

**THE IMPACT OF LIQUIDITY ON PROFITABILITY OF
COMMERCIAL BANKS IN LIBERIA**

BY

CARROW W. BOTOE

D61/60893/2011

SUPERVISOR

HERICK ONDINGO

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,
UNIVERSITY OF NAIROBI.**

SEPTEMBER 2012

DECLARATION

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

SignatureDate

CARROW W. BOTOE - D61/60893/2011

This Research project has been submitted for examination with my approval as the University Supervisor:

Signature.....Date.....

Mr. HerickOndigo

Lecturer, Department of Finance and Accounting

School of Business

University of Nairobi

CHAIRMAN, DEPARTMENT OF FINANCE AND ACCOUNTING

Signature

Date.....

ACKNOWLEDGEMENTS

My special and sincere thanks to my supervisor Mr. Herick Ondigo and moderator Mr. Mirie Mwangi, for their guidance, support, suggestions, useful comments and constructive critique which were all instrumental to the successful completion of this research project. I also wish to appreciate the support and encouragement from my family and friends during the tough time where I had to balance between the demands of a rigorous academic program and an equally demanding work environment. My gratitude to the God Almighty who renewed my strength at every stage of this study.

God bless you all.

DEDICATION

This research project is dedicated to my family for their inspiration, encouragement, understanding and prayers towards the successful completion of this course. I pay glowing tribute and gratitude to the Almighty God who has given me the wisdom to undertake this course.

ABSTRACT

This study analyses the impact of liquid asset holdings on Commercial Banks in Liberia profitability. Using the regression analysis, this study analyzes the profitability of commercial banks using balanced data over the period of 2006-2011. The study used the liquidity asset and liquidity assets for estimating liquid asset and profitability relationship.

The estimated relationship between liquid assets and bank profitability was as expected. Coefficients for the liquid assets ratio, its square, business cycle, and its product of interactive business cycle and regulation were positive and also statistically significant. The regulation coefficient was though negative. As expected, we find evidence of a non-linear relationship between profitability and liquid asset holdings. An important finding of this study is that the business cycle of a commercial bank significantly affects its profit. The coefficient of regulation is negative and significant. Therefore if regulators reduce the constraints imposed on banks, banks obtain profit.

The coefficient of the deposit ratio is positive and highly significant. A bank with a more deposit is able to be more profitable. The coefficient of loan asset ratio is positive and significant and this positive effect implies that banks with a high proportion of loan asset ratio have a higher profitability. In addition, an important finding of this study is that the business cycle significantly affects bank profits. Business cycle is estimated to have a positive and statistically significant impact on bank profitability. The coefficient of regulation is negative and significant and this implies that if regulators reduce the constraints imposed on banks, banks obtain profit. The empirical results show that concentration affects bank profitability negatively, but this affect is relatively insignificant. Management of liquidity position means the management of current assets and current liabilities, and financing these

current assets. If these firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase profitability of these companies.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENTS	iii
DEDICATION	iv
LIST OF ABBREVIATIONS	ix
CHAPTER ONE : INTRODUCTION	1
1.1 Background of the Study	1
1.1.1 Measurement of Liquidity.....	1
1.1.2 Measurement of Profitability	2
1.1.3 Impact of Liquidity On Profitability	4
1.1.4 Banking Institutions in Liberia	4
1.2 Research Problem	5
1.3 Research Objectives.....	7
1.4 Value of the Study	7
CHAPTER TWO: LITERATURE REVIEW.....	8
2.1 Introduction.....	8
2.2 Theoretical framework on organizational Liquidity	8
2.2.1 Banks Liquidity Management Theory	9
2.2.2 Commercial Loan (Traditional) Theory and Liquidity	9
2.2.3 The Shiftability Theory of Liquidity.....	10
2.2.3.1 Anticipated Income Theory of Liquidity	11
2.3 Concept of Liquidity	11
2.4 Concept of Profitability.....	12
2.5 The Relevance of Liquidity and Profitability to Commercial Banks	12
2.6 Liquidity Position Analysis.....	13
2.7 Liquidity Ratios and Limits	13
2.8 Liquidity and Solvency Relationship.....	14
2.9 Empirical Studies on firms Liquidity.....	14
2.10 Summary and Conclusion	15
CHAPTER THREE: RESEARCH METHODOLOGY	17
3.1 Introduction.....	17
3.2 Research Design.....	17

3.3 Population	17
3.4 Data Collection	17
3.5 Data Analysis	17
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION	20
4.1 Introduction.....	20
4.2 Findings of the Research.....	20
4.2.1 Qualitative Analysis.....	20
4.3 Quantitative Analysis.....	21
4.3.1 Regression Equation	22
4.3.2 Test of Multicollinearity: Pearson and Spearman's Correlations.....	24
4.4 Interpretation of Findings	26
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	28
5.1 Introduction.....	28
5.2 Summary	28
5.3 Conclusions.....	30
5.4 Policy Recommendations.....	30
5.5 Limitation of the Study	31
5.6 Suggestions for Further Research	31
REFERENCES	33
APPENDIX I	39
List of Commercial Banks in Liberia.....	39

LIST OF ABBREVIATIONS

ABL	Access Bank Liberia
ATM	Automatic Teller Machine
BOT	Bank of Tanzania
CAMEL	Capital Adequacy, Asset Quality, Management Efficiency, Earning Performance and Liquidity
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
CBL	Central Bank of Liberia
CCC	Cash Conversion Cycle
CD	Customers Deposit
CR	Current Ratio
CS	Company Size
EBLL	Ecobank Liberia Limited
FFR	Fixed Financial Ratio
FIBLL	First International Bank Liberia Limited
GBLL	Global Bank Liberia Limited
GDP	Gross Domestic Product
GOL	Government of Liberia
GTBL	Guaranty Trust Bank Liberia Limited
IBLL	International Bank Liberia Limited
IMF	International Monetary fund
LBDI	Liberia bank for Development and Investment
LOLR	Lender of Last Resort
LR	Leverage Ratio
NPV	Net Present Value
QR	Quick Ratio
ROA	Return on Asset
SME	Small and Medium Enterprise
SMS	Short Message Service
UBALL	United Bank for Africa Liberia Limited
US	United States

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

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). Hence, despite maximization of shareholder wealth still remaining the ultimate objective of any firm, preserving the liquidity of a firm is equally an important objective and as such a firm should balance among the different interest objectives. Increasing profits at the cost of liquidity can bring serious problems to the firm and a tradeoff between these two objectives of the firms needs to be struck. If a firm does not care about profit, it will not survive for a longer period while on the other hand if it does not care about liquidity, it may face the problem of insolvency or bankruptcy. For these reasons, therefore, liquidity management should be given proper consideration and will ultimately affect the profitability of the firm.

A firm can have a large sale level through adopting a generous credit policy and thus extending the cash cycle though the action may increase the level of profitability. However, the traditional view of the relationship between a firms liquidity level is such that, all other factors remaining constant, the longer cash conversion cycle hurts the profitability of the firm (Deloof, 2003). This therefore requires that the level of working capital that a firm maintains need to be kept at an optimum point that will maximize the profits.

1.1.1 Measurement of Liquidity

Liquidity position of commercial banks is normally monitored and measured by liquidity ratio (Rychtarik, 2009). The significant items that was diagnosed includes the liquidity position measures such as total deposit to core funding position, liquid assets to demand liabilities and gross loans to demand liabilities. This study will examine a set of commercial banks providing services to the same economy and operating in the same environment. Moreover this study will be interested in establishing differences, if any, in relative degrees of liquidity position of these commercial banks. The ratio of total deposit to total Funding, liquid assets to demand liabilities and gross loans to total deposit were used as the measurement criteria.

Loan-to-Deposit Ratio

Many banks and bank analysts monitor loan-to-deposit ratios as a general measure of liquidity:

$$\text{Loan-to-Deposit Ratio} = \frac{\text{Net loans}}{\text{Total deposits}}$$

Loans are presumably the least liquid of assets, while deposits are understood as the primary source of funds. A high ratio indicates illiquidity, because in this case a bank is fully loaned-up relative to its stable funding. Implicitly, it is assumed that new loans must be financed with large purchased liabilities. A low ratio suggests that a bank has additional liquidity, since it can grant new loans financed with stable deposits.

The problem with common loan-to-deposit ratios is that they disregard the composition of loans and deposits. On the deposit side, it might be useful to focus on core deposits rather than total deposits.

Net Non-Core Funding Dependence

One of the more sophisticated liquidity ratios commonly tracked by financial institutions is the net non-core funding dependence.

$$\text{Net Non-Core} = \text{Non-core liabilities} - \text{Short term investments} \quad \text{Funding Dependence} = \frac{\text{Net loans}}{\text{Total deposits}}$$

Non-core liabilities are defined as non-core (volatile) deposits, purchased funds and other interest-rate sensitive short-term borrowings.

1.1.2 Measurement of Profitability

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 profitability.

To identify the relevant factors influencing commercial bank profitability in Liberia, this research will be concentrated on bank-specific factors based on the CAMEL framework and market structural factors; ownership and market concentration. CAMEL is a widely used framework for evaluating bank performance. The Central Bank of Liberia also uses the same to evaluate the performance of commercial banks in Liberia.

Numerous studies have used CAMEL to examine factors affecting bank profitability with success (Elyor (2009), Uzhegova (2010)). CAMEL is an acronym Capital adequacy, Asset quality, Management efficiency, Earnings performance and Liquidity. Though some alternative bank performance evaluation models have been proposed, the CAMEL framework is the most widely used model and it is recommended by Basle Committee on Bank Supervision and IMF (Baral, 2005).

According to Kosmidou (2009) refers Capital adequacy to the sufficiency of the amount of equity to absorb any shocks that the bank may experience. The capital structure of banks is highly regulated. The main reason is that capital plays a crucial role in reducing the number of bank failures and losses to depositors when a bank fails as highly leveraged firms are likely to take excessive risk in order to maximize shareholder value at the expense of finance providers (Kamau, 2009).

Credit risk is one of the factors that affect the health of an individual bank. The extent of the credit risk depends on the quality of assets held by an individual bank. The quality of assets held by a bank depends on exposure to specific risks, trends in non-performing loans, and the health and profitability of bank borrowers (Baral, 2005). Aburime (2008) asserts that the profitability of a bank depends on its ability to foresee, avoid and monitor risks, possibly to cover losses brought about by risks arisen. Hence, in making decisions on the allocation of resources to asset deals, a bank must take into account the level of risk to the assets.

Another important decision that the managers of commercial banks take refers to the liquidity management and specifically to the measurement of their needs related to the process of deposits and loans. The importance of liquidity goes beyond the individual bank as a liquidity

shortfall at an individual bank can have systemic repercussions. It is argued that when banks hold high liquidity, they do so at the opportunity cost of some investment, which could generate high returns (Kamau, 2009). The trade-offs that generally exist between return and liquidity risk are demonstrated by observing that a shift from short term securities to long term securities or loans raises a bank's return but also increases its liquidity risks and the inverse is true.

1.1.3 Impact of Liquidity On Profitability

Liquidity was a key factor during the 2008-09 financial crisis. During the crises funding sources dry up, many banks quickly found themselves short on cash to cover their obligations as they came due (Longworth 2010) and (Bernanke 2008).

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).

1.1.4 Banking Institutions in Liberia

The Liberia financial system, currently consist of eight (8) commercial banks; Liberian Bank for Development & Investment (LBDI), Ecobank Liberia Limited (EBLL), International bank Liberia Limited (IBLL), Global Bank Liberia Limited (GBLL), First International Bank Liberia (FIBLL) , United Bank for Africa Liberia Limited (UBALL) , Access Bank Liberia (ABL),and Guaranty trust Bank Liberia (GTBL). At the end of the last decade the total asset in the banking industry grew by 8.7 while total deposit rose by 9.9 percent and gross loan portfolio by 3.5 percent. Gross total asset amounted to Liberia dollars 19,034 million which produce a net worth of Liberia dollar \$ 2,311 million. The banking industrial capital adequacy ratio (CAR) stood at 22 percent which was above the minimum required industrial ratio of 8 percent (www.cbl.org.lr).

The banking system in Liberia has faced numerous challenges ranging from the recently ended civil strife that disrupted economic activities, destroyed and led to serious dislocations. Another important cause of the challenges include the continuous fiscal deficits and related problem of the Government of Liberia (GOL)'s position as the largest single delinquent borrower to both operating and non-operating banks. As an extended complication, the GOL

is the owner of two failed and unresolved non-operation bank. Other aggravation circumstances include weaknesses in the legal system of Liberia as regards enforcement of financial contracts and/or the collection of debts (CBL Policy 2005).

Over the last five years, sound economic policy has been put in place by successive Government in Liberia and as a result, the banking system of Liberia regained its viability. The banking industry's liquidity position rose above the 15.0 percent minimum requirement at 52.1 percent (www.cbl.org.lr). The risk-averse nature of commercial banks and limited financial instruments are some of the factors responsible for the excess liquidity in the sector. This suggests the need to deepen the financial sector through, for example, the introduction of more money market instruments and the eventual development of a capital market, which would help strengthen demand for the Liberian dollar (www.cbl.org.lr).

The Liberia banking industry is gradually modernizing its operations. The end of the last decade saw the several innovations in the sector. Automatic teller machines (ATMs), short message service (SMS), and internet banking were introduced by some of the banks. These financial innovations are outcomes of a healthy competitive environment being encouraged by the CBL

1.2 Research Problem

The management of a firm's liquidity is necessary for all businesses, small, medium or large. When a business does not manage its liquidity well, it will have cash shortages and as a result experience problems paying its obligations when they fall due. Indeed, Rafuse (1996) observed that liquidity starvation has generally been credited as a major cause, if not the main cause of small business failure in many developed and developing countries. Currently, the business environment has become unpredictable and as a result, there is need for business entities to put in place effective management of liquidity policy that will even be able to cover the firms during challenging period. With the high level of competition from both local and international competitors, the predictability of a firm's ability to meet its short term obligations when they fall due becomes of great importance. The importance of managing liquidity requirements of a firm to ensure an improvement in firm's market value and profitability and this aspect must form part of the company's strategic and operational thinking in order to operate effectively and efficiently (Bringham, 2002).

Several studies have been conducted on how various financial elements impact on the firm's profitability. The studies include those by Uyar (2009) and Samiloglu and Demirgunes (2008). With reference to Kenya, a number of studies have been conducted on how various financial elements impact on the firm's profitability. Kimani (2009) undertook a research on the relationship between firm's profitability and its size and the book to market value: Evidence from the NSE. She found out that the growth in sales of a firm is positively related to the firm profitability. She further concluded that a firm that manages to increase its sales output improves its revenue and as a result having more funds available for further expansion.

In Liberia commercial banks differ in size and ownership structure, some banks report huge losses while others report huge losses. Holding more liquid assets diminishes a commercial bank's profit and hinders the investment prospect of the bank, which could lead to growth and expansion. However, if it wishes to maximize profit, the commercial bank will have to reduce the level of liquid assets it holds on the balance sheet. Holding too much illiquid asset will expose the commercial bank to liquidity risk and huge interest charges in an even of fire sales (Casu et al 2006).

The review of previous studies conducted showed that the liquidity position of a commercial bank seriously impacted its profitability. Further studies also showed that the functioning of capital market and money market depends much on the liquidity position of commercial banks. The maximization of the firm's return could seriously threaten its liquidity position and the pursuit of liquidity had a tendency to dilute returns.

Those previous studies examined a set of commercial banks that provided services in the services the same economy and operating in the same environment. More to that, those studies were interested in establishing differences, if any, in the relative liquidity position of those commercial banks. This research paper seeks to establish how the liquidity position impacts the profitability of commercial bank in a economy that is just recovering from total collapse as a result of fourteen years civil devastation.

The problem then is to identify the level of liquid assets the banks needs to hold on its balance sheet to maximize profit. The research question is: what is the relationship between liquidity and profitability of commercial banks in Liberia.

1.3 Research Objectives

To establish the impact of liquidity on profitability of commercial banks in Liberia

1.4 Value of the Study

The finding of the study would be of interest to:

Commercial Banks

The research will be a value added process to the study in liquidity especially bringing out factor that influence profitability of commercial bank. Commercial will get to know factors that influence and how adequate management liquidity can also impact profitability. This research will unveil grounds for the analysis of such factor to establish which factors the bank will have direct control over and how.

Management

It would assist management of public quoted companies in determining the effect of leverage on the value of their firms so that they can make prudent financial decisions.

Policies Maker

The study finding would be significant in the issue of prudential guideline on liquidity that can be used in formulation of policy. The Central Bank of Liberia could employ the findings of this research in the establishment of guidelines that will enhance profitability through liquidity management in the banking sector, while protecting the interest of the Liberian public.

Financial consultants

Commercial bank liquidity is the main predictor and indicator of solvency and bankruptcy. Financial consultants will be in the position to understand the variables that influence liquidity position of bank which can lead to profitability and thereon make financial advice to the commercial banks appropriately.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter traditionally explored the theoretical foundation on the impact of liquidity on profitability of commercial banking institutions. It also seeks to identify and analyze models on the subject found in journals, previous finance researches papers, textbooks by several authors, internet and other professionals magazines.

2.2 Theoretical framework on organizational Liquidity

Efficient and effective liquidity management is crucial if the survival and prosperity of small firms is to be ensured. Liquidity refers to the level of cash and near-cash assets held, as well as cash inflows and outflows of these assets. McMahon and Stanger (1995, p. 24) further emphasize the importance of liquidity in a firm as being “a matter of life or death for the small business” since a small business can “survive for a long time without a profit, but fails the day it can't meet a critical payment”. However, according to Hartcher (2003) this important issue has for some time been overlooked in some countries, with limited research in others. Posits that the efficient management of working capital (inventory, debtors and creditors) is crucial in respect of the prosperity and survival of SMEs, and Drever (2005) sees the soundness of liquidity management as the most critical influence on survival and financial well-being in small enterprises. Liquidity management takes the form of cash management and credit management. Whilst the most important aspect of cash flow management is avoiding extended cash shortages, credit management involves not only the giving and receiving of credit to customers and suppliers, but also involves the assessment of individual customers, the credit periods allowed and the steps taken to ensure that payments are made in time.

According to Deloof (2003) management of liquidity is important from the point of view of both working capital and profitability. Poor management of liquidity level means that funds are unnecessarily tied up in idle assets hence reducing liquidity and also reducing the ability to invest in productive assets. Deloof (2003) argues that whilst providing credit to customers is an inexpensive source of finance for customers, the flip side is that money is locked up in working capital. He further points out that whilst delaying payment to suppliers can be

inexpensive and flexible source of financing for firms, late payment of invoices can be very costly. Therefore, the efficient management of these components is essential. A number of models have been advanced to determine the optimal cash level in a firm. These include the Baumol, Miller-Orr, Simulation and Lockyer's Models.

Keynes, 1964 postulated that liquidity preference theory consists in the statement that the rate of interest at any time, being the reward for parting with liquidity, is a measure of the unwillingness of those who possess money to part with their liquid control over it. The rate of interest is the price which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash. The reasons to have a preference for liquidity are because there are several reasons for holding cash. These motives became known as transactions, speculative and precautionary motives to demand money. In the world of Keynes' General Theory (1936), however, the quantity of money in existence is the ultimate independent variables determined by the action of the central bank. Seemingly, Keynesian writings described liquidity preference to mean demand for money and liquidity preference theory as a theory whereby the rate of interest is determined by demand and supply of money.

2.2.1 Banks Liquidity Management Theory

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.

2.2.2 Commercial Loan (Traditional) Theory and Liquidity

Adam Smith provided the first systematic exposition of the doctrine in his Wealth of Nations (1776)). Basically, it is a theory of asset management that emphasized liquidity, the doctrine held that banks should restrict their earning assets to "real" bills of exchange and short-term, self-liquidating advances for commercial purposes. In this way, it was argued, individual banking institutions could maintain the liquidity necessary to meet the requirements of deposit withdrawals on demand. Under a somewhat modified character this basic doctrine

came to be known in the U. S. as the commercial loan theory of credit.

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.

2.2.3 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 re-payment 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)).

2.2.3.1 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 Concept of Liquidity

Acharya and Naqvi (2009) developed a theory of banking explaining how the seeds of a crisis may be sown when banks are flush with liquidity. The main empirical implication of their model is that excessive liquidity induces risk-taking behavior on the part of bank managers. As a result, they note that bank managers will behave in an overly-aggressive manner by mispricing risk when bank liquidity is sufficiently high; asset price bubbles are formed for high enough bank liquidity; bubbles are more likely to be formed when the underlying macroeconomic risk is high inducing investors to save with banks rather than make direct entrepreneurial investments; and, also bubbles are more likely to be formed following loose monetary policies adopted by the central bank.

The Central Bank can avoid the emergence of bubbles by adopting a contractionary monetary policy at times when banks are awash with liquidity by drawing out their reserves (Schilling, 2006). Some proponents, most notably Greenspan (1997), have argued that “we are never certain where we are in the cycle and hence monetary policy should not be used to target

asset prices. Nevertheless Acharya and Naqvi (2009) model showed that even in the absence of precise knowledge of macroeconomic fundamentals a ‘leaning against the wind policy’ can be rationalized. Thus they closed their argument by saying that monetary policy should target not just interest rates and employment but also asset prices.

2.4 Concept of Profitability

According to Harward and Upton (1986) profitability is the ability of a given investment to earn a return from its use. Profitability means ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the banks management can make profit by using all the resources available in the market. However, the term ‘Profitability’ is not substitutable for the term ‘Efficiency’. Profitability is an index of efficiency; and is regarded as a measure of efficiency and management guide to greater efficiency. Though, profitability is an important yardstick for measuring the efficiency, the extent of profitability cannot be taken as a final proof of efficiency. Sometimes satisfactory profits can mark inefficiency and conversely, a proper degree of efficiency can be accompanied by an absence of profit. The net profit figure simply reveals a satisfactory balance between the values receive and value given. The change in operational efficiency is merely one of the factors on which profitability of an enterprise largely depends. Moreover, there are many other factors besides efficiency, which affect the profitability.

With regards to the financial management profit is the test of efficiency and a measure of control, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable capacity and a basis of legislative action and to the country profit is an index of economic progress, national income generated and the rise in the standard of living”, while profitability is an outcome of profit. In other words, no profit drives towards profitability (Weston and Brigham 1986). Firms having same amount of profit may vary in terms of profitability. According Kulshrestha (2000) “Profit in two separate business concern may be identical, yet, many a times, it usually happens that their profitability varies when measured in terms of size of investment”.

2.5 The Relevance of Liquidity and Profitability to Commercial Banks

Liquidity term of a commercial bank’s balance sheet has two interpretations. It refers firstly to the ability of the bank to honor the claims of the depositors. And secondly, it shows the ability of the bank to convert its non-cash assets into cash easily and without loss (Saunders and Cornett, 2011). Commercial bank should always have enough cash to meet the demands

of the depositors. Significantly, the success of a commercial bank depends to a greater extent upon the degree of confidence it can instill in the minds of its funds owners. If the fund owners lose confidence in the ability of their bank to repay depositors, the very existence of the bank will be at stake. So, the bank should always be prepared to meet the claims of the depositors by having enough cash. Among the various items on the assets side of the balance sheet, cash on hand represents the most liquid asset followed by cash with other banks and the central bank (Kidwell et al 2008). Liquidity also refers to the ability of the commercial bank to convert its non-cash assets into cash easily and without loss. The bank cannot have all its assets in the form of cash because cash is an idle asset which does not fetch any return to the commercial bank. So some of the assets of the bank, money at call and short notice, bills discounted, etc. could be made liquid easily and without loss (Saunders and Cornett 2007).

2.6 Liquidity Position Analysis

This refers to the ability of commercial banks to pay its obligations as it falls due and the level of funding. It includes core deposits to total deposits; this ratio is calculated by summing of all core deposits divided by total deposit, it measures the volatility of deposits. Liquid assets to demand liabilities this is calculated by taking the sum of all assets maturing within one year divided by all liabilities with the same maturity period. This intends to capture the liquidity mismatch of assets and liabilities and provides an indication of the extent to which banks could meet short term withdrawal of funds without facing liquidity problems. Gross loans to total deposits this is calculated by taking gross loans divided by total deposits, measure the extent to which deposits have financed loan portfolio which are considered illiquid assets (BOT, 2007).

2.7 Liquidity Ratios and Limits

Institutions may use a variety of ratios to quantify liquidity. These ratios can also be used to create limits for liquidity management. However, such ratios would be meaningless unless used regularly and interpreted taking into account qualitative factors. Ratios should always be used in conjunction with more qualitative information such as borrowing capacity, the likelihood of increased requests for early withdrawals, decreases in credit lines, decreases in transaction size, or shortening of term funds available to the banking institution. To the extent that any asset-liability management decisions are based on financial ratios, an institution's

asset-liability function should understand how a ratio is constructed, the range of alternative information that can be placed in the numerator or denominator, and the scope of conclusions that can be drawn from ratios. A fuller appreciation of ratios should recognize uniqueness of individual institutions where comparative data is available and seasonal or time differences of a single institution.

2.8 Liquidity and Solvency Relationship

While the liquidity of a bank relates to its ability to meet short-term commitment when they fall due, solvency is the ability of a bank to ultimately to meet all its obligations (Casu et al (2006)). For a bank to be solvent means that the value of assets has to be greater than liabilities then the difference between the two being the bank's capital. There are situations in which some assets goes bad, for instance unpaid loans, then the banks must make charges against the loan portfolio that are paid for from retained earnings. When profits are sufficient, then the level of bank capital and its capital adequacy ratio remained unchanged. However, when profits are loss, then losses will have to be written out of capital or alternatively shareholders will be required to provide additional capital to restore the capital ratio to the required level.

The liquidity and solvency position of a bank are related because a severe liquidity shortfall can ultimately result in a solvency problem. Generally if a bank is unable to meet its liquidity requirements it will first attempt to obtained support through the Lender of Last Resort (LOLR) facility by borrowing from the central bank. However, if this option is not available then the bank will have to consider bearing the losses from its capital resources thus reducing the bank's capital position (Johnson (2002)).

2.9 Empirical Studies on firms Liquidity

The two most prominent points of view in literature on the optimal amount of liquidity conclude that the firm should either hold large amount of liquid assets or no liquid assets. Myers and 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.

2.10 Summary and Conclusion

Our review of the various theories show that the relationship between bank capital and bank liquidity creation differs by bank size raises interesting policy issues. It is well known that regulators impose capital requirements on banks for safety and soundness reasons. Findings also suggest that while regulators may be able to make banks safer by imposing higher capital requirements, this benefit may have associated with it reduced liquidity creation by small banks, but enhanced liquidity creation by large banks.

The impact of liquid assets holding on bank's profitability can be affected by other factors such as the banks business model, or exogenous economic condition that beyond the scope of this study, but may be pursued in future research. Does liquidity creation affect economic growth? How do monetary policy initiatives by central banks, changes in deposit insurance,

and other policy innovations affect liquidity creation? How does liquidity creation differ across nations? How much liquidity do banks create compared to nonbank financial intermediaries? How much liquidity do banks create relative to financial markets, and what are the complementarities, if any, in liquidity creation between banks and capital markets? Addressing these questions holds the promise of substantially improving our understanding of the liquidity creation function of banks and how it affects the bank's profit.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter looks at the research methodology followed in order to realize the objectives of the study. The chapter outlined the research design, data sources, data collection method, research procedure and data analysis technique and concludes with a summary.

3.2 Research Design

This study employed correlation 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 covered the period 2006 to 2011. The period of 5 years is justified because of data availability and it is the period during which the banking institutions had fully recovered from a severe economic collapse due to the 14 years civil upheaval.

3.3 Population

The study was a survey that targeted a population of the 8 commercial banks in Liberia. The survey duration was between periods 2006-2011. They are therefore adequately representative of the Liberian economy.

3.4 Data Collection

The study was facilitated by use of secondary data. The liquidity data was extracted from published reports of Commercial banks i.e. financial statements.

3.5 Data Analysis

Multiple regression analysis was applied to the data to examine the effect of the various aspects of liquidity on the profitability of the commercial banks in Liberia. The regression model was run from the financial reports of those firms that have been in operation since 2007 and whose annual reports were available in these periods. A correlation matrix of the variable used in the regression analysis. Business cycle, loan-asset ratio, deposit ratio and Regulation positively correlated with return on equity.

Liquidity means availability of cash that show how bank rapidly may convert its assets into cash to meet the need of short term. It is considered that it is life of the banks. Higher amount of the liquid assets reflect the greater liquidity of the firm. Following liquidity measures are used to measure the liquidity efficiency. Liquid Assets to Customer Deposits and Short Term Funds Ratio equal to Liquid Asset divided by Customer deposit and short term funds. It clears the position of deposits and short term funds which meets the requirements of sudden withdrawals. The loan to assets ratio measures the total loans outstanding as a percentage of total assets. The higher this ratio indicates a bank is loaned up and its liquidity is low. The deposit ratio is defined as the ratio of all liabilities to customers to total assets. A decrease in share of deposit in total asset creates cost of borrowed financing sources and high cost decrease the profitability of banks.

For considering the business cycle, the real output gap used which isolates the business cycle from the economic trend. The BCC is computed by subtracting a non-linear trend from real GDP. There are several reasons why bank profitability may be pro-cyclical, as equity tends to follow the phase of the cycle. Hence, in the absence of a business cycle variable, its effect on profitability could be partly captured by the relevant bank-specific variables. Secondly, demand for credit would be strengthened substantially during economic booms and the interest margin may widen. Therefore, revenues could grow faster than costs leading to increased profits, while the opposite may hold true during economic slowdowns.

The regression equation that will be adopted to establish the relationship between the profitability of the banks and the working capital policy was as follows:

$$\Pi_{i,t} = \beta_0 + \beta_1 LA + \beta_2 DR + \beta_3 BCC * Regulation + \beta_4 Deposit + \beta_5 Loan$$

Where

$\Pi_{i,t}$ = The profitability of bank i^{th} at time t , with $i=1,...,N$, $t=1,...,T$.

LA = Liquidity Asset Ratio, is all liquid assets and short term funds. It is a measure of liquid asset to customers deposits

Deposit = Deposit Ratio, this is a measure of all liabilities to customers divided by total asset

BCC = Business Cycle of the bank, it is a measured of the difference of a non-linear trend from the Real GDP using the Hodrick-Prescott filter.

Regulation = Liquidity Requirement per the Banking regulation of the CBL. It is a measure of the percentage of liquid assets to the deposits and designated liabilities.

Loan = Total amount of Loan the Bank has outstanding

In order to answer the research question and achieve the purpose of the study the following research proposition in the form of hypothesis was formulated and tested empirically.

Let H_0 = null hypothesis

H_1 = alternative hypothesis

The hypothesis state that:

H_0 – There is no relationship between liquidity and profitability of commercial bank

H_1 - There is a relationship between liquidity and profitability of commercial bank.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides the empirical findings established from the data collected. It provides demographic information of the respondents and the statistical analysis of the information collected. The data was collected and analyzed using quantitative analysis and presented in tables. Additionally, this is followed by the interpretation and discussion about the findings from the analysis of the data.

4.2 Findings of the Research

The regression equations were formulated using the profitability measure against the liquidity as well as control variables of liquidity and control variables. The adjusted R-square measures the degree of variability of the dependent variable due to the change in the independent variable. Test of significance was carried out for all variables studied using t-test at the 95% level of significance. From the observation, any p-value that is greater than 0.05 was deemed to have a significant relationship with the dependent variable, else the relationship was considered insignificant. The standardized coefficient and the t-statistic indicate the strength of the relationship between the dependent and the independent variables.

4.2.1 Qualitative Analysis

Table 4.1 below summarizes the descriptive statistics of the variables included in the regression model as presented. It represents the financial variables of the eight commercial banks in Liberia that operated from the years 2006-2011.

Table 4.1: Summary Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Profit (Net Income)	32	-44116	176870	75257.52	20518.597
Liquidity Asset Ratio	32	.5600	2.5600	1.314848	.5409370
Deposit Ratio (DR)	32	.0760	.8700	.596336	.2369670
Bank Business Cycle	32	26374125	218100150	86110880.77	5.202E7
Loan	32	351655	2908002	1148145.08	693594.516
Loan asset ratio	32	.3702	.9700	.720806	.1472261
Valid N (list wise)	32				

Source: Research Findings

The mean value of the firms' profitability is 75,257.52M of the total assets and the standard deviation is 20518.597M. It means that the value of the profitability can deviate from the mean to both sides by 20,516M. To check on the effect that liquidity has on the firms profitability, the liquidity to asset ratio is used with a mean of .541 while the average bank deposits as measured by the bank business cycle was found to have a mean of 86,110,880.77. The total loan advancement to clients by the eight commercial banks had an average of 1,148,145.08m though it had a standard deviation of 693,594.516. All variables share a common sample size of 32 firm-years.

4.3 Quantitative Analysis

For quantitative analysis the study used a regressions model. The model was used to identify important variables influencing the dependent variable (profitability). The regression analysis is used to investigate the impact of a bank's liquidity on corporate profitability with the determinants of corporate profitability being estimated using the general least squares method with cross section weights.

4.3.1 Regression Equation

At first, correlation is used to measure the degree of association between different variables under consideration and as multiple variables are influencing the problem, the study identified the crucial factors associated with financial distress.

Table 4.2 Results of General Least Square

Model	Unstandardized Coefficients		Standardized Coefficients	t
	B	Std. Error	Beta	
(Constant)	-96541.402	75111.123		-1.285
Liquidity Asset Ratio	31942.394	13935.681	.342	2.292
Deposit Ratio (DR)	39586.524	30646.251	.186	1.292
Loan	.082	.015	1.131	5.520
Loan asset ratio	16073.142	54572.234	.047	.295
a. Dependent Variable: Profit (Net Income)				

Source: Research Findings

The determinants of a bank's financial distress are investigated for the 32 firm-year observations. From Table 4.2 above, the established multiple linear regression equation becomes:

$$NI = -96541.402 + 31942.394LA + 39586.524 DR + .082 (15\%) BCC + 16073.142Loan$$

LA = Liquidity Asset Ratio

Deposit = Deposit Ratio

BCC = Business Cycle of the bank

Regulation = Liquidity Requirement per Bank regulation

Loan = Total amount of Loan the Bank has outstanding

The coefficient of intercept C has a value (-9, 6541.402) and is significant at 95% confidence level. In the regression the following proxy were used to measure different variables. The profitability of the firm was measured by the net income of the bank in the firm year period.

The liquidity asset ratio is used to measure the ratio of assets that can be considered to be in liquid form and this was taken to be represented by cash and cash equivalent assets over the total assets.

Liquidity means availability of cash and how a bank can rapidly convert its assets into cash to meet the need of short term. Higher amount of the liquid assets reflect the greater liquidity of the firm. The following liquidity measures are used to measure the liquidity efficiency; Liquid Assets to Customer Deposits and Short Term Funds Ratio equal to Liquid Asset divided to Customer deposit and short term funds. Higher ratio shows the more liquid commercial bank less in danger than the financial institution. The loan to assets ratio measures the total loans outstanding as a percentage of total assets. The higher this ratio indicates a bank is loaned up and its liquidity is low. In the findings the coefficient of the loans to asset ratio is 31942.394. This means that if the loans to asset ratio changes by one unit, the bank's profitability will change in the same direction by 31942.394. Bank loans are therefore expected to impact a bank's profits positively and the higher the level of loans a bank lends, the higher the chance of the bank's profits. Conversely, the higher the ratio, the more risky a bank may be to higher defaults.

The deposit ratio is defined as the ratio of all liabilities to customers to total assets. It is expected that a decrease in share of deposit in total asset creates cost of borrowed financing sources and high cost decrease the profitability of banks. Bank deposits are a very attractive means to fund the bank, because of the relatively lower interest rates to be paid compared to bonds or borrowing from banks. From the findings the coefficient of the deposit ratio is positive and highly significant (39586.524). A bank with a more deposit is able to become more profitable. The coefficient of loan asset ratio is positive and significant. This positive effect implies that banks with a high proportion of loan asset ratio have a higher profitability.

Table 4.3: Model Summary for Profitability with the predictor variables

Model Summary					
Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Durbin-Watson
1	.890 ^a	.793	.753	25088.057	2.191
a. Predictors: (Constant), Loan asset ratio, Deposit Ratio (DR), Liquidity Asset Ratio, Loan					
b. Dependent Variable: Profit (Net Income)					

Source: Research Findings

The adjusted R^2 , also called the coefficient of multiple determinations, is the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variables (Loan asset ratio, Deposit ratio, liquidity asset ratio and the Loan level) and is 89 %. This means that 89 % of the changes in the banks' profitability will be explained by the changes in the independent variables and control variables in the model. The remaining 11% of the changes in the profits is explained by other factors not in the model. With the Durbin-Watson factor of 2.191 which is less than 2.5, it means that there is no autocorrelation in the independent variables and it can be concluded that there independent variables do not depend on each other.

4.3.2 Test of Multicollinearity: Pearson and Spearman's Correlations

Table 4.4 below shows the Pearson and Spearman's correlation coefficient generated from the data. Consistent with Shin and Soenen (1998), the spearman's rank correlation coefficients are on the upper right triangle while the Pearson product moment correlation coefficients are on the lower left triangle. Pearson's Correlation analysis is used for data to see the relationship between variables such as those between independent variables and profitability of the bank.

Table 4.4: Pearson and Spearman's Correlation Coefficient

Correlations							
		Profit (Net Income)	Liquidity Asset Ratio	Deposit Ratio (DR)	Bank Business Cycle	Loan	Loan asset ratio
Profit (Net Income)	Pearson Correlation	1	-0.098	-.450 [*]	.829 ^{**}	.829 ^{**}	-.586 ^{**}
Liquidity Asset Ratio	Pearson Correlation	-0.098	1	.402 [*]	-.443 [*]	-.443 [*]	-0.303
Deposit Ratio (DR)	Pearson Correlation	-.450 [*]	.402 [*]	1	-.690 ^{**}	-.690 ^{**}	0.156
Bank Business Cycle	Pearson Correlation	.829 ^{**}	-.443 [*]	-.690 ^{**}	1	1.000 ^{**}	-.493 [*]
Loan	Pearson Correlation	.829 ^{**}	-.443 [*]	-.690 ^{**}	1.000 ^{**}	1	-.493 [*]
Loan asset ratio	Pearson Correlation	-.586 ^{**}	-0.303	0.156	-.493 [*]	-.493 [*]	1
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Research Findings

The observed relations in the table above depicts that the variables are highly correlated. This means that profit of the banks will change erratically in a response changes in the model or the values of the independent variable. The results from the table show that there is a positive relationship between the bank's net income and bank business cycle and loan while a negative relationship exist between the net income and liquidity asset ratio, deposit ratio and loan asset ratio. The deposit ratio coefficient is negative meaning that if the banks deposit ratio is relaxed by the central banks, then the profits of the bank will be expected to increase. According to the results, 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. The coefficient of loan asset ratio is positive and significant. This positive effect implies that banks with a high proportion of loan asset ratio have a higher profitability.

4.4 Interpretation of Findings

All four independent variables for this study were analyzed in relations with the independent variable and the relationships determined from the results of the overall analysis. The significant level of the variables was also established with some variables having higher significance than others.

Analysis determined that the coefficient of intercept C has a value (-9, 6541.402) and is significant at 95% confidence level. In the regression analysis of the variables, proxies were used to measure different variables. The profitability of the firm was measured by the net income of the bank in the firm year period. The liquidity asset ratio is used to measure the ratio of assets that can be considered to be in liquid form and this was taken to be represented by cash and cash equivalent assets over the total assets.

Liquidity, which is the availability of cash and how bank can rapidly convert its assets into assets ratio is one of the major variables discussed in the analysis.

From the qualitative and quantitative analysis carried out using various analytical tools to study the relationship between the dependent and independent variables, the results show that there is a positive relationship between the bank's net income and bank business cycle and loan while a negative relationship exist between the net income and liquidity asset ratio, deposit ratio and loan asset ratio. Liquidity means availability of cash and how a bank can rapidly convert its assets into cash to meet the need of short term. Higher amount of the liquid assets reflect the greater liquidity of the firm. The following liquidity measures are used to measure the liquidity efficiency; Liquid Assets to Customer Deposits and Short Term Funds Ratio equal to Liquid Asset divided to Customer deposit and short term funds. Higher ratio shows the more liquid commercial bank less in danger than the financial institution. The loan to assets ratio measures the total loans outstanding as a percentage of total assets. The higher this ratio indicates a bank is loaned up and its liquidity is low. In the findings the coefficient of the loans to asset ratio is 31942.394. This means that if the loans to asset ratio changes by one unit, the bank's profitability will change in the same direction by 31942.394. Bank loans are therefore expected to impact a bank's profits positively and the higher the level of loans a bank lends, the higher the chance of the bank's profits. Conversely, the higher the ratio, the more risky a bank may be to higher defaults.

Deposit is the main liabilities of financial institutions mainly commercial banks. Analysis indicate that the deposit ratio coefficient is negative meaning that if the banks deposit ratio is relaxed by the Central Bank, then the profits of the bank will be expected to increase. This means that 89 % of the changes in the banks' profitability will be explained by the changes in the independent variables and control variables in the model. The deposit ratio coefficient is negative meaning that if the banks deposit ratio is relaxed by the Central Banks, then the profits of the bank will be expected to increase.

Business Cycle is an important element of the macro-prudential analysis and is the link between banking sector profitability and how this link is affected by institutional and structural characteristics. This estimates a set of equations for net interest income, non-interest income, operating costs, provisions, and profit before taxes, for banks in the main industrialized countries and evaluates the effects on banking profitability of shocks to both macroeconomic and financial factors.

From the analysis, the average bank deposits as measured by the bank business cycle was found to have a mean of 86,110,880.77.

According to the results, 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. The coefficient of loan asset ratio is positive and significant. This positive effect implies that banks with a high proportion of loan asset ratio have a higher profitability.

To check on the effect that liquidity has on the firms profitability, the liquidity to asset ratio is used with a mean of .541 while the average bank deposits as measured by the bank business cycle was found to have a mean of 86,110,880.77. The total loan advancement to clients by the eight commercial banks had an average of 1,148,145.08m though it had a standard deviation of 693,594.516. All variables share a common sample size of 32 firm-years.

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 2006 to 2011. The population of survey was the commercial banks in Liberia. After the screening process firms whose accounts were not available in all the years of study or were not operational during the period were not considered in the analysis and in the end 8 banks were considered in the study.

The mean value of the firms' profitability over the five year period is 75,257.52M of the total assets and the standard deviation 20518.597M which it meant that profitability can deviate from the mean to both sides by 20,516M. To check on the effect that liquidity has on the firms profitability, liquidity was proxied by the liquidity asset ratio, deposit ratio, bank business cycle and the loan asset ratio. All the independent variables were found to be significant at 95% confidence interval and had positive coefficients. All variables share a common sample size of 88 firm-years.

The results of the regression show that the coefficient of loan asset ratio is positive and significant. This positive effect implies that banks with a high proportion of loan asset ratio have a higher profitability. Likewise, the coefficient of the deposit ratio is positive and highly significant. This implies that a bank with more deposit is able to become more profitable because of the higher cash deposits to lend borrowers. The coefficient of loan asset ratio is positive and significant implying that banks with a high proportion of loan asset ratio have a higher profitability chance than those banks with a lower loan asset ratio. The coefficient of regulation is negative and significant. Therefore if regulators reduce the constraints imposed on banks, banks obtain more profit since with a lower retention ratio, more cash will be available to the banks to lend which will increase their profitability, *ceteris paribus*. The

results show that concentration affects bank profitability negatively, and this affect is significant.

Thus the findings show that efficient management of liquidity in a bank will influence its level of profitability and the variables used in the survey are positively related with profitability except the banks regulation by the Central Bank that was found to be negatively related with the bank's profitability.

Several studies have been done on liquid asset and profitability of financial institutions including commercial banks. According to Deloof (2003) management of liquidity is important from the point of view of both working capital and profitability. Poor management of liquidity level means that funds are unnecessarily tied up in idle assets hence reducing liquidity and also reducing the ability to invest in productive assets. The study by Deloof has the same conclusion as this study as the two studies established that proper management of commercial bank's liquid asset contributes to its profitability.

Another study by Myers and 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. This is similar to this study but the major difference being that the previous researcher declared information asymmetry as a factor while this study solely focused on how liquidity impacts commercial banks profitability.

Almeida (2001) also conducted another study on cash holdings and stated that they 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. This study findings is similar to the one conducted by Almeida (2001) but the previous study only looked at cash while this study looks at liquid cash in general Thus the findings show that efficient

management of liquidity in a bank will influence its level of profitability and the variables used in the study are positively related with profitability except the banks regulation by the Central Bank that was found to be negatively related with the bank's profitability.

5.3 Conclusions

The estimated relationship between liquid assets and bank profitability is positive and as expected. Coefficients for the liquid assets ratio, business cycle, regulation and its product of interaction business cycle and regulation are all statistically significant. Profitability is improved for banks that hold some liquid assets, however, it is believed that there is a point at which holding further liquid assets diminishes a banks' profitability.

The coefficient of the deposit ratio is positive and highly significant. A bank with a more deposit is able to be more profitable. The coefficient of loan asset ratio is positive and significant and this positive effect implies that banks with a high proportion of loan asset ratio have a higher profitability. In addition, an important finding of this study is that the business cycle significantly affects bank profits. Business cycle is estimated to have a positive and statistically significant impact on bank profitability. The coefficient of regulation is negative and significant and this implies that if regulators reduce the constraints imposed on banks, banks obtain profit. The empirical results show that concentration affects bank profitability negatively, but this affect is relatively insignificant. Management of liquidity position means the management of current assets and current liabilities, and financing these current assets. If these firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase profitability of these companies.

5.4 Policy Recommendations

The study on the impact of liquidity on bank profitability established a positive relationship between the independent variables and the dependent variable but the study specifically looked at the eight commercial banks in Liberia. Based on the impact of the variables on profitability of commercial banks, this study recommends the following:

Commercial banks should put in place a policy that regularly monitors the liquid assets of the bank and ensure that it is maintain at a level that does not affect negatively the profitability of the banks. Liquid assets can be both positive and negative to commercial banks based on how

they managed as excess liquid assets negatively affects the profitability of commercial banks as the liquidity can be used to give loans and generate returns. On the other hand, when commercial banks lack liquid asset they become unable to cater for liabilities such as ensuring that depositors funds are provided upon demand.

The Central Bank of Liberia should also put into force a regulation that provides for the total liquid assets commercial banks should maintain at a time. Such regulation will compel Commercial banks to manage their liquid assets and protect them from being negatively affected by the impact of holding liquid assets.

5.5 Limitation of the Study

This study experienced numerous bottlenecks as it could not gather information from all the commercial banks in Liberia. One of the commercial banks was left out of the study due to its inability to provide data.

The study was also limited by the failure of commercial banks to provide quantities data about their liquidity position and all other vital financial information required for the study.

The eight commercial banks also did not respond timely in providing information requested for the research thereby delaying the time for the conclusion of the study. Due to the distance Liberia is from Kenya, the information were acquired from the websites of the commercial banks and other required through physical interactions with banks officials were not gathered.

5.6 Suggestions for Further Research

The study suggests some policy implications for the managers and prospective investors in the country. It is emerging that the banks level of profitability is influenced to a greater extent by the liquidity and all variables that influence the same will need to be looked at to increase the banks profits. In particular, the Central Bank has regulators of commercial banks have a role to play that affects the level of liquidity of the commercial.

The minimum retention ratio kept by commercial banks will need to be adjusted in such a way the banks are not affected in their liquidity without at the same time affecting the level of inflation in the country. In addition the management of commercial banks will need to strike

a balance of the amount of cash that can be lend out to customers and the balance that can be retained and invested in other marketable securities or cash and cash equivalent elements.

The scope of further research may be extended to the liquidity level components including cash, marketable securities, receivables and inventory level and their effects on the firms' profitability. In addition, it is suggested that a further research be conducted on the same topic with different sector companies and extending the years of the sample.

REFERENCES

- Aburime, U. (2008). Determinants of Bank Profitability: Company-Level Evidence from Nigeria. [Online]. October 2008. Available from: <http://ssrn.com/abstract=1106825>. [Accessed: 10 June 2010]
- Allen, F., and D. Gale. 2004. *Financial Intermediaries and Markets*, *Econometrica* 72:1023–61. Allen, F., and Santomero A. M., 1998. *The Theory of Financial Intermediation*, *Journal of Banking and Finance*
- Albright S. C., Zappe C. J., and Winston W. L., 2011, *Data Analysis Optimization and Simulation and Modeling*, United Kingdom, South- Western, Cengage Learning.
- Anari, A. and J. Kolari, 1999, Nonmonetary effects of the financial crisis in the Great *Banking and Monetary Statistics*, 1976, Washington, DC: Board of Governors of the Federal Reserve System
- Athanasoglou, P., Brissimis, S. & Delis, M. (2006). Bank-Specific, Industry-Specific and Macroeconomic [Online] 121-136. Available from: <http://ssrn.com/abstract=1106825>. [Accessed: 03/06/2010]
- Baral, K. J. (2005). Health Check-up of Commercial Banks in the Framework of CAMEL: A Case Study of Joint Venture Banks in Nepal. *The Journal of Nepalese Business Studies*. [Online] vol II no.1. Available from: <http://www.nepjol.info/index.php/JNBS/article/viewFile/55/483>. [Accessed: 20/06/2010]
- Berger, A. N., and Bouwman C. H. S., 2008. *Financial Crises and Bank Liquidity Creation*, Working Paper #08-37, Wharton Financial Institutions Center.
- Bernanke, B. S., 1983, Nonmonetary effects of the financial crisis in the propagation of the Great
- Bodie, Z., Kane, A., and Marcus A. J., 2008, *Investment*, New York, USA, McGraw-Hill Companies

- Bremer, C. D., 1935, *American Bank Failures*, New York, NY: Columbia University Press.
- Bureau of Economic Research Comptroller of the Currency, *Annual Report*, Washington, D.C.: U.S. Government Printing Office, Various Issues.
- Banking Law Journal*, 1932, New York, N.Y.: Brady Publishing Corporation, 49, pp. i-iii.
- Calomiris, C. W., and B. Wilson, 1998, Bank capital and portfolio management: The 1930s capital crunch and the scramble to shed risk, Working paper no. 6649, Cambridge, MA: National
- Calomiris, C. W., and G. Gorton, 1991, The origins of banking panics: Models, facts, and bank regulation, in Hubbard, R. G. (ed.), *Financial Markets and Financial Crises*, Chicago, IL:
- Casu, B., Girardone, C., and Malyneux, P., (2006) *Introduction to Banking*, Harlow, England, Pearson Education Limited.
- Deep, A., and Schaefer G., 2004, *Are Banks Liquidity Transformers?* Working Paper, Harvard University.
- Engle, R. F. and C. W. J. Granger, 1987, Cointegration and error-correction: Representation, estimation, and testing, *Econometrica* 55, 251-76. Depression, *American Economic Review* 73, 257-76. Depression, *Journal of Economics and Business* 51, 215-36. *Federal Reserve Bulletin*, Various Years, Washington, DC: Board of Governors of the Federal Reserve System.
- Elyor, S. (2009). *Factors Affecting the Performance of Foreign Banks in Malaysia*. A Thesis Submitted in Partial Fulfillment of the Requirements of Universiti Utara Malaysia for the Degree of Master of Science (Banking). [Online]. October 2009.
- Fisher, I., 1933, The debt-deflation theory of Great Depressions, *Econometrica* 1, 337-57. 29

- Flamini, V., McDonald, C. & Schumacher, L. (2009). *The Determinants of Commercial Bank Profitability in Sub-Saharan Africa*. WP/09/15. [Online]. January 2009. Available from: www.imf.org/external/pubs/ft/wp/2009/wp0915.pdf. [Accessed: 26 May 2010]
- Friedman, M. and A. J. Schwartz, 1963, *A Monetary History of the United States, 1867-1960*, University of Chicago Press.
- Gatev, E., Schuermann, T and Strahan P. E., 2006, *How Do Banks Manage Liquidity Risk? Evidence from the Equity and Deposit Markets in the Fall of 1998*. In *Risks of Financial Institutions* 105–27. (eds.) M. Carey and R. Stulz, Chicago, IL: University of Chicago Press.
- Gorton, G., and Winton A., 2000, *Liquidity Provision, Bank Capital, and the Macroeconomy*. Working Paper, University of Minnesota.
- Howells, P., and Bain, K., (2008) *The Economics of Money, Banking and Finance*, Harlow, England, Pearson Education Limited.
- Johnson, O.E.G (2008). *Financial Risks, Stability, Globalization*, International Monetary Fund, Washington D.C., IMF Graphics Section
- Johansen, S., 1991, Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models, *Econometrica* 58, 1551-80.
- Kamau, A.W. (2009). *Efficiency in the Banking Sector: An Empirical Investigation of Commercial Banks in Kenya*. A thesis submitted in partial fulfillment of the Requirements of Nairobi University for the Degree of Doctor of Philosophy. Nairobi: University of Nairobi
- Koch, T.W. (1995). *Bank Management*. 3rd edn. The Dryden Press. London

- Kaufman, G. G. and S. A. Seelig, 2000, Treatment of depositors at failed banks: Implications for the severity of banking crisis, systematic risk, and too-big-to-fail, Working paper presented at the annual meetings of the Financial Management Association, Seattle, WA.
- Klingebiel, D., 1999, The use of asset management companies in the resolution of banking crises: Cross-country experiences, Mimeo. World Bank.
- Kosmidou, K. (2008). The determinants of banks „profits in Greece during the period of EU Financial integration.*Journal of Managerial Finance*. [Online] 34 (3). Available from: <http://www.emeraldinsight.com>. [Accessed: 05/06/2010]
- Loutskina, E., 2006, *Does Securitization Affect Bank Lending?* Evidence from Bank Responses to Funding Shocks. Working Paper, Boston College
- Mason, J. R., 1996, *The Determinants and Effects of Reconstruction Finance Corporation Assistance to Banks During the Great Depression*, Ph.D. Dissertation, University of Illinois at Urbana-Champaign.
- Mason, J. R., 2002, A real options approach to bankruptcy costs: evidence from failed commercial banks during the 1990s, Wharton Financial Institutions Center Working Paper No.0220.
- Mason, J. R., (1997), Contagion and bank failures during the Great Depression: The June 1932 Chicago banking panic, *American Economic Review*, 87, 863-83.
- Naceur, S. (2003). *The Determinants of the Tunisian Banking Industry Profitability: Panel Evidence*. [Online]. October 2003. Available from: www.mafhoum.com/press6/174E11.pdf [Accessed: 29 May 2010]
- Pandey, I M., 2010, *Financial Management*, New Delhi: Vikas Publishing House. Princeton, NJ: Princeton University Press.

- Pesaran, M. H. and Y. Shin, 1998, Generalised impulse response analysis in linear multivariate models, *Economics Letters* 58, 17-29. Risk Management Approach, New York, NY: McGraw-Hill Companies, Inc.
- Rajan, R. G., and Zingales, L., 1998, Financial Dependence and Growth. *American Economic Review* 88:559–86.
- Ramakrishnan, R. T. S., and Thakor, A. V., 1984, *Information Reliability and a Theory of Financial Intermediation*.
- Saunders, Anthony., and Cornett, Marcus Million., 2011, *Financial Institution Management: A Risk Management Approach*, New York, NY: McGraw-Hill Companies, Inc.
- Sims, C. A., 1980, Macroeconomics and reality, *Econometrica* 62, 540-52.
- Superintendent of Banks for the State of New York, 1931, *Annual Report*, Albany, NY: J. B. Lyon Company. Superintendent of Banks for the State of Ohio, 1931, *Twenty-Fourth Annual Report of Division of Banks*, Cleveland, OH: The Consolidated Press & Printing Co.
- Sufian, F. & Chong, R. R. (2008). Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from Philippines. *Asian Academy of Management Journal of Accounting and Finance*. [Online] 4(2) p.91-112. Available from: <http://www.usm.my/journal/aamjaf/vol%204-2-2008/4-2-5.pdf>. [Accessed: 06/06/2010]
- Upham, C. B., and E. Lamke, 1934, *Closed and Distressed Banks: A Study in Public Administration*, Washington, DC: The Brookings Institution.
- Valla, Natacha., Saes-Escorbia, Beatrice., and Tiessets, Muriel, 2008, *Bank Liquidity and Financial Stability*, IFC Bulletin No. 28
- Willis, H. P., and J. M. Chapman, 1934, *The Banking Situation*, New York, NY: Columbia University Press.

Uzhegova, O. (2010). *The Relative Importance of Bank-specific Factors for Bank Profitability in Developing Economies*/P 2010/02.[Online]. April 2010. Available from: <http://ssrn.com/abstract=1595751>. [Accessed: 10 June 2010]

APPENDIX I

List of Commercial Banks in Liberia

Liberia Bank for Development & Investment (LBDI)

Ashmund& Randall Streets

Monrovia, Liberia

Francis A. Dennis, President/CEO

Phone: (+231) 6-513-498/6-558-085

Email: lbdi.mails@lbdi.net

Website: <http://www.lbdi.net/>

Established: 1961

Ecobank Liberia Ltd (Ecobank Transnational Inc./Togo)

Ashmund& Randall Streets

Monrovia, Liberia

Ms. MorenikaAdepoju, Managing Director/CEO

Phone: (+231) 6-689-658 /4-788-834 /4-788-838/4-788-833

Email: ecobanklr@ecobank.com

Website: www.ecobank.com

Established: August 1999

International Bank (Liberia) Limited (IB)

Broad Street, Monrovia, Liberia

Patrick Anumel, Acting Chief Executive Officer

Tel: (+231) 6-974-649/6- 550-888/5-611-988

Email: customercare@ibliberia.com

Website: <http://www.ibliberia.com/>

Established: April 2000

Global Bank Liberia Limited/Platinum Habib Bank (PHB)

Ashmund&Mechlin Streets, Monrovia, Liberia

Victor Idabor, Managing Director/CEO

Tel: (+231) 4-751-878/6-515-743/6-517-720

Email: bwoods@globalbankliberia.com

Website: <http://www.globalbankliberia.com/>

Established: February 2005

First International Bank Liberia Ltd (FIB)

Broad Street, Monrovia, Liberia

E. Thompson Onyema, General Manager/CEO

Tel: (+231) 77-825-850/77-045-101

Email: info@fib-lib.com

Website: <http://www.fib-lib.com/>

Established: March 2005

United Bank for Africa (Liberia) Limited (UBA)

Broad Street, Monrovia, Republic of Liberia

Mr. Ebele E. Ogbue, General Manager/CEO

Tel: (+231) 6-448-000

Email: ebele.ogbue@ubagroup.com

Website: www.ubagroup.com

Established: July 2008

Access Bank Liberia Limited–The Microfinance Bank

Johnson Street, Monrovia, Liberia

Mary Clare Odong, Managing Director/CEO

Tel: (+231)77-006-688/6-420-705

Established: January 2009

Guaranty Trust Bank (Liberia) Limited

Clara Town, Bushrod Island, Monrovia, Liberia

Tel: (+231) 6-991-450

Established: March 2009