 2009). As a result, well establish risk management practices (RMPs) can assist banks to reduce their exposure to risks. Effective risk management is accepted as a major cornerstone of bank management by academics, practitioners and regulators and acknowledging this reality and the need for a comprehensive approach to deal with bank risk management, the Basel Committee on Banking Supervision adopted the Basel I Accords, followed by the Basel II Accords and recently by the Basel III, to deal with the matter (Sensarma and Jayadev, 2009). Moreover, risk management is found to be one of the determinants of returns of banks' stocks. Indeed as Holland (2010) observed, risk management failure is considered one of the main causes of the crisis.

Liquidity is the ability of a bank to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses (Basel Committee on Banking Supervision, 2008). The inability of banks to raise liquidity can be attributed to a funding liquidity risk that is caused either by the maturity mismatch between inflows and outflows and/or the sudden and unexpected liquidity needs arising from contingency conditions (Duttweiler, 2009). Therefore, efficient and effective liquidity management is crucial if the survival and prosperity of organizations firms is to be assured. However, as noted by Sardakis et al. (2007), the assessment of liquidity

management practices, especially, in small firms and its influence on the firms' profitability has tended to be based solely on the standards and practices used by large companies or those adopted by professionals such as accountants, consultants, banks, etc. Liquidity management can be defined as the planning and controlling of cash flow by owner-managers in order to meet their day-to-day commitments (Collis and Jarvis, 2000).

A day-to-day management of a firm's short term assets and liabilities plays an important role in the success of the firm. Firms with glowing long term prospects and healthy bottom lines do not remain solvent without good liquidity management (Jose *et al.*, 1996). According to Moss and Stine (1993) a useful way of assessing the liquidity of firms is with the cash conversion cycle (CCC). The cash conversion cycle measures the time lag between cash payments for purchase of inventories and collection of receivables from customers. The traditional measures of liquidity such as the current ratio and quick ratio are useful liquidity indicators of firms though they focus on static balance sheet values (Hutchison *et al.*, 2007).

1.1.1 Liquidity Risk

Liquidity risk is the possibility that over a specific time period, the bank will become unable to settle obligations with immediacy (Drehmann and Nikolaou, 2009). It is a risk arising from a bank's inability to meet its obligations when they come due without incurring unacceptable losses. This risk can adversely affect both bank's earnings and the capital and therefore, it becomes the top priority of a bank's management to ensure the availability of sufficient funds to meet future demands of providers and borrowers, at reasonable costs. The vulnerability of banks to liquidity risk is determined by the funding risk and the market risk. 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. A bank should only attempt this if it makes good business sense, not use it as a means to keep afloat. Liquidity risk not only affects the performance of a bank but also its reputation (Jenkinson, 2008). 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.

The maturity transformation of short-term deposits into long-term loans makes banks inherently vulnerable to liquidity risk (Basel Committee on Banking Supervision, 2008). The market liquidity risk refers to the inability to sell assets at or near the fair value, and in the case of a relevant sale in a small market; it can emerge as a price slump (Brunnermeier and Pedersen, 2009).

The behaviour towards liquidity is affected by a firm's characteristics: a bank's liquidity position is affected by its size, status and product type. The size affects the attitude of the bank towards wholesale funding, including the access opportunity (Allen et al., 1989) and the price of the funds obtained (Nyborg et al., 2002). Bank size matters because of the economy of scope and scale; concerning liquidity, a large bank might have better access to the interbank markets because it has a larger network of regular counterparties or a wider range of collateral. The product type offered to the counterparties, on both the assets and liabilities sides, is able to affect the liquidity position; banks that take on demand deposits and offer loan commitments need to hold higher liquidity buffers that can be mitigated if an imperfect correlation holds (Kashyap et al., 2002).

1.1.2 Financial Performance

Organizational performance can be measured by financial aims attainment or workers satisfaction. In the same manner Ho, (2008) pointed out that performance can be evaluated by efficiency and effectiveness of aim attainment. Furthermore, Venkatraman et al, (1986) cited that performance can be assessed by financial performance namely, return on investment, growth of sales, profit, organization effectiveness, and business performance. Similarly, Delaney et al, (2006) assert that organization performance can be evaluated by quality service and products, satisfying customers, market performance, service innovations, and employee that organization performance can be appraised by the following “dimensions of performance: return of investment, margin on sales, capacity utilization, customer satisfaction and product quality”. In the same way, Green et al, (2007) identified that return on investment, sales and market growth, and profit are important factors that be measured by organization performance. According to these researchers, there are many factors in this study that be measured by performance such as market shares, financial performance, efficiency and effectiveness of an organization performance, and human resource management.

There is general agreement that bank profitability is a function of internal and external factors. Koch (1995) observed that the performance differences between banks indicate differences in management philosophy as well as differences in the market served. Profitability is a function of internal factors that are principally influenced by a bank's management decisions and policy objectives such as the level of liquidity, provisioning policy, capital adequacy, expense

management and bank size, and the external factors related to industrial structural factors such as ownership, market concentration and stock market development and other macroeconomic factors (Athanasoglou *et al*, 2006). Though most of the studies on bank profitability are based on developed countries especially the USA and Europe, a couple of studies focusing on developing countries Flamini et al (2009), Sufian and Chong (2009), and (Naceur (2003) have also used similarly the same variables to study the determinants of bank profitably.

1.1.3 Effect of Liquidity Risk on Financial Performance of Commercial banks

Liquidity was a key factor during the 2008-09 financial crisis in which the banks funding sources dried up quickly and they found themselves short on cash to cover their obligations as they came due (Longworth 2010). There is a general sense that banks had not fully appreciated the importance of liquidity risk management and the implications of such risk for the bank itself. As result, policymakers have suggested that banks should hold more liquid assets than in the past, to help self-insure against potential liquidity or funding difficulties (BCBS 2010). Liquid assets such as cash and government securities generally have a relatively low return, therefore, holding them imposes an opportunity cost on a bank. In the absence of regulation, it is reasonable to expect that banks will hold liquid assets to the extent they help to maximize the firm's profitability. Henceforth, policymakers have the opted to require larger holdings of liquid assets. This study seems to establish whether banks' holdings of liquid assets have a significant impact on their profitability.

Profitability is improved for banks that hold some liquid assets, however, there is a point at which holding further liquid assets diminishes a banks' profitability, all else equal (Bernanke 2008). Such findings are conceptually in line with relevant literatures and are consistent with the

idea that the opportunity cost of holding low-return assets eventually outweighs the benefit of any increase in the bank's liquidity. Likewise, there is a similar estimated benefit to holding more liquid assets when economic conditions deteriorate. The ultimate objective of any commercial bank is to maximize the profit. But, preserving liquidity of the commercial bank is equally an important objective too. The dilemma that is faced by the management of commercial banks is that increasing profits at the cost of liquidity can bring serious problems to the bank. Therefore, there must be a trade-off between these two objectives of the firms (Sufian and Chong , 2009). One objective should not be at cost of the other because both have their importance. If we do not care about profit, we cannot survive for a longer period. On the other hand, if we do not care about liquidity, we may face the problem of insolvency or bankruptcy. For these reasons liquidity management in commercial bank should be given proper consideration and will ultimately affect the profitability of the bank.

1.1.4 Commercial Banks in Kenya

The Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. As at December 2012 there were forty six banking and non-bank institutions, fifteen micro finance institutions and one hundred and nine foreign exchange bureaus (Central bank of Kenya Official Homepage, 2012). According to the Central bank of Kenya Official Homepage (2012), there are a total of 45 licensed commercial banks in the country and one mortgage finance company. Out of the 45 institutions, 32 are locally owned and 13 are foreign owned. The locally owned financial institution comprise 3 banks with significant shareholding by government and state corporations, 28 commercial banks and 1 mortgage finance institution. However out of all the banks only 10 of

them are listed in the Nairobi stock exchange having met the conditions of listing and applied for the same. The Central bank of Kenya annual supervision report (2012) categorizes the financial institutions into three tiers; Large, Medium and Small in terms of net assets.

In the coming period, according to the CBK (2012), diversification into other financial services is also expected as consumers increasingly seek “one stop financial supermarket.” These developments are expected to enhance banking products being offered and bring more Kenyans into the banking space. However, the main challenges facing the banking sector today include the Finance Act 2008, which took effect on 1 January 2009 that requires banks and mortgage firms to build a minimum core capital of Ksh 1 billion by December 2012. This requirement, it is hoped, will transform small banks into more stable organization. The implementation of this requirement poses a challenge to some of the existing banks and they may be forced to merge in order to comply with the act. The Kenyan banking industry has continued to grow both in terms of new local and foreign entrants, customer and deposit base, regionalization and increased scrutiny from the regulators specifically the Central Bank of Kenya. This new shift in the Kenyan banking industry can be attributed to the liberalization of the sector, increased adoption of information technology and improved business environment due to reforms being undertaken in the political, economic, social and cultural fields. With these changes, the level of competition in the banking industry has reached an all level high and coupled with an enlightened customers and increased scrutiny from the regulators, local banks have had to shift their attention to distribution strategies as a source of competitive advantage.

1.2 Research Problem

The strength of the banking system is an essential requirement to ensure the economic stability and growth (Halling and Hayden, 2006). Banks are the main part of the financial sector in any economy, performing valuable activities on both sides of the balance sheet. On the asset side, they enhance the flow of funds by lending to the cash starved users of funds, whereas they provide liquidity to savers on the liability side (Diamond and Rajan, 2001). Banks also facilitate the payments and settlement systems and support the smooth transfer of goods and services. They ensure productive investment of capital to stimulate the economic growth and also help to develop new industries, thereby increasing the employment and facilitating the growth. The varied nature of functions performed by the banks exposes them to liquidity risk – the risk that a bank may not meet its obligations (Jenkinson, 2008) as the depositors may call their funds at an inconvenient time, causing fire sale of assets, negatively affecting profitability of the bank (Chaplin et al., 2000). The justification for studying banks' activities by focusing on risk management can be traced to Merton (1995) who argued that financial systems should be analyzed in terms of a “functional perspective” rather than an “institutional perspective” since over long periods of time functions have been much more stable than institutions.

Merton (1995) suggested that, inter alia, the central function of a financial institution is its ability to distribute risk across different participants. According to Saunders and Cornett (2006), modern financial institutions are in the risk management business as they undertake the functions of bearing and managing risks on behalf of their customers through the pooling of risks and the sale of their services as risk specialists. Given the importance of risk management in a bank's

functioning, the efficiency of a bank's risk management is expected to significantly influence its financial performance (Harker and Satvros, 1998). These consequences indicate that banks are facing higher credit and market risks now when compared with the situation prior to the uprising.

The Kenyan banking industry has continued to grow both in terms of new local and foreign entrants, customer and deposit base, regionalization and increased scrutiny from the regulators specifically the Central Bank of Kenya. This new shift in the Kenyan banking industry can be attributed to the liberalization of the sector, increased adoption of information technology and improved business environment due to reforms being undertaken in the political, economic, social and cultural fields. With these changes, the level of competition in the banking industry has reached an all level high and coupled with an enlightened customers and increased scrutiny from the regulators, local banks have had to introduce effective risk management practices.. Adoption of such practices have been found to be a source of sustainability more so in such environment characterized by stiff competition and enlightened customers (Chao et al., 2010). Competitiveness of an organization will lead to sustainability which refers to the development that meets the needs of the present generation without compromising the ability of the future generation to meet their needs (Bundtland Commission, 1987).

A number of studies have been done on the liquidity with various aspects of organizations operations. Locally Maina (2011) researched on relationship between the liquidity and profitability of oil companies in Kenya and found that that liquidity management is not a significant contributor alone of the firm's profitability and there exist other variable that will influence ROA. However, it is important for a firm to understand the effect of each of the

liquidity components on the firm's profitability and also undertake deliberate measures to optimize its liquidity level. Kweri (2011) researched on the relationship between working capital management and profitability of manufacturing firms listed at the Nairobi stock exchange. The findings of the study were that working capital management affects profitability of the company and if the firm can effectively manage its working capital, it can lead to increasing profitability. The studies have not centered on the liquidity risk especially risks arising from the asset side. Liquidity risk may arise due to the breakdown or delays in cash flows from the borrowers or early termination of the projects (Diamond and Rajan, 2005). Moreover, liquidity risk may also originate from the very nature of banking; macro factors that are exogenous and financing and operating policies that are endogenous (Ali, 2004). As a result of this gap, the current research will seek to answer the following question: what is the relationship between liquidity risk and financial performance of commercial banks in Kenya?

1.3 Objectives of the Study

- (1) To investigate liquidity risk faced by commercial banks in Kenya;
- (2) To establish the relationship between liquidity risk and the performance of banks in Kenya.

1.4 Value of the Study

The understanding of the liquidity risk practices adopted by commercial banks in Kenya as well as how it will influence their performance will help policy makers – governments and other stakeholders – to design targeted policies and programs that will actively stimulate the growth and sustainability of the commercial banks in the country, as well as helping those policy makers

to support, encourage, and promote the establishment of appropriate policies to guide the firms. Regulatory bodies such as Central Bank of Kenya (CBK), Capital Markets Authority (CMA) and the Kenya Revenue Authority can use the study findings to improve on the framework for regulation.

The study findings will benefit management and staff of commercial banks who will gain insight into how their institutions can effectively manage their liquidity risk by coming up with appropriate practices. This study will offer an understanding on the importance of adopting an appropriate liquidity practices and thus offer competitive advantage to the firms. Several practices on risk management and their effects will be discussed for the benefit of the managers. This is because commercial banks need to adapt to the changing needs of the current business set up and requirement of various customers and providers of services. As a result, commercial banks in the country and other affiliated institution will derive great benefit from the study.

This study will also create a monograph which could be replicated in other sectors of the economy. Most importantly, this research will contribute to the literature on the risk management in the commercial banks especially in developing countries like Kenya. It is hoped that the findings will be valuable to the academicians, who may find useful research gaps that may stimulate interest in further research in future. Recommendations will be made on possible areas of future studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relating to liquidity risk in the banking system and its influence on performance. The literature review has been organized in the following sections. First section covers the theoretical framework underlying the study, types of liquidity risks and finally the effect of liquidity risk on bank performance. The second section covers the management of liquidity risks after with the empirical reviews on the subject matter being covered is discussed.

2.2 Theoretical Framework Underlying the Study

The major objective of a commercial bank is to create liquidity while remaining financially sound. However, there are a number of dimensions in the way banks concretely manage their liquidity risk. In plain words, there are competing liquidity management theories. Liquidity management theories encompass where it is exactly performed in the organization, how liquidity is measured and monitored, and the measures that banks can take to prevent or tackle a liquidity shortage. These competing theories include: Commercial Loan Theory, Shiftability Theory and Anticipated.

2.2.1 Commercial Loan (Traditional) Theory and Liquidity

The commercial loan theory of credit became obsolete both because of its conceptual flaws and its impracticality. A critical underlying assumption of the theory held that short-term commercial

loans were desirable because they would be repaid with income resulting from the commercial transaction financed by the loan. It was realized that this assumption would certainly not hold during a general financial crisis even if bank loan portfolios did conform to theoretical standards, for in most commercial transactions the purchaser of goods sold by the original borrower had to depend to a significant extent on bank credit.

Without continued general credit availability, therefore, even short-term loans backing transactions involving real goods would turn illiquid. Rigid adherence to the orthodox doctrine was, furthermore, a practical impossibility if banks were to play a role in the nation's economic development (Casu (2006)). Moreover, the practice of continually renewing short-term notes for the purpose of supporting long-term capital projects proved unacceptable. The failure or inability of banks to tailor loan arrangements to the specific conditions encountered with longer-term uses in fact contributed to the demise of the practice.

2.2.2 The Shiftability Theory of Liquidity

The Shiftability theory liquidity replaced the commercial loan theory and was supplemented by the doctrine of anticipated income. Formally developed by Harold G, Moulton in 1915, the shiftability theory held that banks could most effectively protect themselves against massive deposit withdrawals by holding, as a form of liquidity reserve, credit instruments for which there existed a ready secondary market. Included in this liquidity reserve were commercial paper, prime bankers' acceptances and, most importantly as it turned out, Treasury bills. Under normal conditions all these instruments met the tests of marketability and, because of their short terms to maturity, capital certainty.

A major defect in the Shiftability theory was discovered similar to the one that led to the abandonment of the commercial loan theory of credit, namely that in times of general crisis the effectiveness of secondary reserve assets as a source of liquidity vanishes for lack of a market (Casu et al, 2006). The role of the central bank as lender of last resort gained new prominence, and ultimately liquidity was perceived to rest outside the banking system. Furthermore, the soundness of the banking system came to be identified more closely with the state of health of the rest of the economy, since business conditions had a direct influence on the cash flows, and thus the repayment capabilities, of bank borrowers. The shiftability theory survived these realizations under a modified form that included the idea of ultimate liquidity in bank loans resting with shiftability to the Federal Reserve Banks. Under this institutional scheme, the liquidity concerns of banks were partially returned to the loan portfolio, where maintenance of quality assets that could meet the test of intrinsic soundness was paramount (Allen and Gale (2004).

2.2.3 Anticipated Income Theory of Liquidity

The doctrine of anticipated income, as formalized by Herbert V. Prochnow in 1949, embodied these ideas and equated intrinsic soundness of term loans, which were of growing importance, with appropriate repayment schedules adapted to the anticipated income or cash flow of the borrower.

The credit demands of business were well accommodated under this system of banking policy, and the use of loan commitments was freely pursued. Changing economic conditions, however, placed extra demands on the banking system that resulted in a new approach to balance sheet

management, and businesses faced new financial challenges. Under this emerging state of affairs, bank loan commitment policies would come to play a more important part in the credit process.

2.3 Liquidity Risk in Commercial Banks

In easier terms, liquidity risk can be defined as the risk of being unable to liquidate a position timely at a reasonable price (Muranaga and Ohsawa, 2002). From this definition, there are two key dimensions of liquidity risk cited namely liquidating the assets as and when required; and at a fair market value. Banks face liquidity risk if they are not liquidating their assets at a reasonable price. The price fetching remains precarious due to frazzled sales conditions, while liquidating any of the bank's assets urgently. This may result in losses and a significant reduction in earnings. Large-scale withdrawal of deposits may create a liquidity trap for banks (Kumar, 2008), but this may not be always the primary source of liquidity risk. There are various other factors creating massive liquidity problems for the banks. For example, the extensive commitment based, and long-term lending may create serious liquidity issues (Kashyap et al., 2002). Banks having large commitments are bound to honour them when they become due. Moreover, banks having a large exposure in long-term lending may face problems of liquidating the same during times of immense liquidity pressure.

According to Goodhart (2008), there are two basic facets of liquidity risk: maturity transformation (the maturity of a bank's liabilities and assets) and the inherent liquidity of a bank's asset (the extent to which an asset can be sold without incurring a significant loss of value under any market condition). As such, the two elements of a bank's liquidity are intertwined. Banks do not need to be worried about the maturity transformation if they have the assets that

can be sold without bearing any loss. Whereas, banks having assets that are going to be matured in a shorter period may have a less need to keep the liquid assets. This increases the demand of depositors creating liquidity risk. This may cause the failure of a given bank or even the entire banking system due to contagion effect (Diamond and Rajan, 2005). High liquidity increases the leverage and a highly leveraged bank may turn into the consumer of liquidity from the provider

2.3.1 Interest Rate Risk

According to Goodhart (2008), there are two basic facets of liquidity risk: maturity transformation (the maturity of a bank's liabilities and assets) and the inherent liquidity of a bank's asset (the extent to which an asset can be sold without incurring a significant loss of value under any market condition). In fact, these two elements of a bank's liquidity are intertwined. Banks do not need to be worried about the maturity transformation if they have the assets that can be sold without bearing any loss.

Whereas, banks having assets that are going to be matured in a shorter period may have a less need to keep the liquid assets. Apart from the above-said maturity mismatch, liquidity risk arises due to recessionary economic conditions, causing less resource generation. This increases the demand of depositors creating liquidity risk. This may cause the failure of a given bank or even the entire banking system due to contagion effect (Diamond and Rajan, 2005). High liquidity increases the leverage and a highly leveraged bank may turn into the consumer of liquidity from the provider.

2.3.2 Credit and Solvency Risks

Credit risk indicates the failure of a bank to receive interest and/or the principal amount from loans and non-treasury securities. Credit risk also arises when a bank gives commitment or guarantees on behalf of customers (Sinkey, 2006). Furthermore, credit risk is present in all counterparty exposures like interest rate swaps. On-balance sheet strategies for managing credit risk include increasing provisions for all anticipated loan losses. Although, higher provisions reduce the profitability of a bank but higher provisions as percentage of total assets also signal a bank's efforts towards mitigating credit risk. Thus, provisions as percentage of total assets can provide an indication of the extent of credit risk management (Kashyap et al., 2002).

Solvency risk arises out of lack of sufficient funds to pay depositors in the event of a run. Capital to assets ratio indicates the cushion available to a bank against unexpected losses and implicitly protects the interests of uninsured depositors (Allen and Gale (2004). Higher capital to assets ratio builds confidence of bank depositors but may reduce shareholder value due to reduction in ROE. Thus, maximization of ROE is often linked to a trade-off between ROA and the Equity Multiplier (EM) (reciprocal of capital to assets ratio). Banks with higher EM may increase the ROE for shareholders but higher EM indicates low capital to assets ratio and therefore higher solvency risk, which may lead to the bank closing down.

2.4 Liquidity risk and performance of banks

Liquidity problems may affect a bank's earnings and capital and in extreme circumstances may result in the collapse of an otherwise solvent bank (Central Bank of Barbados, 2008). Banks may have to borrow from the market even at an exceptionally high rate during a liquidity crisis. This

ultimately causes a decline in the banks' earnings. Moreover, a bank's further borrowing to meet depositors' demand may place the bank's capital at stake. Thus, debt to equity ratio will rise, affecting the bank's effort to maintain an optimal capital structure.

Liquidity risk may cause a fire sale of the assets of the bank which may spill over into an impairment of bank's capital base (Diamond and Rajan, 2001; Falconer, 2001). If any of the financial institutions faces a situation in which it has to sell a large number of its illiquid assets to meet the funding requirements (perhaps to reduce the leverage in conformity with the requirement of capital adequacy), the fire sale risk may arise. This scenario may dictate to offer price discount to attract buyers. This situation will have a knock on effect on the balance sheets of other institutions as they will also be obliged to mark their assets to the fire sale price (Goddard et al., 2009).

Diamond and Rajan (2001) state that a bank may refuse the lending, even to a potential entrepreneur, if it feels that the liquidity need of the bank is quite high. This is an opportunity loss for the bank. If a bank is unable to meet the requirements of demand deposits, there can be a bank run (Diamond and Rajan, 2005). No bank invests all of its resources in the long-term projects. Many of the funding resources are invested in the short term liquid assets. This provides a buffer against the liquidity shocks. Diamond and Rajan (2005) emphasise that a mismatch in depositors demand and production of resources forces a bank to generate the resources at a higher cost. Liquidity has a greater impact on the tradable securities and portfolios. Broadly, it refers to the loss emerging from liquidating a given position (Zheng and Shen, 2008). It is essential for a bank to be aware of its liquidity position from a marketing perspective. It helps to

expand its customer loans in case of attractive market opportunities (Falconer, 2001). A bank with liquidity problems loses a number of business opportunities. This places a bank at a competitive disadvantage, as a contrast to those of the competitors.

Liquidity management is important for several reasons, for one the current assets of a manufacturing firm account for over half of its assets (Weinraub and Visscher 1998). For a distribution company they account even more. Excessive levels of current assets can easily result in a firm realizing a sub-standard return on investment. However, the firms with too little current assets may incur shortages and difficulties in maintaining smooth operations (Gilbert and Reichert, 1995). For small companies current liabilities are the principal sources of external funding. Such firms do not have access to long term financing apart from mortgages on buildings. Fast growing and larger firms also make use of current liability financing. For these reasons, the financial managers devote considerable time working on these matters.

2.5 Managing Liquidity Risk

Liquidity risk management is an essential component of the overall risk management framework of the financial services industry, concerning all financial institutions (Majid, 2003). Ideally, a well-managed bank should have a well-defined mechanism for the identification, measurement, monitoring and mitigation of liquidity risk. A well-established system helps the banks in timely recognition of the sources of liquidity risk to avoid losses. The balance sheets of banks are growing in complexity and dependence upon the capital markets has made the liquidity risk management more challenging (Guglielmo, 2008). Guglielmo (2008) further argues that the banks having enhanced exposure in the capital markets must have a deep understanding of the risks involved. The said banks should develop the mechanism required for proper risk

measurement and management. A bank should have continuous awareness about the breakdown of its various funding sources in terms of individual strata of clientele' financial markets and instruments (Falconer, 2001).

According to Gatev and Strahan (2003), the deposits provide a natural hedge to banks against the liquidity risk. Under the stressed market conditions, the banks are perceived as a haven for investors who do not intend to issue funds against their loan commitments. The cash flows in any bank complement each other. The inflows of funds give a natural hedge to banks for outflows due to loan advancements. Therefore, banks use deposits to hedge the liquidity risk. This argument also finds support from the work of Kashyap et al. (2002) who provided a rationale of risk management to define the features of a commercial bank, commonly labelled as “financial intermediary” combining demand deposits with loan commitments.

One possible counter measure to reduce liquidity pressure is the transformation of illiquid assets into cash. In times of immense funding pressure, securitisation techniques are usually employed by the banking system for liquidation of assets like mortgages (Jenkinson, 2008). A bank should respond to funding shortfall by acting on the assets side of the balance sheet if it is facing restrictions on raising liquidity. It will be forced to squeeze the advancement of loans to its customers to reduce funding requirements. Despite its features to support funding and increase liquidity, Ali (2004) has narrated two main drawbacks of the above stated policy. First, this strategy needs a bit longer period to be matured. Many of the lending decisions are taken in advance and hard to be reversed instantly, thereby not generating liquidity drainage quickly.

Second, reduced lending affects a large part of the economy. In the non availability of funds to companies and households, it becomes difficult to support long-term investment and consumption in the economy.

2.6 Determinants of Financial Performance

Financial measures are considered the most used parameter of business performance measurement, especially in the current economic climate. Most growing businesses ultimately target increased profits, so it is important to know how to measure profitability. The key standard measures are:-

Liquidity measures the ability of the firm business to meet financial obligations as they become due, without disrupting the normal, ongoing operations of the business. Liquidity can be analyzed both structurally and operationally. Structural liquidity refers to the balance sheet (assets and liabilities) and operational liquidity refers to cash flow measures (Du Rietz & Henrekson, 2000). Two recommended measures of liquidity are the current ratio and working capital. The current ratio measures the relationship between total current firm assets and total current firm liabilities and is a relative measure rather than an absolute dollar measure. The higher the ratio, the more liquid the firm is considered to be. Working capital is a measure of the amount of funds available to purchase inputs and inventory items after the sale of current firm assets and payment of all current firm liabilities. Working capital is expressed in absolute dollars; therefore, determining adequate working capital is related to the size of the firm operation (Du Rietz & Henrekson, 2000).

Solvency measures the amount of borrowed capital used by the business relative to the amount of owner's equity capital invested in the business. In other words, solvency measures provide an indication of the business' ability to repay all indebtedness if all of the assets were sold. Solvency measures also provide an indication of the business' ability to withstand risks by providing information about the firm's ability to continue operating after a major financial adversity (Hammes, 2003). Unlike liquidity, solvency is concerned with long-term as well as short-term assets and liabilities. Three widely used financial ratios to measure solvency are the debt-to-asset ratio, the equity-to-asset ratio and the debt-to-equity ratio. These three solvency ratios provide equivalent information, so the best choice is strictly a matter of personal preference. The debt-to-asset ratio expresses total firm liabilities as a proportion of total firm assets and the higher the ratio, the greater the risk exposure of the firm. The equity-to-asset ratio expresses the proportion of total assets financed by the owner's equity. The debt-to-equity ratio reflects the capital structure of the firm and the extent to which firm debt capital is being combined with firm equity capital. It is a measure of the degree to which a firm is leveraging its equity.

Profitability measures the extent to which a business generates a profit from the factors of production: labor, management and capital. Profitability is the most important measure of success of the business. A business that is not profitable cannot survive, yet a highly profitable one has the ability to reward its owners with a large return on their investment. Profitability analysis focuses on the relationship between revenues and expenses and on the level of profits relative to the size of investment in the business (Mesquita & Lara, (2003). Four useful measures of firm profitability are the rate of return on firm assets (ROA), the rate of return on firm equity (ROE), operating profit margin and net firm income. The ROA measures the return to all firm

assets and is often used as an overall index of profitability, and the higher the value, the more profitable the firm business. The ROE measures the rate of return on the owner's equity employed in the firm business. It is useful to consider the ROE in relation to ROA to determine if the firm is making a profitable return on their borrowed money (Hadlock & James, 2002).

Net firm income comes directly off the income statement and is calculated by matching firm revenues with the expenses incurred to create those revenues, plus the gain or loss on the sale of firm capital assets. Net firm income represents the return to the owner for unpaid operator and family labor, management and owner's equity. Like working capital, net firm income is an absolute dollar amount and not a ratio, thus comparisons to other firms is difficult because of firm size differences (Deloof & Jegers, 1996).

On their part, Palepu, Healy, and Bernard (2000) asserted that "the starting point for a systematic analysis of a firm's performance is its return on equity (ROE) as well as return on assets (ROA)." Return on assets (ROA) is an important determinant of ROE because it shows how much profit a company is able to generate for each dollar of assets invested (Palepu et al., 2000). Although ROE and ROA are commonly used to assess the performance of large companies, research into SMEs performance has tended to focus on sales or profit, or growth in sales or profit (Fasci and Valdez, 1998). While there is no doubting the importance of sales and profit to a business, it is equally important to relate these output measures to measures of inputs (namely assets or equity) when making comparisons of business performance.

Non-Financial Measures has also come out as a major factor to be considered especially in today's competitive environment where companies are competing in terms of product, quality, delivery, reliability, after-sales service and customer satisfaction. None of these services is

measured by the traditional responsibility accounting system, despite the fact that they represent the major goals of world-class manufacturing companies. Many companies are using both qualitative and quantitative non-financial indicators such as; quality, lead time, number of customer complaints and warranty claims, delivery time, non-product hours, and system down time. Unlike traditional variance reports, measures such as these can be provided quickly for managers, per shift, daily or even hourly. They are easy to calculate and also easier for non-financial managers to understand (Bozec, 2005).

Although non-financial measures are increasingly important in decision-making and performance evaluation, Sharma et al (2005) cautions that companies should not simply copy measures used by others. The choice of measures must be linked to factors such as corporate strategy, value drivers, organizational objectives and the competitive environment. In addition, companies should remember that performance measurement choice is a dynamic process - measures may be appropriate today, but the system needs to be continually reassessed as strategies and competitive environments evolve.

2.7 Empirical Studies

Liquidity risk is the possibility that over a specific time period, the bank will become unable to settle obligations with immediacy (Drehmann and Nikolaou, 2009). The vulnerability of banks to liquidity risk is determined by the funding risk and the market risk (Joint Forum, 2006). The funding liquidity risk is caused by the maturity mismatch between inflows and outflows and/or the sudden and unexpected liquidity needs due to contingency conditions. The market liquidity risk refers to the inability to sell assets at or near the fair value, and in the case of a relevant sale in a small market; it can emerge as a price slump (Brunnermeier and Pedersen, 2009).

Fatemi and Fooladi (2006), after investigating the current practices of credit risk management in the largest US-based financial institutions, report that identifying counterparty default risk is the single most important purpose served by the credit risk models utilized. However, the results were based on a very low response rate, i.e. 21 responses to questionnaires sent to 100 banks. Al-Tamimi and Al-Mazrooei (2007) provide a comparative study of banks' risk management in locally incorporated banks and foreign banks in the United Arab of Emirates (UAE). The results show that the three most important types of risks facing UAE commercial banks are foreign exchange risk, followed by credit risk and operating risk. However, an earlier study by Al-Tamimi (2002) reports that the main risk facing UAE commercial banks is credit risk. For risk identification (RI), the study assert that inspection by branch managers and financial statement analysis were the main methods used; while Al-Tamimi and Al-Mazrooei (2007) report that inspection by the bank risk manager, audits or physical inspections, financial statement analysis and risk survey are the main methods used. These results indicate that banks are becoming more sophisticated in managing their risk.

Al-Tamimi (2008) studied the relationship between the readiness to implement the Basel II Accord and the resources needed to implement it in UAE banks. The results revealed that these banks are aware of the benefits, impact and challenges associated with the implementation of the Basel II Accord. However, the research did not find any positive relationship between the UAE banks' readiness to implement Basel II and the impact of that implementation. Nor was the relationship between readiness and anticipated cost of implementation confirmed.

In the case of Islamic banks, Hassan (2009) reports that, like the conventional banks, they are also subject to a variety of risks due to the unique range of products offered. He also shows that there was a remarkable understanding of risk and risk management among the staff working in the Islamic banks of Brunei Darussalam, which proved their ability to manage risk successfully. The major risks that were faced by these banks were foreign exchange risk, credit risk and operating risk. A regression model was used to develop the results, which showed that RI, and RAA were the most influential variables, and the Islamic banks in Brunei needed to give more attention to those variables to make their RMPs more effective.

Van Greuning and Iqbal (2008) and Iqbal and Mirakhor (2011) argue that a comprehensive framework of risk management is equally applicable to a conventional or Islamic bank. The findings of Hassan (2009) lend further support to this argument. Khan and Bhatti (2008) observed that Islamic banks face another crucial challenge to improving their risk management strategies and corporate governance because of their adherence to Islamic Sharia'a (law). This should have an impact on the risk management of Islamic banks in terms of certain applications, emphasis and inclusion or exclusion

The behaviour towards liquidity is affected by a firm's characteristics: a bank's liquidity position is affected by its size, status and product type. The size affects the attitude of the bank towards wholesale funding, including the access opportunity (Allen et al., 1989) and the price of the funds obtained (Nyborg et al., 2002). Bank size matters because of the economy of scope and scale; concerning liquidity, a large bank might have better access to the interbank markets because it has a larger network of regular counterparties or a wider range of collateral (Fecht et al., 2008). The product type offered to the counterparties, on both the assets and liabilities sides,

is able to affect the liquidity position; banks that take on demand deposits and offer loan commitments need to hold higher liquidity buffers that can be mitigated if an imperfect correlation holds (Kashyap et al., 2002).

Majluf (1984) argue that because of information asymmetry-induced financing constraints, firms should stock up on liquid assets to finance future investment opportunities with internal funds. Since there are no offsetting costs to liquid assets in their model, the optimal amount of liquidity is a corner solution. In contrast, Jensen (1986) argues that firms should be forced to pay out funds in excess of the amount necessary to finance all positive NPV investments to minimize the agency cost of free cash flow. In the absence of a benefit from liquid assets, Jensen's analysis implies that the firm should carry no liquid assets.

According to Almeida (2001) cash holdings are valuable because they increase the likelihood that the firm will be able to fund new investments. However, increasing cash may be costly to a firm if it decreases the quantity of current investments that the firm can make. Cash yields a lower return than that associated with the firm's physical investments whenever the firm foregoes positive NPV projects in order to hold cash. In contrast to a firm facing constraints in accessing capital markets, an unconstrained firm has no use for cash and faces no cost of holding cash. Further, Almeida et al (2002) looked at agency problems associated with over investment by managers. Previous studies have argued that to the extent that ownership is not perfectly set, managers with lower ownership could be more prone to value destroying overinvestment. Accordingly, increases in ownership might lead to sub optimal managerial behavior, which translates to a decreased propensity to save cash flows.

A study by Kieschnick, et al., (2008) using data on a panel of U.S. corporations from 1990 through 2004, established the importance of working capital management to firm value. Their study used stock's excess return to represent the firm value and findings show that on average an additional dollar invested in net operating working capital reduces firm value and this indicates that their study is consistent with industry surveys suggesting that some firms over-invest in net operating working capital.

2.8 Chapter Summary

The bank risk management practices has been discussed in detail both in the literature as well as from the empirical studies done on the subject area. It was evident that bank risk management practice is vital for an organization's strategic management and it is used by a firm's strategic management in order to make positive contribution to the goals, objectives and the portfolio of almost all its activities. Banks must integrate market, credit and operational risk into a single stream of capital measurement to have a comprehensive picture of their entire capital resources and this step is considered an imperative component of enterprise risk management system. This step will help banks to establish its overall risk profile, determine how much risk it is taking and the level of diversification it can achieve by entering in different business areas.

A banks liquidity risk not only affects the performance of a bank but also its reputation and a bank may lose the confidence of its depositors if funds are not timely provided to them. Further it emerged that poor liquidity position may cause penalties from the regulator and it therefore became imperative that a bank to keep a sound liquidity arrangement. Liquidity risk has become a serious concern and challenge for the modern era banks characterized by high competition for

consumer deposits and capital markets with technological advancements and as a result, banks should be equipped to deal with the changing monetary policy that shapes the overall liquidity trends and the banks' own transactional requirements and repayment of short term borrowing. Though several studies have been carried out as far as the risk management practices of commercial banks is concerned especially in the developed countries, there has been few studies looking at the liquidity risk and its effect on the performance of the firms. The research in the past have focused on liquidity risk emanating from the liability side of a bank's balance sheet and less attention has been given to the risks arising from the asset side. Liquidity risk may arise due to the breakdown or delays in cash flows from the borrowers or early termination of the projects or may even originate from the very nature of banking; macro factors that are exogenous and financing and operating policies that are endogenous. A severe liquidity crisis may cause massive drowning in form of bankruptcies and bank failure leading to a drastic financial crisis. this study fills in the gap by looking at liquidity from the deficiency of the asset side of the bank balance sheet as well as other macro factors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets to explain the research design, the population of interest, the basis of sample selection, the type of secondary data used, the sources of data, the techniques of analysis used and the data analysis.

3.2 Research Design

This study employ correlation research design. According to Albright et al (2011) a correlation research is a procedure in which subjects' score on two variables are simply measured, without manipulation of any variable, to determine whether there is a relationship. The study also used cross-sectional study in which data was gathered just once over the period 2008 to 2012 and as such, a causal study was undertaken in a non-contrived setting with no researcher interference. A cross sectional study was used to determine the interrelationship between the variables under consideration among the different firms in the study and this permitted the researcher to make statistical inference on the broader population and generalize the findings to real life situations and thereby increase the external validity of the study.

3.3 Population of the Study

The population of interest in this study was all the commercial banks in Kenya that have operated between 2008 and 2012. Currently, there are 43 commercial banks operating in Kenya (Appendix I). The reason as to why this industry was chosen is due to the availability and the

reliability of the financial statements in that they are subject to the mandatory audit by internationally recognized audit firms as well as Central Bank of Kenya as regulator. In addition, all the banks have their headquarters in Nairobi and its environs and this made it convenient in terms of time and accessibility to the researcher. Since the number of the respondents is limited, then the study will be a census survey.

3.4 Data Collection

Data was collected from annual reports submitted to the NSE and Capital Markets Authority. All the banks in the banking sector that had continually operated between 2008 and 2012 was included to ensure that the sampling frame is current and complete. From the financial statements, the researcher collected information on level of customer deposits, cash level non-performing loans level and from the notes to the accounts, the liquidity gap in the bank's balance sheet. In addition, in order to obtain a representative sample from the population, a number of filters was applied. Observations of firms with anomalies such as negative values in their total assets, current assets, fixed assets, capital, depreciation or the interest paid were eliminated. In addition, only firms that had continuously operated over the period 2008 to 2012 was considered in the study. This excluded 4 banks and therefore leaving 39 banks that met the sampling criteria.

3.5 Data Analysis

Multiple regression analysis was applied to the data to examine the effect of the various aspects of liquidity risk on the performance of the commercial banks in Kenya. The regression model ran from the financial reports of the banks that had been in operation since 2008 and whose annual report was available for the periods. The statement of financial position as well as the statement

of financial performance and their notes was studied to get the data for the variables mentioned in the model

The regression is adapted from the one used by Arif and Anees (2012) when they did a similar research on Pakistani banks will take the form;

$$\text{Profitability} = f(\text{Deposits, Cash, Liquidity gap, Non performing Loans, } \alpha)$$

3.5.1 Analytical Model

The model specifically took the form;

$$\text{PBT} = \beta_0 + \beta_1\text{Dep} + \beta_2\text{Cash} + \beta_3\text{Liq-Gap} + \beta_4\text{NPL} + \beta_5\text{LEV} + \beta_6\text{AGE} + \epsilon$$

Where;

PBT - Profit before tax

β_0 - Constant value

Dep - Level of customer deposit to be collected from the liability side of the statement of financial position without any classification of current or other types of deposit accounts.

Cash - Cash balance that will be taken from the assets side of balance sheets of the banks. This will include “cash and balance with the central bank” only.

Liq-Gap – Liquidity Gap. This will be obtained from the table of maturity of assets and liabilities. The liquidity gap for one month will be taken, as a negative gap in one month may create difficulties for the bank to meet the rising demands of depositors.

NPL - Non-performing loans. The provisioning for NPLs is taken from “profit and loss statement” of banks for the analysis in this study.

Leverage Ratio (LEV) - This was obtained by (Short term debt + long-term debt) / Fixed assets.

This variable was added to the regression model to act as a control variable to the firms' characteristic.

ϵ - Random error term

The F- test was used to determine the significance of the regression while the coefficient of determination, R^2 , was used to determine how much variation in Y is explained by X. This was done at 95% confidence level and correlation analysis was carried out to find the direction of the relationship between PBT and the independent variables. The Statistical Package for Social Sciences (SPSS) will be used to analyze the data.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and findings of the study based on the research objectives. The results are presented in the form of summary tables. Regression and Correlation analysis are used to analyse the data to answer the research objective.

4.2 Descriptive Statistics

Table 4.1 below summarizes the descriptive statistics of the variables included in the regression models as presented. It represents the variables of the 34 commercial banks operating in the Kenya whose financial results were available for the years 2008-2012.

Table 4.1: Descriptive Statistics

	Dep	Cash	Liq	NPL	LEV	PBT
Mean	181,211	129,033	-13,045.38	146,807.93	100,273	345,775.68
Std. Deviation	93,407.6	65,548.3	29,960.55	37,294.8	19,316	17,491.4
Skewness	5.484	5.358	2.745	6.83	4.32	5.48
Kurtosis	30.350	28.439	6.557	50.634	19.830	30.770
Probability	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000

Source: Calculations Based on Annual Reports of Firms from 2008-2012

Notes: Dep – Customer deposit; Cash – Cash balance; Liq – Liquidity gap; NPL – Non Performing loans; Lev – Leverage Ratio; PBT – Profit before Tax

The mean value of profitability is significantly positive, showing that the overall Kenyan banking system is enjoying a healthy profitability, followed by mean of Non- Performing Loans. This means that as much as the banks enjoy good profit results, it is at the same time facing a high level of non-performing loans. The mean value of the liquidity gap is negative. The customer deposit mean (M= 181,211) is likewise significantly high though it has a high standard deviation (SD= 93,407.6). The high standard deviation shows that the level of customer deposit varies significantly from one bank to another and this could be due to the age of the bank and also the branch network that it has established in Kenya as well as regionally. In addition, the normality of the data is within acceptable ranges as Skewness is not high enough to affect the normality of the data and kurtosis value for all the variables is positive. Moreover, the probability is less than 0.001.

4.3 Inferential Statistics

For quantitative analysis the study used regressions model. These models were used to identify various liquidity variables influencing the dependent variable. The regression analysis is used to investigate the impact of banks liquidity on the profitability of the banks. The determinants of liquidity were estimated using pooled least squares and general least squares method with cross section weights.

As pointed out by Raheman and Nasr (2007), when using pooled data and cross sections there may be a problem of heteroskedasticity (changing variation after short period of time) and to counter this problem, the general least square with cross section weights approach was adopted. In the regression, the common intercept was calculated for all variables and assigned a weight. Further as Gill and Beger (2012) noted, when using multiple regression analysis, there is a possibility of endogeneity occurring whereby when certain variables are omitted, it leads to measurement errors. Therefore to minimize endogeneity issues, the most important variables that impact the banks liquidity (Customer deposit, NPL, Liquidity gap, cash balance, and leverage) are used.

4.3.1 Correlation Coefficient

Table 4.2 below shows the Pearson correlation coefficient generated from the data. If efficient liquidity management increases profitability, one should expect a positive relationship between the measures of liquidity management and profitability variable. The correlation matrix (as shown in Table 4.2) depicts that profitability is positively correlated with deposits and cash whereas negatively correlated with liquidity gap and leverage. The correlation matrix is negating the existence of multicollinearity among the independent variables as all the correlations are below 0.90.

Table 4.2: Correlation Table

	PBT	Dep	Cash	Liq	NPL	LEV
PBT	1					
Dep	0.793	1				
Cash	0.683	0.697	1			
Liq	-0.035	-0.043	-0.042	1		
NPL	0.453	0.752	0.77	-0.04	1	
LEV	-0.017	-0.016	-0.017	-0.15	-0.016	1

Source: 2008 -2012 survey data, researchers' computation

A positive relationship exists between the banks level of deposit and profitability level realized by the bank. It is expected that with a bank having high customer deposit base, it will be able to invest the funds prudently and be able to generate adequate return. Since most of the banks lend to borrowers, it is expected that the lending level of such firms will be high which in turn generates high interest income to the bank. Interestingly, the correlation of profits with the NPL is positive ($r=0.453$) and this negates the expectation since with a high level of non-performing loans, it will be expected that that the banks liquidity level will be low and therefore negatively affecting the profitability of the banks. However, it can be deduced from the finding that the provision for non-performing loans might be to meet the regulatory requirement for a particular year and not necessarily loss of the banks loan disbursement. The provision will end up being paid after adopting, maybe, stringent collection policy, which in turn increases the banks profitability. At the same time the banks' liquidity gap and leverage have a negative correlation

with the level of profitability. This results will be expected since when the difference between the maturity of assets and liabilities is reduced, it is expected that a matching process is achieved which means that the bank will be able to meet its obligations when due and this will increase the bank's profitability. The leverage position of the bank has a negative correlation ($r = -0.017$) which means that a high leverage will mean that the bank will be using most of its revenue to service the interest obligation which in turn reduce the banks' liquidity level as well as profitability.

4.3.2 Multiple Regression

Table 4.3 shows the results of multiple regressions. The value of R^2 is 0.516, revealing 51.6% variability in profitability accounted for by the liquidity variables in the model developed. The adjusted R^2 is an improved estimation of R^2 in the population. The value of adjusted R^2 is 0.518. This adjusted measure provides a revised estimate, i.e. 51.8 per cent of the variability in profitability of banks due to the fitted model.

Table 4.3: Model Summary for PBT with Control Variables

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.718 ^a	.516	.518	114.29514	1.390
a. Predictors: (Constant), LEV, Dep, Liq, NPL, Cash					
b. Dependent Variable: PBT					

Source: 2008 -2012 survey data, researchers' computation

The R^2 in the model is at 51.6% which can be considered to moderate fit the model.

4.3.3 Multiple Regression Model

The estimates of the regression coefficients, t-statistics, standard errors of the estimates and p-values are shown in 4.4 below. The coefficient column gives estimated regression coefficients. It can be estimated that there would be 4.5 per cent positive change in the profitability of the banking system as a result of a unit change in deposits. The t-statistic for this coefficient is 0.422, i.e. significant. It can be deduced that as the banks' deposits grow, it will help the banks to increase their profitability, a finding that is similar to the finding of Diamond and Rajan, (2001) as well as Kumar (2008).

Table 4.4: Multiple Regression

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	53470.64	126208.59		.422	.674
		0	1			
	Dep	.045	.002	2.404	29.907	.000
	Cash	-.395	.022	-1.480	-17.807	.000
	Liq	-.061	.034	.011	1.805	.074
	NPL	.402	.045	.086	8.944	.000
	LEV	1518.634	52060.259	.000	.029	.977
a. Dependent Variable: PBT						

Source: 2008 -2012 survey data, researchers' computation

The profitability of the banks is decreased by 39.5% with a unit increase in cash and vice versa. There is a negative relationship between cash and profitability of the banking system. The t-value of this coefficient is -17.807 and is insignificant at $p= 0.05$. These results therefore will be consistent with Holmstrom and Tirole (2000).

The beta coefficient of liquidity gap is 0.061. It shows that there will be a 6.1% negative change in the profitability of the banking system due to a degree change in the liquidity gap. The liquidity gap shows the maturity mismatch between assets and liabilities, thus larger liquidity gap will affect the performance of the banking system positively.

From Table 4.4 above, the established multiple linear regression equation becomes:

$$PBT = 53470.64 + 0.045DEP - 0.395CASH - 0.06LIQ + 0.402NPL + 1518.635LEV$$

The results of this study reveal a significant impact of all the factors of liquidity risk on performance of the banking system. An increase in deposits will help the banks to increase their profitability. Banks will not have to rely on the central bank or repo market to meet the demands of other depositors. Moreover, the bank may use this depositor's funds in a productive way.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the key findings of the study as well as the conclusions, limitations of the study, and recommendations for further research

5.2 Summary

The secondary data in this analysis covered a period of 5 years from 2008 to 2012. The population of study was all commercial banks that were in operation during the study period. After the screening process firms whose accounts were not available in all the years of study were eliminated and from this screening process 9 firms were eliminated leaving 33 to be studied in the research.

The findings of the study were that profitability of the commercial bank in Kenya is negatively affected due to increase in the liquidity gap and leverage. With a significant liquidity gap, the banks may have to borrow from the repo market even at a higher rate thereby pushing up the cost of banks. This increase in the cost will ultimately affect the profitability of the banks. However, the results of this study will show that Kenyan banks will tend to rely on the repo market due to the low liquidity gap present. They seem not to have enough cash and therefore increasing their reliance on repo market. The borrowing in the repo market will help the banks to keep the negative impact of the liquidity gap within an acceptable range set by the Central Bank. From

this finding, it can be concluded that the harmful effects of liquidity to commercial banks be avoided by maintaining sufficient cash reserves.

However, the finding show a contradiction from other studies to the effect that high provisioning of NPLs increases the profitability of the banks. This finding is interesting and it could be influenced by the economic condition of the country during a particular period that makes the banks to declare a high provisioning of bad debts but which afterwards is recovered to increase the level of bad debts. The large amount of provisioning of loans as NPLs negatively affects the profitability of banks. Thus, banks should periodically monitor their long-term debtors. NPLs show the presence of credit risk, which can rapidly turn into a severe liquidity crisis. The level of customer deposit was also found to positively affect the bank's profitability and it will therefore be encouraged for banks to open more branches in the country. Since such banks will have established a wide branch network, they will be able to benefit from economies of scale and therefore leading to an improved profitability for the large banks as well. Thus the findings show that efficient management of liquidity in a bank will influence its level of profitability and the negative relationship with majority of the variables used in general, the profitability of a firm with the company adopting a conservative liquidity management.

5.3 Conclusion

Liquidity problems if unchecked may adversely affect a given bank's profitability, capital and under extreme circumstances, it may cause the collapse of an otherwise solvent bank. In addition, a bank having liquidity problems may experience difficulties in meeting the demands of depositors, however, this liquidity risk may be mitigated by maintaining sufficient cash reserves, raising deposit base, decreasing the liquidity gap and NPLs. Adequate cash reserves will

decrease the bank's reliance on the repo market which consequently will reduce the cost associated with over the night borrowing and insurance cost.

It is imperative for the bank's management to be aware of its liquidity position in different product segment. This will help them in enhancing their investment portfolio and providing a competitive edge in the market. It is the utmost priority of a bank's management to pay the required attention to the liquidity problems. These problems should be promptly addressed, and immediate remedial measures should be taken to avoid the consequences of illiquidity.

5.4 Recommendations

The study suggests some policy implications for the managers and prospective investors in the country. It is emerging that the Kenyan banks level of profitability is influenced by the level of customer deposit and as well as cash level. It is important therefore that banks establish the required cash in each product segment and maintain the optimal level which will help in reducing the cash balance level. It is recommended that banks increase their customer deposit base through making the product accessible to more customers especially the low income earners who have been neglected for a long time by the mainstream banks. At the same time banks should consider targeting the corporate clients who will be willing to retain a large cash base in the banks for a longer duration.

This study paves the way for more detailed studies into controlling the liquidity risk and to extending the proposed model to incorporate other causes of liquidity risk. Further, the current study has focused primarily on profitability of the bank as measure of the performance of bank. Further research may take a broader view of the performance and can also include economic factors.

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APPENDIX I: LIST OF COMMERCIAL BANKS

1. ABC Bank (Kenya)
2. Bank of Africa
3. Bank of Baroda
4. Bank of India
5. Barclays Bank
6. CFC Stanbic Bank
7. Chase Bank (Kenya)
8. Citibank
9. Commercial Bank of Africa
10. Consolidated Bank of Kenya
11. Cooperative Bank of Kenya
12. Credit Bank
13. Development Bank of Kenya
14. Diamond Trust Bank
15. Dubai Bank Kenya
16. Ecobank
17. Equatorial Commercial Bank
18. Equity Bank
19. Family Bank
20. Fidelity Commercial Bank Limited
21. Fina Bank
22. First Community Bank
23. Giro Commercial Bank
24. Guardian Bank
25. Gulf African Bank
26. Habib Bank

27. Habib Bank AG Zurich
28. I&M Bank
29. Imperial Bank Kenya
30. Jamii Bora Bank
31. Kenya Commercial Bank
32. K-Rep Bank
33. Middle East Bank Kenya
34. National Bank of Kenya
35. NIC Bank
36. Oriental Commercial Bank
37. Paramount Universal Bank
38. Prime Bank (Kenya)
39. Standard Chartered Kenya
40. Trans National Bank Kenya
41. United Bank for Africa ^[2]
42. Victoria Commercial Bank

Source: Central Bank of Kenya (2012)