The Determinants of Interest Rate Spread in Liberian Financial Sector

By

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DECLARATION

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

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This project is dedicated to my parents, Mr. Augustus N. Fallah and Mrs. Kuluku K. Fallah both of whom made my educational sojourn a success and without their parental guidance I wouldn't have reached this far.

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ABSTRACT

Financial reform predicts achievement of efficiency in the intermediation process and reduced transaction costs, which is proxied by a narrowing wedge between the lending and deposit rates. Liberia's experience shows a rise in interest rate spread during the financial reform and subsequent financial liberalization process, which suggests the failure to meet the prerequisites for successful financial liberalization.

Interest rates were liberalized amidst much pressure, declining economic growth, financial instability as a result of years of civil crisis, the failure to sustain fiscal discipline and lack of proper sequencing of the shift to use monetary policy tools. The objective of this study was to examine the determinants of interest rate spread in the financial sector of Liberia and methodology the study was designed using various factors that are used to determine the gap between lending and deposit interest rate. At the micro level, this research results show that when the profit margin is threatened, banks sustain a widening spread. The accumulation of non-performing loans results from a weak legal system and a poor business environment that squeezes the profit margin, and banks respond by increasing the lending rate. Policy actions also affect the spread. An asymmetric response is indicated with the foreign exchange rate where lending rates increase with the foreign exchange rate between the Liberian dollars and United dollars rate, and become sticky downward when the foreign exchange lower between the two currencies.

The Central Bank of Liberia responded to the widening gap in interest rate by publishing the interest rates on both deposits and lending that must be maintained by Commercial banks but in the absence of ensuring that factors that lead to the widening gap are addressed, some commercial banks could not adhere to the published interest rates by the Central Bank. The Central bank also indicated that it is contemplating adjusting the gap between lending and deposit interest rates, thereby reducing general and substandard provisions by one (1%) percent and five (5%) percent respectively. The CBL also indicated that it intends to introduce a stimulus loan package of Five Million United States Dollars (US$5,000,000) to commercial banks at the rate of three (3%) percent for lending to Liberian business at the rate of not more than eight (8%) percent per annual.

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LIST OF ABBREVIATIONS

ABLL	Access Bank Liberia Limited
AFBL	Afriland First Bank Liberia
CBL	Central Bank of Liberia
EBLL	Eco Bank Liberia Limited
EU	European Union
FIBLL	First International Bank Liberia Limited
GAC	General Auditing Commission of Liberia
GBLL	Global Bank Liberia Limited
GOL	Government of Liberia
GTBL	Guaranty Trust Bank Liberia
HDI	Human Development Index
IBL	International Bank of Liberia
IC	Investment Committee
IMF	International Monetary Fund
LACE	Liberia Agency for Community Empowerment and Socio-Economic Development
LBDI	Liberia Bank for Development and Investment
LCUNA	Liberia Credit Union National Association
LEAP	Local Enterprise Assistance Program
LMA	Liberia Marketing Association
LMA	Liberia Maritime Authority
LPRC	Liberia Petroleum refining Company
MDGs	Millennium Development Goals
MFI	Microfinance Institution
MIS	Management Information Systems
MPEA	Ministry of Planning and Economic Affairs
MSME	Micro Small and Medium Enterprises
NASSCORP	National Social Security and welfare Corporation
NGO	Non Governmental Organization
NPA	National Port Authority
LINNK	Liberia NGOs Network
SMEs	Small and Medium Enterprises

SSA	Sub-Sahara Africa
TSP	Technical Service Provider
UBALL	United Bank for Africa Liberia Limited
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission for Refugees
UNCRD	United Nations Centre for Regional Development
UNICO	Universal Insurance Corporation
USAID	United States Agency for International Development
WoCCU	World Council of Credit Unions

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

In Liberia, it has been observed that the large spread is discouraging many sectors of the economy that need funds for investing in different portfolios (World Bank Report 2010). This also discourages borrowers as they are made to pay high interest rates on funds borrowed and banks in turn pay less rates on funds deposited by borrowers. The Interest rate spread (lending rate minus deposit rate; %) in Liberia was 10.08 in 2009. The Interest rate spread (lending rate minus deposit rate; %) in Liberia was reported at 10.40 in 2008. According to the World Bank, interest rate spread is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits (World Bank Report 2010).

In Liberia, the CBL is responsible to provide the interest rates on lending for all banks and banks charge 2% interest on funds deposited by savers and charge between 12 to 14.5% on funds they lend to borrowers on a bank to bank basis based on regulation by the CBL.

This creates a disparity of more than10% or more as difference between deposit and lending rates (CBL Publication of commercial Interest rates, Daily Observer Newspaper, Tuesday, January 3, 2012 Edition).

The optimal spread between bank lending rates and rates that banks pay on deposits, which is fair to bankers, depositors and borrowers, has dogged economies for some time. In Ghana, there is widespread perception that the spread is too wide. Bankers, on the other hand justify the spread on the basis of economic variables that affect them. This paper contributes to the literature by identifying, in the case of Liberia, the short-run response of the net interest margin of banks to changes in bank specific, industry-specific and macroeconomic variables within the broad framework of Ho and Saunders (1981).We find that increases in the following factors significantly increase net interest margin — bank market power (or concentration), bank size, staff costs, administrative costs, extent of bank risk aversion and the rate of inflation. On the other hand, increases in the following variables decrease net interest margin

significantly—bank excess cash reserves, the central bank lending rate, management efficiency and the passage of time. To help reduce interest rate margins, we recommend that banks should not get too big, the central bank should consider lowering the capital adequacy ratio and banks should be required to pass on to borrowers the full extent of reductions or increases in the central bank lending rate. Continued efforts at keeping inflation at bay will also help (Aboagye, Akoena ,Antwi- and Gockel, 2008).

A key indicator of financial performance and efficiency is the spread between lending and deposit rates. If this spread is large, it works as an impediment to the expansion and development of financial intermediation. This is because it discourages potential savers due to low returns on deposits and thus limits financing for potential borrowers. This has the economy wide effect of reducing feasible investment opportunities and thus limiting future growth potential (Ndung'u andNgugi*2000)*.

Efficient financial intermediation is an important factor in economic development process as it has implication for effective mobilisation of investible resources. Consequently, banking sector efficiency plays significant role in an economy. A major indicator of banking sector efficiency is interest rate spreads, which have been found to be higher in African, Latin American and the Caribbean countries than in OECD countries (Folawewo and Tennant, 2008).

A wide deposit-lending rate margin is not only indicative of banking sector inefficiency; it also reflects the level of development of the financial sector. The prevailing margin between deposit-lending rates, the interest rate spreads (IRS) in an economy has important implications for the growth and development of such economy, as numerous authors suggest, a critical link between the efficiency of bank intermediation and economic growth. Therefore, if the banking sector's interest rate spread is large it discourages potential savers due to low returns on deposits and thus limits financing for potential borrowers elucidate by noting that because of the costs of intermediating between savers and borrowers, only a fraction of the savings mobilized by banks can be finally channeled into investments. An increase in the inefficiency of banks increases these intermediation costs, and thereby increases the

fraction of savings that is 'lost' in the process of intermediation. This ultimately reduces lending, investment and economic growth (Folawewo and Tennant, 2008).

Before undertaking any investment, individuals as well as institutional investors rely on financial intermediaries that play the role of acting as institutions that transfer money from savers-those that have funds in abundance and borrowers-those that need funds to undertake profile investments. Financial intermediaries including banks serve as delegated monitoring authority to monitor the funds provided by savers and exercise due diligence in lending it out to borrowers thus ensuring that savers can have access to their deposited funds. The delegated monitoring authority role played by financial intermediaries come at a cost based on non convexities in transaction technologies, whereby the financial intermediaries act as coalition of individual lenders or borrowers who exploit economies of scale or scope in the transaction technology. The notion of transaction costs encompasses not only exchange or monetary transaction cost (Tobin, 1963; Towey, 1974; Fischer, 1983) but also search costs and monitoring and auditing costs (Benston and Smith, 1976).

While performing this function, financial institutions take advantage of the funding available to them by savers and maximize profit with little benefit to the original owners of the funds (savers). The role of the financial intermediaries here is to transform particular financial claims into other types of claims (qualitative asset transformation). As such, they offer liquidity (Pyle, 1971) and diversification opportunities (Hellwig, 1991). The provision of liquidity is a key function for savers and investors and increasingly for corporate customers, whereas the provision of diversification increasingly is being appreciated in personal and institutional financing. Holmström and Tirole (2001) suggest that this liquidity should play a key role in asset pricing theory.

On the other hand, there has been argument for the huge gap in lending rates between deposits and loans. In most developing countries including Liberia, due to high operating costs, financial taxation or repression, lack of a competitive financial/banking sector and macroeconomic instability. That is, risks in the financial sector are high. Financial reforms and liberalization should improve efficiency in the intermediation process. This implies that the spread will decline over time as liberalization is accomplished and the financial sector develops. But in Liberia,

financial liberalization seems to have led to a widening interest rate spread (Ndung'u andNgugi, *2000).*

Institutional and policy factors impact on transaction costs and compound the effects of risks and uncertainty in the market, thus exacerbating the spread. To narrow interest rate spread, it is important to maintain a stable macroeconomic environment and thus reduce credit risks. There is also a need to minimize implicit taxes like reserve and cash ratios, accompanied by fiscal discipline to reduce the demand for financing budget deficit with low-cost funds (Ngugi, 2001)

1.1.1 Interest Rate Spread

Interest rate spread is defined by market microstructure characteristics of the banking sector and the policy environment. In differentiating between the pure spread and the actual spread Ho and Saunders (1981) observe that pure spread is a microstructure phenomenon, influenced by the degree of bank risk management, the size of bank transactions, interest rate elasticity and interest rate variability. Zarruk (1989), considering risk management by the bank, found that risk-averse banks operate with a smaller spread than risk-neutral banks, while Paroush (1994) explains that risk aversion raises the bank's optimal interest rate and reduces the amount of credit supplied. Actual spread, which incorporates the pure spread, is in addition influenced by macroeconomic variables including monetary and fiscal policy activities. Hanson and Rocha (1986) emphasize the role of direct taxes, reserve requirements, cost of transactions and forced investment in defining interest rate spread.

The Interest rate spread (lending rate minus deposit rate; %). Interest rate spread is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits.

The difference between the average yield a financial institution receives from loans and other interest-accruing activities and the average rate it pays on deposits and borrowings. The net interest rate spread is a key determinant of a financial institution's profitability (or lack thereof).

In simple terms, the net interest spread is like a profit margin. The greater the spread, the more profitable the financial institution is likely to be; the lower the spread, the

less profitable the institution is likely to be. While the federal funds rate plays a large role in determining the rate at which an institution lends immediate funds, open market activities ultimately shape the rate spread. It is the extent to which interest earning capacity of an entity exceeds or falls short of its interest cost obligations. Formula: (Interest earned ÷ Interest-earning assets) - (Interest paid ÷ Interest-costing liabilities).

Recent time-series work in macroeconomics has emphasized the role of the interest rate spread between risky and safe debt in forecasting real GNP. Stock and Watson (1989) and Friedman and Kuttner (1989) demonstrate that this interest differential has greater predictive power for output than money, interest rates, or any other financial variable. Increases in the spread are associated with subsequent downturns in GNP growth. While this analysis is limited to postwar data, similar results apply to the prewar period.'

Revival of interest and consequent expansion of the literature on economic growth, analysis of growth and rate of saving also received a great attention. The long debated relationship between rate of saving and growth rate of income has provided a strong stimulus for analyzing the factors that determine saving more thoroughly. A sufficiently strong saving performance is an important precondition for achieving economic growth, macroeconomic balance and financial and price stability. This relationship has become even more crucial with the studies confirming that despite the occasional importance of international flows of capital, the most important factor for a country's investment and economic growth is indeed its own saving (Khan, 2008 and Culpeper, 2009). A relatively low level of domestic saving could limit growth and makes the country much more vulnerable than it would otherwise be to international capital shifts of the type that have been experienced by several economies during the 1990s.

1.1.2 Background of Liberia's Financial Sector

The Financial Sector of Liberia comprises fewer commercial banks, microfinance institutions, pension funds, insurance companies and other financial intermediaries such as credit unions. The Central Bank of Liberia (CBL) is the bank of Government

and supervises the financial sector of the country. The CBL was established on October 18, 1999 by an Act of the National Legislature of the Republic of Liberia. It became functional in 2000 and succeeds the National Bank of Liberia (NBL). The principal objective of the CBL is to achieve and maintain price stability in the Liberian economy. The CBL seeks to preserve the purchasing power of the national currency; promote internal and external equilibrium in the national economy; encourage the mobilization of domestic and foreign savings and their efficient allocation for productive economic activities; facilitate the emergence of financial and capital markets that are capable of responding to the needs of the national economy, and foster monetary, credit and financial conditions conducive to orderly, balanced and sustained economic growth and development (Act of National Legislature, Republic of Liberia, 1999).

1.1.3 Commercial Banks

There are a total of nine commercial banks including – Liberian Bank for Development & Investment (LBDI) established in 1961 and is engaged in Development Banking, Commercial Banking, Western Union and E-Tool Funds Transfer. LBDI is 18% Government of Liberia owned, Private Liberians 10.29%, local companies, 22.80%, private foreign companies/ corporations 48.30% **Appendix 1**.

Ecobank Liberia (Limited) (EBLL) was licensed August 16, 1999 and is engaged in commercial banking and western union while it is ownership structure is foreign corporations 100%. International Bank Liberia (Limited) (IBLL) licensed April 2000 is engaged in commercial banking services and western union and its ownership structure include foreign private 98.75% and private individuals 1.25%. Global Bank (Liberia) Limited (GBLL) was licensed February 4, 2005 and its activities include commercial banking and money gram with ownership 100% owned by Bank PHB.

First International Bank Liberia Limited (FIBLL) licensed March 22, 2005, engaged in commercial banking money Gram with Local Private 3% Foreign Private 97%. United Bank for Africa Liberia Limited (UBALL) licensed July 17, 2008 involved in commercial banking money gram with 100% Private/ Foreign ownership. Access

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bank Liberia The Microfinance Bank licensed January 20, 2009, established commercial banking and microfinance banking with 100% Foreign Corporations ownership. Guaranty Trust Bank Liberia (GTBL) licensed March 6, 2009 involved in Commercial Banking and western union with private foreign 99% and local private 1% ownership. Afriland First Bank licensed March 10, 2011 involved in commercial banking with foreign private 95% and local private 5% ownership (Central Bank of Liberia, List of Commercial Banks www.cbl.lr.org, 2012).

The current banks are serving a severely under-banked population, and are just now being given the tools and resources to address the needs of Liberia's commercial. A comparison of the banks shows a growth in all major aspects, at least in the three largest institutions. Ecobank is the largest bank in both assets and net income, totaling USD 2.7 million in profit on USD 95.6 million in assets. LBDI trailed closely with USD 1.7 million after recording USD 1.2 million in losses due to provisioning in 2006. LBDI has the most extensive branch network in the country, and is focused on building and maintaining a strong customer base in response to the predicted entrance of the large regional banking institutions (IBLL, 2008)

1.1.4 Microfinance Sector Development in Liberia

Global experience has demonstrated that microfinance can be implemented successfully in post-conflict environments. Required environmental conditions are remarkably few. Only three environmental conditions appear to be so important that − without them—microfinance should not be undertaken. With respect to the providers of microfinance a survey was made of the present and future role of commercial banks, development banks, microfinance institutions or projects and the informal sector. The institutions that are highlighted are presented to give an indication of the range and types of institutions active or potentially active in the market, and their recent experiences. It does not imply that an institution should be considered as a potential investment or grantee (Tucker, 2008)

1.1.5 Credit Unions

Credit Union activities in Liberia are recognized under the Liberia Credit Union National Association (LCUNA). The Liberia Credit Union National Association (LCUNA) was established in 1966 and as an apex body in 1973. Before Liberia's civil war the association had 65 credit unions (CUs) across the country with 18,500 active members. Total members savings was US$11 million. The war caused many CUs to close. In 1998, LCUNA decided to reactivate the CUs. In the counties outside Monrovia, the CUs are community based with the members comprised primarily of businesswomen (petty traders). As an apex, LCUNA provides the following services to members: training of employees and officials; monitoring their activities (inspect their financial records at least biannually; provide standardized financial ledgers, passbooks for member, receipts, and payment vouchers. Each CU is self-contained, and there is no liquidity management across the CU network. Prior to the war, the 75% of the costs of the apex were covered by international organizations (Konrad Adeneur Foundation (KAF Germany), Bread for the World (Germany); logistical support from Rabobank (Netherlands), and Cody Institute (Canada), provided training of trainers (TOT) for the Apex (Tucker, 2008).

1.2 Problem Statement

The financial-sector of Liberia is bleated with numerous problems and interest rate spread and its determinants are amongst some of the problems confronting the slow growth of the country economy. A particularly interesting measure of financial development is the wide gap between lending and deposits interest rates. The spread is used as a proxy for the efficiency of financial intermediation. As efficiency improves, and the financial sector becomes competitive, the spread should narrow down.

Borrowing from banks is one of the major sources of funding for investment activities and it contributes to the growth of the economy. The interest rate spread is discouraging borrowing for investment purposes and contributing to underdevelopment of the Liberian economy. The situation of interest rate spread is also discouraging saving by those with excess funding since they feel that keeping

their money in deposit will yield no major return. If the issue of interest rate spread is not handled by the CBL, it will slow investment and discourage saving, resulting in lack of liquidity to banks and borrowers. Savers will prefer keeping their money in other forms since the interest rate on deposits is low while borrowers on the other hand will also shun borrowing due to high interest rate on lending, thereby slowing investment activities (IBLL, 2008).

The long debated relationship between rate of saving and growth rate of income has provided a strong stimulus for analyzing the factors that determine saving more thoroughly. A sufficiently strong saving performance is an important precondition for achieving economic growth, macroeconomic balance and financial and price stability. This relationship has become even more crucial with studies confirming that despite the occasional importance of international flows of capital, the most important factor for a country's investment and economic growth is indeed its own saving (Khan, 2008 and Culpeper, 2009).

The results of many other studies suggest that individual bank characteristics are often not tightly correlated with interest rate spreads. It is asserted that this may be because spreads are largely determined at the industry level, thus making individual bank characteristics more relevant to other variables, such as bank profitability (Brock and Franken (2002:15)).

The relationship between the regulatory framework, market structure and institutions, with the cost of financial intermediation, measured as the overhead of the bank. The authors state that the use of the net margin interest rate approaches the problem in the traditional lending and deposit operations of the bank as well as the competitive nature of the market, while the general and administrative expenses more closely reflect the pure efficiency of the bank. However, the results show that the effects of the variables are indifferent in both cases Demirguc-Kunt et al. (2004).

Determinants of the intermediation margins present a model where the bank is seen as a trader who demands a type of deposit and offers a type of credit; and to perform these functions it faces a high degree of uncertainty and therefore a cost. This cost is

explained mainly because deposits are seen as stochastic, thus they arrive at different times to the demand for loans. The stochastic nature of the deposits makes banks incur in to costs in order to maintain a certain position in the markets of liquidity. The model indicates that the optimal intermediation margin depends on four factors: the degree of risk aversion of the bank, the market structure in which the bank operates the average size of transactions undertaken by the bank and the variability of rates of interest, rather than its level. The authors also mention that while this transaction cost linked to the uncertainty exists, interest rate spread will exist too (Ho and Saunders 1981).

The intermediation margins in South Asia suggests that when using a data panel for different countries can be made two kinds of estimations, one for the observed margin of intermediation and one for the pure margin of intermediation; the first estimation includes the intercept variable that will then be used to calculate the pure intermediation margin. It also includes dummy variables to capture the effects of each year and financial variables for each entity (Doliente2005).

The results of many other studies suggest that individual bank characteristics are often not tightly correlated with interest rate spreads. It is asserted that this may be because spreads are largely determined at the industry level, thus making individual bank characteristics more relevant to other variables, such as bank profitability (Franken 2002).

1.3   Objective of the Study

The objective of this study is to examine the determinants of interest rate spread in the financial sector of Liberia.

1.4 Significance of the Study

The significance of this study is to point out the issue of interest rate spread which serves as one of the impediments to slow investment activities in Liberia and lack of willingness on the part of savers to keep their funds at banks since they will get nothing substantial in return for saving. It is essential to enable the CBL take the

appropriate measures to help correct the situation and avoid further problems that could discourage borrowing, slow investment and discourage savings.

This study will serve as an important decision making tool for the CBL as it will provide the CBL the information that will enable the CBL put in place proper regulatory framework to tackle the wide gap between lending and deposit rates, one of the major problems confronting the level of interments and other financial activities in the Liberian economy. Regulations have been seen as the best way of mitigating the consequences of the problems affecting financial sectors of many countries emanating from interest rate spread.

Financial intermediaries including banks, insurances companies, pension funds and others will also benefit from this study as information from other countries such as Ghana, Nigeria, Kenya amongst others regarding interest rate spread in other countries will be used to make Liberia's financial sector make use of relevant information and data to remain competitive with others financial intermediaries in these countries. Financial institutions always endeavor to remain competitive in the world of globalization and Liberia's financial sector, which recuperating from years of devastating will rely on data and information from foreign countries to make the necessary improvements in operations.

Customers, mainly depositors will benefit of this study as regulations put in place by the CBL to address the problems associated with interest rate spread to help alleviate the burden faced by customers who pay high interest rates on loans but receive less in return when they deposit with these financial institutions.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section provides a review of past studies or review the literature on interest rate spread. It also highlights findings by various studies on interest rate spread in other countries including the entire sub-Saharan African countries, Ghana, Nigeria, Kenya, Malawi, European and Caribbean countries.

2.2 Theoretical Background on Determinants of Interest rate Spread

2.2.1 Financial Intermediation

Financial intermediation is the process which involves firms with surplus funds depositing such funds to financial institutions who then lend to firms with deficits. According to Matthews and Thompson (2008); In the process of financial intermediation, certain assets/liabilities are transformed to different assets/liabilities. As such, financial intermediaries channel funds from economic units with surplus (savers) funds to economic units which have deficits (borrowers) and these intermediaries attract funds from individuals, businesses, and governments and charge rates on the funds transfer to compensate for the risk of holding the funds.

There are two types of financial intermediaries.

i) Banks

These are deposit financial institutions that advance loans directly to borrowers and include commercial banks, savings banks, credit unions, etc.

ii) Non-bank financial intermediaries

These types of intermediaries lend through purchase of securities and include insurance companies, pension funds and investment trusts that purchase securities, thus providing capital indirectly rather than advancing loans.

2.2.2 The Loanable Funds Theory

This is a flow theory that determines the interest rate by the interaction of demand for and supply of loanable funds or credit. It involves the linking of the interest rate with dissaving, investment and hoarding of funds sourced from government, businessmen and consumers, on the demand side with saving, dishoardings and bank money on the supply side from private individuals and corporate bodies. Hansen asserted that the loanable funds theory like the classical and the Keynesian theories of interest indeterminate unless the income level is already known.

2.2.3 Theory of Delegated Monitoring of Borrowers

This is one of the most influential theories in the literature on the existence of banks. Diamond (1984) is of the view that financial intermediaries act as delegated monitors on behalf of ultimate savers. Monitoring of a borrower by a bank refers to information before and after a loan is granted including screening of ongoing creditworthiness and ensuring that the borrower conforms to the contract.

A bank often has privileged information in the process because when it operates the client's current account then it can observe the flows of income and expenditures. This is most relevant in the case of small and medium enterprises (Mathew and Thompsons2008).

The basic idea behind the theory of delegated monitoring is that not all savers (depositors and the other creditors) have the time, inclination of or expertise to monitor institution borrowers for defaults risk. They engage in indirect finance through using an intermediary rather than direct financing.

Monitoring of borrowers involves increasing returns to scale which reinforces the view that it is efficiently performed by specialist intermediacy. The monitor must have an incentive to perform properly. One possibility is through reputational effects and banks have developed substantial amounts of repopulation capital as monitors of debt (loan) contracts issued to them by the borrowers that they fund and issue unmonitored debt (deposit) contract.

Banks are able to perform as delegated monitors and to transfer loan that require costly monitoring into deposits that do not depend critically on their use of portfolio diversification. If the bank is sufficiently diversified across independent loans with

expected repayments in excess of the face value of deposit then the probability of the bank defaulting on its deposit approaches zero. The theory shows that diversifying the loan portfolio enables low-cost delegated monitoring. A key element in this theory is the analysis and benefits of monitoring. The collection of private information by intermediaries results in some benefits from using this additional information in lending. The net demand for monitoring depends on the cost of monitoring which in turn depends on the number of lenders who contract with a given number of borrowers.

Regulation of financial intermediaries, especially of banks, is costly. There are the direct costs of administration and of employing the supervisors, and there are the indirect costs of the distortions generated by monetary and prudential supervision. Regulation however, may also generate rents for the regulated financial intermediaries, since it may hamper market entry as well as exit. So, there is a true dynamic relationship between regulation and financial production. Most of the literature in this category focuses on explaining the functioning of the financial intermediary with regulation as an exogenous force. Kane (1977) and Fohlin (2000) attempt to develop theories that explain the existence of the very extensive regulation of financial intermediaries in the dynamics of financial regulations.

2.2.4 Term Structure of Interest Rates

The term structure of interest rates measures the relationship among the yields on default-free securities that differ only in their term of maturity. The determinants of this relationship have long been a topic of concern for economists. By offering a complete schedule of interest rates across time, the term structure embodies the market's anticipations of future events. An explanation of the term structure gives a way to extract this information and to predict how changes in the underlying variables will affect the yield curve (Cox and, Ingersoll and Ross, 1985).

In a world of certainty, equilibrium forward rates must coincide with future spot rates, but when uncertainty about future rates is introduced the analysis becomes much more complex. By and large, previous theories of the term structure have taken the certainty model as their starting point and have proceeded by examining stochastic generalizations of the certainty equilibrium relationships. The literature in the area is

voluminous, and a comprehensive survey would warrant a paper in itself. It is common, however, to identify much of the previous work in the area as belonging to one of four strands of thought.

First, there are various versions of the expectations hypothesis. These place predominant emphasis on the expected values of future spot rates or holding period returns. In its simplest form, the expectations hypothesis postulates that bonds are priced so that the implied forward rates are equal to the expected spot rates. Generally, this approach is characterized by the following prepositions: (a) the return on holding a long-term bond to maturity is equal to the expected return on repeated investment in a series of the short-term bonds, or (b) the expected rate of return over the next holding period is the same for bonds of all maturities.

The liquidity preference hypothesis, advanced by Hicks (16), occurs with the importance of expected future spots rates, but places more weight on the effects of the risk preferences of market participants. If asserts that risk aversion will cause forward rates to be systematically greater than expected spot rates.

2.2.5 Exchange Rate Theories

Prior to the monetary-approach emphasis of the 1970s, it was common to emphasize international trade flows as primary determinants of exchange rates. This was due, in part, to the fact that governments maintained tight restrictions on international flows of financial capital. The role of exchange rate changes in eliminating international trade imbalances suggests that countries with current trade surpluses are expected to have an appreciating currency, whereas countries with trade deficits should have depreciating currencies. Such exchange rate changes would lead to changes in international relative prices that would work to eliminate the trade imbalance. With financial liberalization the volume of international trade in financial assets now dwarfs trade in goods and services. Moreover, in some instances where countries with trade surpluses have depreciating currencies, whereas countries with trade deficits have appreciating currencies. Economists have responded to such real-world events by devising several alternative views of exchange rate determination. These theories place a much greater emphasis on the role of the exchange rate as one of many prices in the worldwide market for financial assets (Assar Lindbeck, 1976).

2.2.6 The Asset Approach

Modern exchange rate models emphasize financial-asset markets. Rather than the traditional view of exchange rates adjusting to equilibrate international trade in goods, the exchange rate is viewed as adjusting to equilibrate international trade in financial assets. Because goods prices adjust slowly relative to financial asset prices and financial assets are traded continuously each business day, the shift in emphasis from goods markets to asset markets has important implications. Exchange rates will change every day or even every minute as supplies of and demands for financial assets of different nations change. An implication of the asset approach is that exchange rates should be much more variable than goods prices. This seems to be an empirical fact.

2.2.7 Sterilization

Sterilization refers to central banks offsetting international reserve flows to follow an independent monetary policy. Under the monetary approach to the balance of payments (with fixed exchange rates), if a country had an excess supply of money, this country would tend to lose international reserves or run a deficit until money supply equals money demand. If, for some reason, the central bank desires this higher money supply and reacts to the deficit by further increasing the money supply, then the deficit will increase and persist as long as the central bank tries to maintain a money supply in excess of money demand. For an excess demand for money, the process is reversed. The excess demand results in reserve inflows to equate money supply to money demand. If the central bank tries to decrease the money supply so that the excess demand still exists, its efforts will be thwarted by further reserve inflows persisting as long as the central bank tries to maintain the policy of a money supply less than money demand. The discussion so far relates to the standard monetary-approach theory with no sterilization.

If sterilization is possible, then the monetary authorities may, in fact, be able to determine the money supply in the short run without having reserve flows offset the monetary authorities' goals. This would be possible if the forces that lead to international arbitrage are slow to operate. For instance, if there are barriers to

international capital mobility, then we might expect international asset return differentials to persist after a change in economic conditions. In this case, if the central bank wants to increase the growth of the money supply in the short run, it can do so regardless of money demand and reserve flows. In the long run, when complete adjustment of asset prices is possible, the money supply must grow at a rate consistent with money demand; in the short run, the central bank can exercise some discretion.

2.2.8 Exchange Rate and the Trade Balance

If balance-of-trade deficits are financed by depleting domestic stocks of foreign currency, and trade surpluses are associated with increases in domestic holdings of foreign money, we can see the role for the trade account. If the exchange rate adjusts so that the stocks of domestic and foreign money are willingly held, then the country with a trade surplus will be accumulating foreign currency. As holdings of foreign money increase relative to domestic money, the relative value of foreign money will fall, or the foreign currency will depreciate. Although realized trade flows and the consequent changes in currency holdings will determine the current spot exchange rate, the expected future change in the spot rate will be affected by expectations regarding the future balance of trade and its implied currency holdings (Meade, Sohmen et all, 1976).

The various theories reviewed above support the existence of interest rate spread in the financial sector of Liberia as all the theories explain why financial sectors experience high interest rate spread.

2.3 Review of Empirical Studies

Aboagyeet all (2008) examined the short-run response of the net interest margin of banks to changes in bank specific, industry-specific and macroeconomic variables within the broad framework of Ho and Saunders (1981).They found that increases in the following factors significantly increase net interest margin — bank market power (or concentration), bank size, staff costs, administrative costs, extent of bank risk aversion and the rate of inflation.

The other study, Gockel and Mensah (2006), studied bank income statements over the period 1997–2004, and concluded that interest rate spreads in Ghana were higher than in many other jurisdictions and that operating costs of banks were the largest contributor to this spread.

Folawewo and Tennant (2008) examined the determinants of banking sector interest rate spreads in middle and low-income countries and used the determinants from previous studies to guide their choice of independent variables, but instead of focusing on the customary spreads or margins of individual banks, they examined the spreads for the banking sector as a whole. This allows for the use of actual interest rate data in the calculation of spreads, and gives a better understanding of the broad state of efficiency of financial intermediation in the countries studied, thereby more effectively highlighting the macro-implications of such. Based on the availability of data, they focused only on market (or industry-specific) and macroeconomic determinants of spreads.

Adebiyi and Babatope-Obasa (2004)empirically investigated the impact of interest rates and other macroeconomic factors on manufacturing performance in Nigeria using co-integration and an error correction mechanism (ECM) technique with annual time series covering the period between 1970 and 2002. Some statistical tools were employed to explore the relationship between these variables. The analysis starts with examining stochastic characteristics of each time series by testing their stationarity using Augmented Dickey Fuller (ADF) test. Then, the study estimates error correction mechanism (ECM) model.

Ngugi (2001) investigated the factors determining interest rate spread for Kenya's banking sector, for the pre-liberalization period, the minimum and maximum ceilings on deposit and lending rates set a maximum interest rate spread. Data used for the study consisted of monthly observations of Treasury bill rates, commercial bank loans and deposits, lending rates, deposit rates, inter-bank rates, provision for bad loans, and liquidity and cash ratios. These data were obtained from the Central Bank of Kenya. The sample runs from July 1991 to December 1999 for all data seta except the inter-bank rate, which is only available from April 1993. Estimating recursively a lending

and deposit rate model given by equations 14 and 15 captured interest rate elasticities. The models were estimated with log level variables to capture long-run trends. Co-integration tests were carried out to ensure long-run relationships.

Haron and Ahmad (2000) conducted a study on the Effects of convention interest rates and rate of profit on funds deposited with Islamic banking system in Malaysia. The study provides evidence regarding the relationship between the amount of deposits placed in the Islamic banking system in Malaysia and returns given to these deposits. The findings confirmed that customers who place their deposits at saving and investment account facilities are guided by the profit motive. The existence of the utility maximization theory among the Muslim customers is further confirmed by the negative relationship between the interest rate of conventional banks and the amount deposited in interest-free deposit facilities. Therefore the findings of this study are consistent with the earlier research conducted in Sudan, Jordan, Malaysia and Singapore.

2.4 Conclusion

A review of empirical studies indicate that there exists a huge gap between the proponents of the theories of financial interest rate spread and the determinants of interest rate spread in many countries studied. Several empirical studies established that the gap between the deposits and lending rates is affecting investment in many countries.

2.5 Determinants of Interest Rate Levels and Spread

2.5.1 Introduction

There are several factors that determine the levels of interest rate spread in the financial sector of Liberia and these factors will be discussed in detail in the following section of the study.

2.5.2 Demands for Bank Loans

In Liberia salaries and other incentives are not sufficient to enable the average member of the employed population own a home or a car, or live in some form of

luxury thereby leading to reliance on loans by those of the working class to meet their needs for comfort.

Banks enter into agreement with institutions both private and public to give out loans to their employees with the employer serving as a guarantee that they will ensure such individual; employee of their institution does not default on repayment. Lawrence Dweh 2010 in a survey established that nearly 95% of employees of autonomous commissions in Liberia including the GAC, National Port Authority, Liberia Maritime Authority, Liberia Petroleum refining Company, all prefer loans with higher salary structure than civil servants have acquired loan from banking institutions.

The General Auditing Commission of Liberia (GAC) one of the autonomous agencies of the Liberian Government of fairly good salary structure is one entity that entered into agreement with two banks since 2008 that enable its employees to access loans from Eco Bank Liberia and UBA.

In the agreement, the GAC send the salaries of its employees who have taken loans from either of these banks directly to the bank, the bank subtracts the fees for its loans before the employees can have access to the remaining portion. (GAC-Eco Bank Liberia agreement 2008).

2.5.2 Subprime Nature of Borrowers

Loaning in Liberia is a risky venture as it has been established that Liberians have a tendency of defaulting on the payment of loans. (Eco Bank Limited Loan Department, Annual Report 2008).

Commercial Banks have complained repeatedly that repayment of loans is very slow and risky therefore banks charge high interest rate to enable them collect a considerable portion of their principal amount within the early year to mitigate the risk of default in the succeeding payment period.

As a consequence of the risky nature of borrowers, the loaning process in Liberia has become bureaucratic requiring the CBL to give credit reference on every borrower before commercial banks give out loan. The CBL Credit Reference also protects banks from loaning to risky borrowers who are also indebted to other banks.

2.5.3 Overhead Cost of Operations

Banks in Liberia experience high overhead cost of operations-fixed and variable costs. Nearly all the banks are operating from rented buildings which add to their high cost of operations. Liberia lacks national and stable supply of electricity and financial institutions rely on generators which increases the cost of operations.

Further compounded by high salaries and incentives to executives and employees banks find themselves relying mainly on interest income generated from charges on loans to get the needed working capital for day to day operations. Interest on deposits is low and cannot make up for the high cost of operations, thereby leaving banks to use the high desire by many customers for loans to charge high interest rates.

2.5.4 Staff Cost

It is reasonable to expect that a bank with high staff and administrative expenses will pass these on to consumers in the form of wide margins, especially if the banking environment is not competitive. Occupancy and depreciation expenses do not impact net interest margin significantly. Theory suggests that benefits of putting in place modern technology will ultimately help banks lower costs (which may be passed on to customers) and serve customers better. Our results suggest that this is not yet being realized.

2.5.5 Market composition and Profitability

As the financial sector develops, greater institutional diversity is expected, together with diversification of the services offered. Although Liberia's financial sector can be described as being relatively diversified in terms of the number of financial institutions, banking services continue to dominate the sector.

Financial reform is expected to promote competitiveness in the banking sector, although policy changes, for example on entry requirements, tend to restrict entry. In the 1970s and 1980s, the development finance institutions (DFIs) and NBFIs were set up to offer long-term credit. By 1988, the number of NBFIs had almost tripled from the 1981 level, while commercial banks experienced a 50% growth. However, DFIs failed to deliver as expected—they faced management problems and also failed to

attain autonomy from government control in financing. The mushrooming of NBFIs was attributed to weaknesses in institutional infrastructure.

The situation changed in the 1988 with the review of the Banking Act aimed at strengthening the sector's institutional framework. However, this worked to further strengthen the position of the banks in the financial system. Thus, the observed structure of the financial sector has an historical as well as a policy dimension, and in the 1980s four banks continued to dominate the sector. With this outcome, it was necessary to liberalize the financial sector with the intention of stimulating it to become more dynamic.

2.5.6 Legal and Regulatory Framework

An adequate regulatory framework ensures stability of the financial system. The Central Bank is responsible for supervision. In Liberia, during the reform process that followed review of the Banking Act prudential regulations were tightened, while the supervisory role of the Central Bank was strengthened. Among the statutory requirements introduced were minimum liquid-asset and cash-balance ratios for the financial institutions. Functional efficiency is influenced by the regulatory and legal framework. The regulatory framework incorporates regulations by the monetary authority aimed at achieving financial stability.

Thus, in the liberalization process a major goal is to achieve financial stability by creating a strong regulatory framework. Financial instability with unsound and improperly supervised lending practices may result in high real loan rates and a widening spread because of an information asymmetry problem. With adequate supervision an increase in interest rate results in banks rationing out credit instead of taking on new borrowers. Imposing different regulatory guidelines for banks and non-bank financial institutions also results in financial sector instability by diverting intermediation into the informal, less regulated and less taxed part of the financial system.

The legal framework incorporates the adequacy of commercial law and the efficiency with which the judicial system makes and enforces legal decisions. Weaknesses in enforcement of financial contracts will create credit management problems so that the

premium charged on credit increases. This is because banks face a credit risk associated with their inability to make agreements that restrict the ability of the borrowers to divert funds away from the intended purpose, disclose accurate information on borrowers or make legal contracts easily enforceable. In addition, a weak legal system without clearly spelt out property rights hinders diversity of institutions thus denying them the opportunity to diversify risk. In their study, Demirguc-Kunt and Huizinga (1997), found that better contract enforcement, efficiency of the legal system and lack of corruption are associated with lower realized interest margins.

This is because they reduce the risk premium attached to the bank lending rate. As Fry (1995) showed, liberalization in the presence of inadequate prudential supervision and regulation magnifies the impact of exogenous shocks by accommodating distress borrowing. However, it is noted that in developing countries regulations tend to be on paper but in practice are not enforced consistently and effectively. Thus, expectations for a competitive banking sector and contract enforcement have become elusive.

Deposit insurance schemes are instituted to protect the depositors and maintain stability of the financial sector. However, insurance (explicit or implicit) promotes moral hazard and adverse selection problems. Fry (1995) argues that adverse selection arises with a deposit insurance scheme, especially if accompanied by high macro instability. In addition, banks seldom seek to reduce adverse selection in credit rationing, especially if there is a positive relationship between instability and returns on alternative bank financed projects.

With protection for depositors provided, banks choose riskier lending strategies, especially if macro instability produces strongly correlated outcomes. Thus, explicit insurance for the banking system should first of all make sure that the system is stable, regulated and has effective supervision, and then that it has an adequate depository fund. This fund should have some back-up support to cushion banks against periods of financial stress or shocks.

2.5.7 Macroeconomic and Market Determinants

Macroeconomic instability is both a cause and effect of banking-sector performance. It increases uncertainty and adversely impacts on the credit worthiness of the borrower, thus increasing the risk premium charged by banks on lending rates. This disrupts the supply of credit as demand declines, increasing the interest rate spread. Inflation, for example, is associated with a high interest margin as it creates uncertainty and therefore raises the risk premium charged. Similarly, low output prices and a slowdown in production and economic activity generally reduce the value of assets for collateral, and therefore the credit worthiness of borrowers diminishes. This pushes banks to charge higher lending rates to cover for default risk. In an environment where the exchange rate is volatile and the interest rates are sticky downward, expectations of exchange rate depreciation will result in higher lending rates. This widens the spread.

Anticipated inflation thus leads to increased interest rate spread. Cukierman and Hercowitz (1990) found that when the number of banking firms is finite, an increase in anticipated inflation leads to an increase in interest rate spread. As the number of banks approaches infinity, that is, as the number increases (competitive case), there is no correlation between interest spread and inflation as the spread tends towards marginal cost of intermediation with increasing number of banks.

2.5.8 Risk Factors

Banks are exposed to various risks (including interest risk, credit risk, foreign exchange risk and legal risk) as a result of uncertainty, information asymmetry and the policy environment. When banks old deposits and loans with unmatched maturities they are exposed to interest rate risk as they adjust to the available assets and liabilities at the end of the period by engaging in money and secondary-market operations or roll over the deposits. A decline in market interest rate lowers the present value of the outstanding amount of loan even if the credit risk is low. This is especially so when banks raise funds through short-term deposits to finance loans or purchase security with a longer maturity period, and thus leads to a significant increase in the volatility of market interest rate.

This is because the short-term interest rates are highly volatile and affected by nominal shocks. Banks are exposed to risk in the credit market as they do not know *ex ante* the proportion of loans that will perform. To cover this credit risk, banks charge a premium whose magnitude depends on the credit policy, the interest rate on alternative assets, amounts borrowed and types of client. This increases the effective rate to borrowers and may reduce the demand for loans. With an unstable macroeconomic environment, investors face increasing risks to their investments. In addition, if lending rates are also high, investors find it costly to finance their loans. As such, instability and an escalating interest rate increase credit risk and the level of nonperforming loans for banks, thus widening the spread.

Foreign exchange risk arises especially when banks borrow abroad, while legal risk is faced when the legal framework for collateral and bankruptcy is not clear. Liquidity risk arises if depositors demand to withdraw their funds leaving the banks with insufficient reserves, for example, when banks face a run as customers respond to a loss of confidence in the bank. On the other hand, banks earn zero income when holding cash and prefer to invest in order to earn some income. Decisions on the amount of excess reserves to hold relative to deposits will depend on the return on alternative uses of funds, so that the opportunity cost of holding excess reserves is the market rate (the rate that bank could obtain by lending or investing its funds). The higher the market rate, the lower the excess reserves; thus banks trade off between being caught with no funds and having to liquidate their assets. Banks can participate in the interbank market or use the repurchase agreement for government securities to reduce their liquidity risk. Considering risk management by banks, Zarruk (1989) found that risk averse banks operate with a smaller spread than risk-neutral banks. Thus, the expected size or scale of operation is larger in the case of risk aversion. Paroush (1994) showed that risk aversion raises the bank optimal interest rate and reduces the amount of credit supplied.

2.5.9 Chapter Summary

The previous chapter looked at review of literature of previous researches done in the area of interest rate spread in several countries including Ghana, Nigeria, a regional

research on interest rate spread in the sub-Saharan Africa, which Liberia, the country under study is located as well as similar research in Kenya, Malawi and a review of studies in European and the Caribbean. It was noted that the determinants of interest rate spread is similar in nearly all countries under study. Bank specific indicators including growth in bank assets, capital adequacy, operational efficiency, and liquidity, regulatory failure were amongst the key determinants outlined in many of the researches carried out on interest rate spread. In most developing countries including Liberia, due to high operating costs, financial taxation or repression, lack of a competitive financial/banking sector and macroeconomic instability, the interest rate spread is high according to a World Bank 2010 report.

In Ghana and Nigeria for example, separate researches came out with the same conclusion that increases in factors increase net interest margin — bank market power (or concentration), bank size, staff costs, administrative costs, extent of bank risk aversion and the rate of inflation are significant determinants of interest rate spread. In Kenya, another study on interest rate spread concluded that the size of bank, market structure, market imperfections, legal and regulatory framework, macroeconomic environment, risk factors, interest rate elasticities were amongst the determinants of interest rate spread in the financial sector.

Determinants of interest rate spread including risk factors, macroeconomic and Market determinants of Financial Sector Interest rate Spread, Legal and regulatory framework, Market composition and Profitability, high overhead cost of operations, subprime nature of borrowers, high demands for bank loans were discussed in details and are all responsible for the interest rate spread in Liberia's financial sector.

Several financial theories that support the existence of interested rate spread were also discussed in the previous chapter. The theory of financial intermediation, term structure of interest rates, delegated monitoring authority theory, loanable funds theory and the exchange rate theories were discussed in the chapter and all support the existence of interest rate spread in the financial sector of Liberia.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section of the research presents how data for this study was collected and provides summary statistics. It also highlights the methodology of gathering data followed by the estimation of results. Following the introductory comment, an overview of the Liberian financial sector was presented, followed by discussion on the literature on interest rates spread which serves as the framework for this study. Results of this study indicate to policy makers those variables that influence interest rate spread.

3.1.1 The Research design

Research design refers to the way a study is planned and conducted, the procedures and techniques employed to answer the research problem or question. Accordingly, a research design entails choosing the subjects who participate in the study, the techniques and approaches for collecting data from the subjects, and the procedures for collecting the information.

UNCRD (2004) argues that the main objective of a research design is to enhance validity of research findings by controlling potential sources of bias that may distort findings. In designing one, therefore researchers are normally guided by such key issues like the type of data being collected, method of data collection and purpose of the study, the research environment and time dimension.

To achieve the objectives of this study the research adopted a survey design. This is because it seeks to capture information on a nationwide phenomenon. The research used the qualitative and quantitative method of research in analyzing the data gathered for the study. This methodology is necessary because findings from previous studies showed that to capture the determinants of interest rate, all banks and lending institutions have to form part of the study.

3.1.2 Population and Sample

In every research, the population refers to the entire group of people, events or things of interest that a researcher wishes to investigate. The target population refers to the

complete group of specific population elements relevant to the research project. The target population for this study population includes the financial institutions that are involved in holding of deposits and lending. The population looks at all nine commercial banks in Liberia, microfinance institutions and credit unions .In Liberia it has been established that only commercial banks are involved in holding deposits and at the same time giving out loans, therefore they are the core of this study.

3.1.3 Data Collection

This study uses primary data refers to data collected directly through direct observation, interviews, questionnaires, etc for the purpose of the study. This study uses questionnaires to collect the primary data. They included semi-structured and unstructured (open-ended) questions and was admonished through drop and pick method to respondents. The structured questions were used in an effort to conserve time and money as well as to facilitate easier analysis as they are in immediate usable form.

The unstructured questions were used to encourage the respondents to give an in-depth response without feeling held back in revealing any information. With unstructured questions, a respondent's response may give an insight to his feelings, background, hidden motivation, interests and decisions and give as much information as possible without holding back. At the same time, with the use of structured questions, if the researcher is after information that he feels easier for administration purposes, he would use this method since the questionnaires and interviews are followed by alternative answers. According to Mugenda (2003) the pre-requisite to questionnaires design is definition of the problem and the specific study objectives. The study also uses interviews to unearth and get more information in order to increase the accuracy and reliability of the study.

3.1.4 Data Analysis

The data collected for this study was cleaned, edited and tested for completeness. This was done to ensure that the data used is adequately reflective, accurate and reliable for conclusion and realization of the research objective of this study. This study adopted mean, standard deviation, frequency, percentages to analyze descriptive data. The

analysis was done with the help of a Statistical package for social sciences (SPSS) version 17. Statistics such as mean, standard deviation, frequencies and percentages were used. The study used Pearson Correlation and Regression coefficients to establish the effect of the independent variables to the dependent variable.

3.1. 5 Data Validity and Reliability

The Information used in this study has been compiled from reliable and credible sources justifying the completeness and accuracy of the data used. All information contained in this research are from sources well quoted. Some information was obtained from reliable international journals and the validity of the information published are tied to institutions that carried out the publications. CBL sources and commercial banks sources were also quoted in the research. All opinions and estimates included in this report constitute prevailing variables as of the period covering the study and are subject to change by the entities involved based on existing conditions and variables without notice. The data included cannot remain the same since financial situations are dynamic and changes but they fully reflect the period during which the research was conducted.

3.1.6 Economic Model for Measuring Determinants of Interest Rate Spread

Based on the determinants of interest rate spread in the banking sector of Liberia which includes Demands for Bank Loans, Subprime Nature of Borrowers, Overhead Cost of Operations, Staff Cost , Market composition and Profitability, Legal and Regulatory Framework, Risk Factors, Macroeconomic Factors-Inflation, this research adopted the multiple regression analysis in drawing correlation between the dependent and variable independence variables

The study has no special research design and methodology of its own, for the collection and analysis of data but as a research it relied on existing rules of scientific methods and it utilized existing techniques. In using existing scientific methodology in this study, it is certain that the major goal of the research project was achieved. The model for the multiple regression analysis is:

$y_i = \alpha + \beta_i x_i + \beta_2 x_2 + \epsilon_i$

Where α is the intercept, β_i β_2 are the slopes, and ϵ_i is the error term, which picks up the unpredictable part of the response variable y_i. The error term is usually posited to be normally distributed. The *x's* and *y's* are the data quantities from the sample or population in question, α, β_i and β_2 are the unknown parameters ('constants') to be estimated from the data.

In this research however, the parameters had the following definitions of expressions:

α = Regression Coefficients (to be estimated) measures how much units of IRS changed with a unit change in the above independence variables.

$\beta_i\beta_2$= Regression Coefficients estimated measure how much units of IRS changed with a unit change in any of the independence variables. Most applications of regression models assume that all data used to construct the model and all data input to the model in production are accurate.

The research used the Statistical package for Social Sciences (SPSS) to estimate the result of the correlation between the variables.

3.1.7 Model Specification

The model adopted by this study is the multiple regression models. "Multiple regression" is a technique that allows many factors to enter the analysis separately so that the effect of each can be estimated. It is valuable for quantifying the impact of various simultaneous influences upon a single dependent variable. (Sykes, 1993)

Model used to show the relationship between IRS which is the dependence and DBL, SNP, OC, SC, and MCP which are the independence variables is shown below:

Y = f(H,S, u,)…………………………………………………………………………1

Y= f (HDBL, SNP, HOC, SC, MCP) …………………………………………...2

Y = IRS

DBL=demand for bank loan

SNP= subprime nature of borrower

OC=overhead cost

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SC= staff cost

MCP=the market composition and profitability

LRF=legal and regulatory framework

Let assume the production function of Cob- Douglas

$Y=\alpha DBL\ \beta\ SHP\beta^{-1}OC\beta^{-2}\ SC\beta^{-3}\ MCP^{-4}\ LRF^{-5}$**……………………………………….3**

$Y = IRS$

DBL= demand for bank

SNP= subprime nature of borrower

OC=overhead cost

SC= staff cost

MCP=the market composition and profitability

LRF=legal and regulatory framework

The interest of the studies established the relationship between interest rate spread and the above independence variables where Y is IRS, which is a main component of banks profitability and DBL, SNP,OC,SC MCP and LRF are the independence variables which were used to determine how IRS changes. Therefore, the model was restated as follow**:**

$Y=F\ (DBL+\ SNP+OC+C\ +\ MCP+LRF\textbf{,})$**………………………………………. 4**

$\textbf{Y=F (A}\ DBL_{\textbf{t1}}^{\textbf{ai}} + SNP_{t2}^{a2}+,OC_{t3}^{a3}{}_{+}\textbf{SC}_{\textbf{t4}}^{a3}MCP_{t5}^{a5}\ \textbf{)}$**………………………………5**

Therefore, the general multiple regression model is shown below:

$\textbf{InY}t=\alpha + \alpha_1\ \textbf{In}\ DBL_{t1} +\alpha_2\textbf{In}\ SNP_{t2}+ \textbf{a}_3\textbf{InOC} +\textbf{a}_4\ \textbf{InSC}_{t4\ +}\ \textbf{a}_5\textbf{InMCP}_{t5}$

Where:

Yt= natural log of IRS

DBL= natural log high demand for bank

SNP= natural log subprime nature of borrower

OC= natural log high overhead cost

SC= natural log staff cost

MCP= natural log market composition and profitability

LRF= nature log legal and regulatory framework

CHAPTER FOUR
DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This portion of the study analysis significant data collected during the course of data collection and provides interpretation of available data to support the conclusions and recommendation. Relevant data collected was analyzed using the requisite financial packages as stated in the methodology section of this research.

4.2 Data Presentation

A total of nine (9) commercial banks in Liberia responded to questionnaires seeking to ascertain the determinants of interest rate spread in the financial sector of Liberia. The research questionnaire was sent to all nine commercial banks and micro finance and credit unions in Liberia but credit unions and micro finance institutions did not respond as most of these institutions are said not be fully involved in provision of lending services to the general Liberian public but selected members and institutions. Out of the nine commercial banks, before the empirical model is estimated, the time-series properties of the variables, including the unit root tests and co-integration tests, are analysed. In succeeding sections of this study is a presentation of how the eight factors serving as determinants of interest rate spread in the financial sector of Liberia affect the gap between deposits and lending rates. Also the impact of all eight factors on the financial sector will be discussed in detail providing the respective of the nine commercial banks that responded to survey questionnaire distributed during the data collection stage of the study.

The data consist of factors that serve as determinants for the gap between lending and deposit rates in Liberia mainly commercial bank loans and deposits, lending rates, deposit rates, inter-bank rates, provision for bad loans, and liquidity and cash ratios. These data were obtained from the nine commercial banks of Liberia and the Central Bank of Liberia looking at eight (8) determinants demand for bank (DBL), subprime nature of borrower (SNP), overhead cost (OC) staff cost (SC), the market composition

and profitability (MCP), legal and regulatory (LRF) framework, Macroeconomic and Market Determinants (MMD) and Risk Factors (RF).

Estimating recursively a lending and deposit rate model given by equations 14 and 15 captured interest rate elasticities. The models were estimated with log level variables to capture long-run trends. Co-integration tests were carried out to ensure long-run relationships. Regression results are reported in Table 5.

Table 1: Regression results for the lending rate and deposit rate models

	Variable	Coefficient	t-statistic
Lending rate model Regression results	Constant	-0.7550	-5.0612
	LnDBL	0.2298	6.4662
	LnSNP	0.4098	6.5864
	LnOC	0.0439	6.3792
	LnSC	0.6902	7.6184
	LnMCP	-0.4883	-4.6893
	LnLRF	0.456	6.467
	R2	0.7478	
	F-statistic	11.3029	(0.0000)
Cointegration results	C	0.0002	0.8712
	$\square t-1$	-0.3175	-3.6524
Deposit rate model Regression results	Constant	-0.5545	-2.2300
	Lndeposit	0.0336	1.8847
	Lntbill	0.2307	3.3024
	Lncash	0.4790	4.7823
	Lnexliq	0.3665	4.7885
	Lninterbank	0.0273	2.7116
	R2	0.7532	
	F-statistic	12.2042	(0.0000)
Cointegration results	C	-0.0003	
	$\square t-1$	-3.4192	

Note: This table provides regression results of the models used in deriving the elasticities of deposits and loans to interest rates recursively. The models were estimated using log levels of the variables to capture the long-run relationship. The multiple Regression analysis is used to test for co-integration. The variables are Lntbill = log exchange rate; Lnexliq = log of excess liquidity measured as the

difference between the average and minimum liquidity ratio; Lncash = log of the cash ratio; Lndebt = log of bad debt provision as a percentage of the total loans; Lnloan = log of loans advanced; Lninterbank = log of inter-bank rate.

Table 5 reports summary statistics for the sample. The results show tremendous increase in spread when monetary policy was tightened, reducing marginally when monetary policy is relaxed. More variability is indicated with the tight monetary policy. This is explained by the increase in the lending rate with an average of about 9 percentage points as compared with 2 percentage points for deposit. In addition, interest rates increased by about 10% and saw excess liquidity that increased with more than 20 percentage points. When monetary policy is relaxed, spread increases marginally with about 1 percentage point. This is because the deposit rate recorded a 3% decline, while the lending rate declined by only 1% despite a fall in exchange rates between the Liberian and United States dollars by more than 8 percentage points. At the same time, the debt ratio increased, reflecting the growing nonperforming loans and the inter-bank rate went up by about 4 percentage points. The preliminary results thus show that the stickiness of the lending rate downward sustained the high interest spread.

Table 2: Summary statistics of determinants of interest rate spread

Variable	Year I	Year II	Year III
Spread	4.4723	12.4219	13.5202
Lending rate	18.3207	27.7299	26.3473
Deposit rate	13.8484	15.3080	12.8271
Debt ratio	0.0499	0.0798	0.1071
Foreign Exchange rate	17.4514	27.5780	19.4156
Excess liquidity	0.0245	0.2105	0.1921
Inter-bank rate	-	20.7094	16.0000
Growth in real deposits	0.0027	-0.0044	-0.0031
Growth in real loans	-0.0074	-0.0052	0.0044

Table 3: Unit root and cointegration results

Unit roottest	Variable	ADF statistic	Phillips–Perron
	Lending rate	-3.1292	-1.7862
	Treasury bill rate	-3.1741	-2.5964
	Bad debt ratio	-1.3152	-1.3322
	Excess liquidity	-2.1296	-1.8758
	Inter-bank rate	-2.9365	-2.4470
	Loan elasticity	-1.4128	-2.7536
	Deposit rate	-3.0720	-1.9812
	Real deposits	-2.9840	-5.2924
	Spread	-1.8734	-1.9108
	Real loans	-1.3747	-0.7790
Cointegrating factor	Variable	Coefficient	t-statistic
	Constant	0.3539	1.9347
	Bad debt ratio	0.2402	4.0987
	Real deposits	-0.0828	-3.1449
	Real loans	0.0588	3.0773
	Cash ratio	0.5881	11.8570
	Elasticity of loan	0.1570	3.4074
	R2	0.83	
	F-statistic	20.150	(0.0000)
Cointegration test results	Constant	-0.0003	-0.3677
	E-$t-$	-0.5200	-5.6014

Table 4: Preferred model

Variable	Coefficient	Standard error
Constant	0.0015	0.0013
Bad debt ratio	0.2760	0.1715
Real deposit	0.0948	0.0320
Excess liquidity	-0.1871	0.0868
Inter-bank rate	-.0153	0.0450
Elasticity of loan	-.0046	0.0135
Treasury bill rate	-0.1826	0.0455
Real loans	-0.1119	0.0349
Ecm(t-1)	-0.8456	0.1745
Seasonal	-0.0129	0.0082
Wald test X2 (9)	36.241	(0.0000)

This relationship may also be explained by the bank's attempt to maintain profit margins faced with a high level of non-performing loans, and declining earnings from the alternative source (treasury bills). This is supported by the positive relationship between the spread and bad debt provision, which means that faced with rising credit risk, banks kept lending rates high as they charged higher risk premiums to maintain their profits. Inter-bank rates take a negative sign in the short run, while an insignificant relationship is portrayed in the long run. However, a positive relationship is indicated with the deposit rate, which would imply that as net borrowers, banks in the long run opted to compete for more deposits from the public as they would offer lower interest rates compared with the interest rate charged at the inter-bank market. Banks were net borrowers in the interbank market because of the restrictions at the discount window, the increased implicit tax following the tight monetary policy and the slow growth in deposits.

The model predicts a positive relationship between the spread and the real loans, which reflects the positive relationship between the real loans and the lending rate. The magnitude of the relationship depends on the credit risk and the control the bank has in the credit market. Increased deposits depress the spread given the positive relationship between deposits and the deposit rate. However, deposits will reduce the

spread by a greater margin if the financial market is competitive and the implicit tax is low. The results show a positive relationship between the spread and the real loans which implies increased implicit costs, thus the positive relationship between the cash ratio and the lending rates. Consequently, the spread increases with increased real loans due to the increase in the lending rate as banks attempt to cover implicit costs by charging a premium on lending rates. A negative relationship is indicated by the real deposits, as banks increased their deposits by offering higher deposit rates (see results in Table 6).

4.2.1 Overhead Cost of Operations

Six of the nine commercial banks responded that overhead cost of operations is responsible for the high interest rate spread. Results are reported in **Appendix 2**.Banks in Liberia experience high overhead cost of operations-fixed and variable costs. Nearly all the banks are operating from rented buildings which add to their high cost of operations. Liberia lacks national and stable supply of electricity and financial institutions rely on generators which increases the cost of operations. Further compounded by high salaries and incentives to executives and employees banks find themselves relying mainly on interest income generated from charges on loans to get the needed working capital for day to day operations.

Interest on deposits is low and cannot make up for the high cost of operations, thereby leaving banks to use the high desire by many customers for loans to charge high interest rates. The six banks including United bank of Africa, International bank Liberia Limited, Afriland Bank Liberia, Access Bank Liberia Limited, Eco bank Liberia Limited and Guaranty Trust Bank indicated that the cost of running a generator as the major source of electricity in the absence of energy in Liberia is contributing to high expenditure as the cost of petrol coupled with maintenance work on generator and cost of labor for individuals who work on generators are all high cost affecting the total expenditure of the bank.

The banks indicated that the cost of operations accounts for more than 75% of their total monthly expenditure and therefore in order to make up for such huge expenditure, the fee collected from interest on loans is the best source of funding.

4.2.2 Sublime Nature of Borrowers

Three commercial banks including United Bank of Africa, Afriland Bank Liberia and Eco bank Liberia Limited also pointed out the sublime nature of borrowers, where many debtors default on payment as the major reason for the high interest rate spread. According to the three commercial banks, there is high risk that some debtors will default therefore the bank charges high interest rate to compensate for debtors who default **Table 1**.

This was crucial in order to understand the level of integration of the data series. If the data series is trended, this would provide reason to believe that there are persistence effects, such that the observed trend is an accumulation of historical effects from policy changes, market action or simply shocks. If the variables show trending, then further analyse the long-run properties. This is because it is anticipated that the variables to move together, so uncovering these long-run co-movements would allow us to model the short-run responses.

These two aspects are necessary if the integrated data are of an order greater than zero. First they purify the regression analysis and then make sure that the standard statistical distributions are valid and hence ensure validity in interpreting the regression parameters. The derived error correction term was defined as: This long-run relationship seems to capture the bank's supply of loans to customers and shows that this supply of loans is highly sensitive to availability of resources. It also indicates that the bank's investment in different assets is complementary and that rising spread increases the amount of loans supplied during financial distress, leading to a rise in loan interest rate. Thus, the disequilibrium in the loans market will widen the spread as it feeds back to the loan interest rate.

Theoretical expectations with regard to the explanatory variables show a positive relationship between deposits and spread, where the size of the coefficient depends on the level of implicit and explicit tax and the market structure, including market power in the deposit market and operational costs. As the market for deposits becomes more competitive, where the public is offered an opportunity to diversify portfolio

allocations, the deposits rate should rise as institutions attempt to capture their share of the public deposits, thus squeezing the interest rate spread.

4.2.3 Regulatory Framework

The Central bank of Liberia was the only respondent that cited regulatory framework as one of the factors contributing to the interest rate spread. High reserve requirements reduce the implicit costs and widen the spread as banks attempt to maintain their desired profit margin by imposing a higher premium on the lending rate. A positive relationship is expected between the loans and the spread, especially when the increased loans reflect financial distress. The CBL published information on bank charges in order to control the interest rate **Table 4.**

The CBL responded that it is contemplating adjusting the gap between lending and deposit interest rates, thereby reducing general and substandard provisions by one (1%) percent and five (5%) percent respectively. The CBL also indicated that the introduction of the CBL stimulus loan package of Five Million United States Dollars (US$5,000,000) to commercial banks at the rate of three (3%) percent for lending to Liberian business at the rate of not more than eight (8%) percent per annual **Appendix 2**.

A negative relationship may be established if the increased loans are met with lower interest rates, especially in a situation where banks face high excess reserves and the macroeconomic situation is right for investment, thus reducing the risk premium. In addition, a negative relationship may reflect increased customer confidence such that the bank charges less and less risk premium **Table 2**.

A positive relationship between the spread and the overall interest rate is expected given the negative relationship between the lending rate and deposits rate. These relationships indicate competition for financial assets and the incentive for investment or risk premium between the overall interest rate on the one hand and the lending and deposit rates on the other. The results indicate that disequilibrium in the loans market results in the spread adjusting upward by 14.3% every period.

The short-run results, however, seem to reflect various distortions in the market such that the responses are not driven by the fundamentals. For example, **Table 3** indicates that the spread swings up and down, and no clear relationship is apparent between the variables. The results give the coefficients different signs from those expected in the long-run relationship.

However, these are short-run results, which may be explained by various factors in Liberia's financial history and policy environment. These factors include the conversion of NBFIs to commercial banks, policy changes in interest rates introduced by the CBL market, macroeconomic instability, and increases in demands for bank loans. The conversion of NBFIs resulted in a shift of assets and liabilities to commercial banks and did not necessarily reflect the portfolio adjustment by the banks.

In the loan market the demand went up, while the interest rate also increased as the government announces balance of payment deficit. A reduced minimum investment resulted in competition for loans from the non-banking sector. A increasing interest rate meant that the banks' profit margin was being squeezed such that they had to maintain the margin by raising interest and non-interest charges on loans, thus increasing the spread.

The model explains only 51.4% of the variations in spread, however, while 48.6% are unexplained. The remainder may be attributed to institutional factors, including the weak legal and regulatory framework, a market structure that is not competitive and inefficient at the intermediation level, and a policy environment that compounds macroeconomic problems and risks.

4.2.4 Staff Cost

All the nine commercial banks staff cost as part of the overall cost of operations, combing it with the cost of electricity and other cost **Appendix 2**.Some stated that as result of the introduction of Automated Teller machine (ATM) and other electronic form of baking, the reliance on human labour has reduced considerably and therefore the banks do not rely much on human labour.

Some of the banks indicated that human labour is highly needed in their expansion efforts in rural counties of Liberia where customers are not knowledgeable on the sue of ATM and other electronic means of banking and therefore the bank does not use these electronic means of transactions, relying only on humans. It is reasonable to expect that a bank with high staff and administrative expenses will pass these on to consumers in the form of wide margins, especially if the banking environment is not competitive. Occupancy and depreciation expenses do not impact net interest margin significantly. Theory suggests that benefits of putting in place modern technology will ultimately help banks lower costs (which may be passed on to customers) and serve customers better. Our results suggest that this is not yet being realized.

4.2.5 Risk Factors

All the nine banks indicated that they face similar risk factors as interest risk, credit risk, foreign exchange risk and legal risk) as a result of uncertainty, information asymmetry and the policy environment. There is normal fluctuation in the exchange rate between the two main legal tenders in Liberia, the Liberian dollars and the United States dollars. Liberia trades in dual currency creating a situation where banks accept deposits in the two currencies therefore any downturn in exchange rate between the Liberian dollars and United States dollars affects the financial position of the banks.

When banks hold deposits and loans with unmatched maturities they are exposed to interest rate risk as they adjust to the available assets and liabilities at the end of the period by engaging in money and secondary-market operations or roll over the deposits. A decline in market interest rate lowers the present value of the outstanding amount of loan even if the credit risk is low. This is especially so when banks raise funds through short-term deposits to finance loans or purchase security with a longer maturity period, and thus leads to a significant increase in the volatility of market interest rate.

This is because the short-term interest rates are highly volatile and affected by nominal shocks. Banks are exposed to risk in the credit market as they do not know *ex ante* the proportion of loans that will perform. To cover this credit risk, banks charge a premium whose magnitude depends on the credit policy, the interest rate on alternative assets, amounts borrowed and types of client. This increases the effective

rate to borrowers and may reduce the demand for loans. With an unstable macroeconomic environment, investors face increasing risks to their investments. In addition, if lending rates are also high, investors find it costly to finance their loans. As such, instability and an escalating interest rate increase credit risk and the level of nonperforming loans for banks, thus widening the spread.

All the nine commercial banks rely on funding from institutions outside Liberia and as such they borrow in foreign currency such as United States dollars or euro and repaying these creditors becomes difficult since they accept depositors in Liberian dollars and will have to convert to foreign currencies to repay creditors. Decisions on the amount of excess reserves to hold relative to deposits will depend on the return on alternative uses of funds, so that the opportunity cost of holding excess reserves is the market rate (the rate that bank could obtain by lending or investing its funds). The higher the market rate, the lower the excess reserves; thus banks tradeoff between being caught with no funds and having to liquidate their assets. Banks can participate in the interbank market or use the repurchase agreement for government securities to reduce their liquidity risk.

4.2.6 Macroeconomic and Market Determinants

All nine commercial banks indicated that macroeconomic instability is both a cause and effect of banking-sector performance and the interest rate spread. It increases uncertainty and adversely impacts on the credit worthiness of the borrower, thus increasing the risk premium charged by banks on lending rates. The banks stated that this disrupts the supply of credit as demand declines, increasing the interest rate spread. Inflation, for example, is associated with a high interest margin as it creates uncertainty and therefore raises the risk premium charged.

Additionally, the banks noted that similarly, low output prices and a slowdown in production and economic activity generally reduce the value of assets for collateral, and therefore the credit worthiness of borrowers diminishes. This pushes banks to charge higher lending rates to cover for default risk. In an environment where the exchange rate is volatile and the interest rates are sticky downward, expectations of exchange rate depreciation will result in higher lending rates. This widens the spread.

4.2.7 Market Composition and Profitability

All the nine commercial banks indicated that the market composition is not favorable for profit making, naming, listing the number of customers and the income level of most customers as a factor. There are few functional industries and the Government of Liberia is the largest employers but employees salaries are low and does not make up for savings.

Government employees withdrawal their salaries at the end of every month and the banks only serve as the channel of payment of salaries to these employees, therefore there is no much money left for savings which can be used by banks to transact. Although Liberia's financial sector can be described as being relatively diversified in terms of the number of financial institutions, banking services continue to dominate the sector. All nine commercial banks are chase Government of Liberia transactions which is the major source of customer base and those who do not have Government contract revert to loaning and micro finance activities as their major source of business.

4.2.8 Demands for Bank Loans

The four main banks involved in loaning activities including Eco bank Liberia Limited, United Bank for Africa, Liberia Bank for Development and Investment and Afriland Bank stated that high demand for bank loans is a major factor in the interested rate spread. As a consequence of the default nature of debtors, banks only give out loans to borrowers who employers come out to stand as collateral giving banks the surety that they will get their money paid by their employees.

In this case, banks are assured of repayment and therefore give out loan but still with high interest rate as some of these employees sometimes resign their posts are dismissed, making it difficult for the bank to reclaim their borrowed funds. Nearly all commercial banks admitted that the higher the demand by borrowers for loans, they set the interest rate at the highest since borrowers are normally desperate for fund and can take loan no matter the interest rate charged.

4.3 Summary and Statement of Findings

The study on the determinants of interest rate spread in the financial sector of Liberia shows that there are eight major factors that responsible for the huge gap between lending and deposit rates by deposit taking and loaning institutions in Liberia. Eight factors including institutional factors like micro-market structures and policy actions explain substantial variations in interest rate spread. This is because of their impact on transaction costs and the compounding effect on risk and uncertainty in the market.

The economic model for measuring the relationship between the independent variables and dependent variable: $LnYt = \alpha + \alpha_1 Ln\ DBL_{t1} + \alpha_2 Ln\ SNP_{t2} + a_3 LnOC + a_4 LnSC_{t4} + a_5 LnMCP_{t5} + LnLRF_{t6} + LnMMD_{t7} + LnRF_{t8}$

$LnYt = Ln6.4662 + Ln\ 6.5864 + Ln6.3792 + Ln7.6184 + Ln-.6893 + Ln6.467 + Ln6.053 + Ln6.4553$

Variable	Constant	Coefficient
LnDBL=	0.2298	6.4662
LnSNP=	0.4098	6.5864
LnOC =	0.0439	6.3792
LnSC =	0.6902	7.6184
LnMCP=	-0.4883	-4.6893
LnLRF=	0.456	6.467
R2	0.7478 or 75%	

The coefficient of determination which measures the strength of the relationship between the eight factors and interest rate spread is 75.32%. This means that 75.32% of the gap between deposit and lending rates can be explained by the eight factors.

Demand for bank loans impacted the interest rate spread by 6.4% as most of the banks involved in loaning activities stated that the demand for bank loans increased over the last four years. Subprime Nature of Borrowers accounted for 6.5864% of the gap between lending and deposits interest rates with a coefficient of 0.4098. The Legal and Regulatory framework in which commercial banks in Liberia operate had a coefficient of 0.456 and contributed to 6.467% of the interest rate gap.

Over head cost of operations by banks led to the lending and deposit rates of 0.0439 in variable coefficient and accounted for 6.3792% of the widening interest rate gap. Staff cost also had a 0.6902 influence on the interest rate, totaling 7.6184%. Micro Economic factors recorded -0.4883 and -4.6893% of the interest rate gap. Macroeconomic and Market Determinants recorded the highest reason for the wide gap in interest rate along with risk factors. MMD recorded 0.867 and 6.053% while risk factors also recorded 0.456 and 6.4553% the highest contributing factor to the wide gap between deposits and lending rate.

Performance in the loans market reflects a macroeconomic environment in which stability serves to reduce the risk premium and ensure positive returns for investment, thus reducing the credit risk. High implicit taxes increase the spread through the lending rate as the banks aim to maintain their profit margins with growth in real loans rising gradually by -0.0074 in period one, -0.0052 in period two and 0.0044 in period three. At the same time, an attractive interest rate on loan in a noncompetitive market compels banks to reallocate their asset portfolio and invest in risk-free assets. This weakens the intermediation processes. The high interest rate on lending is beneficiary to commercial banks. Deposits increased by 13.8484% in period one, 15.3080% in period two and 12.8271% in period three.

Fiscal policy actions saw an increase in interest rates and high inflationary pressure that called for tightening of monetary policy. As a result, banks increased their lending rates but were reluctant to reduce the lending rate when the CBL announced decline in interest because of the declining income from loans. Exchange rate between the two main currencies traded, the Liberian and United States dollars rose by 17.4514% in period one, 27.5780% in period two and 19.4156% in period three. They responded by reducing the deposit rate, thus maintaining a wider margin as they left the lending rate at a higher level. Thus there was an asymmetric response of lending rates to interest rate changes rates. High implicit costs were realized with the tight monetary policy, which was pursued with increased liquidity and cash ratio requirements. Consequently, banks kept a wide interest rate spread even when inflationary pressure came down.

Fiscal and monetary policy actions should also target development of the financial market. For example, fiscal discipline is identified as a prerequisite for successful financial liberalization, while monetary policy using indirect policy tools rather than the reserve requirement reduces the implicit costs faced by banks. Further stability of macroeconomic conditions and growth of the economy are imperative for the enhanced performance of the financial market.

Six of the nine commercial banks responded that overhead cost of operations is responsible for the high interest rate spread. The six banks including United bank of Africa, International bank Liberia Limited, Afriland Bank Liberia, Access Bank Liberia Limited, Eco bank Liberia Limited and Guaranty Trust Bank indicated that the cost of running a generator as the major source of electricity in the absence of energy in Liberia is contributing to high expenditure as the cost of petrol coupled with maintenance work on generator and cost of labor for individuals who work on generators are all high cost affecting the total expenditure of the bank.

Three commercial banks including United Bank of Africa, Afriland Bank Liberia and Eco bank Liberia Limited also pointed out the sublime nature of borrowers, where many debtors default on payment as the major reason for the high interest rate spread. According to the three commercial banks, there is high risk that some debtors will default therefore the bank charges high interest rate to compensate for debtors who default.

The Central bank of Liberia was the only respondent that cited regulatory framework as one of the factors contributing to the interest rate spread. High reserve requirements reduce the implicit costs and widen the spread as banks attempt to maintain their desired profit margin by imposing a higher premium on the lending rate. A positive relationship is expected between the loans and the spread, especially when the increased loans reflect financial distress.

The CBL responded that it is contemplating adjusting the gap between lending and deposit interest rates, thereby reducing general and substandard provisions by one (1%) percent and five (5%) percent respectively. The CBL also indicated that the introduction of the CBL stimulus loan package of Five Million United States Dollars (US$5,000,000) to commercial banks at the rate of three (3%) percent for lending to

Liberian business at the rate of not more than eight (8%) percent per annual. All the nine commercial banks staff cost as part of the overall cost of operations, combing it with the cost of electricity and other cost. Some stated that as result of the introduction of Automated Teller machine (ATM) and other electronic form of baking, the reliance on human labour has reduced considerably and therefore the banks do not rely much on human labour. Additionally, all the nine banks indicated that they face similar risk factors as interest risk, credit risk, foreign exchange risk and legal risk) as a result of uncertainty, information asymmetry and the policy environment.

There is normal fluctuation in the exchange rate between the two main legal tenders in Liberia, the Liberian dollars and the United States dollars. Liberia trades in dual currency creating a situation where banks accept deposits in the two currencies therefore any downturn in exchange rate between the Liberian dollars and United States dollars affects the financial position of the banks.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This section of the study provides a summary of major findings during the course of the research, taking into account key factors outlined by respondents to sample questionnaire distributed to the population under study.

It will also recommend the way forward for addressing the problems facing the financial sector of Liberia in terms of the huge gap between interest rate on deposit and lending, a key indicator of the effectiveness of the financial system. Additionally, research gap in the area under study will be highlighted for further research opportunities.

Using a multiple regression technique, this study analysed factors behind the widening gap in interest rate in the financial sector of Liberia and find that most of the variables have a significant impact on interest rate spread.

The study of indicators shows that market fundamentals and institutional factors influence interest rate spread. Similar results come from the Liberian market structure analysis. However, due to data limitations and difficulties in capturing institutional factors, as with all empirical models having an institutional dimension, empirical analysis has been limited to observable fundamentals. Thus, as stated earlier, the empirical model explains 51.4% of the variation in spread and leaves 48.6% unexplained—a potential area for future research work to explain the residual effects. The results show that:

Disequilibrium in the loans market is a major factor in propelling the widening of interest rate spread. There are also feedback effects from the other fundamentals to the loans market. The factors that drive the interest rate spread are availability of deposits, alternative investment channels for banks and the ease of portfolio adjustment at the end of the period.

5.2 Conclusions

The study aimed to examine the factors determining interest rate spread for the Liberian financial sector. For the pre-liberalization period, the minimum and maximum ceilings on deposit and lending rates set a maximum interest rate spread. Variations in the spread reflect monetary and fiscal policy actions, where expansionary fiscal policy partly increased inflationary pressure and the monetary authority responded by tightening the monetary policy and revising interest rates upwards. During the post-liberalization period, the spread to narrow to reflect efficiency gains and reduced transaction costs with the removal of distortionary policies and strengthening of the institutional set-up.

However, Liberia's experience indicates a widening spread in the post-liberalization period.

The results show that the interest rate spread increased because of yet-to-be gained efficiency and high intermediation costs. The increase in spread in the post-liberalization period stemmed from the failure to meet the prerequisites for successful financial reforms and the lag in adopting indirect monetary policy tools and reforming the legal system.

Variations in the interest spread are attributable to bank efforts to maintain threatened profit margins. For example, banks that faced increasing credit risk as the proportion of non-performing loans went up responded by charging a high risk premium on the lending rate. High non-performing loans reflect the poor business environment and distress borrowing, which is attributed to the lack of alternative sourcing for credit when banks increased the lending rate, and the weak legal system in enforcement of financial contracts.

Fiscal policy actions saw an increase in interest rates and high inflationary pressure that called for tightening of monetary policy. As a result, banks increased their lending rates but were reluctant to reduce the lending rate when the central bank of Liberia announces that interest rate be reduced because of the declining income from loans. They responded by reducing the deposit rate, thus maintaining a wider margin as they left the lending rate at a higher level. Thus there was an asymmetric response

of lending rates to interest rates. High implicit costs were realized with the tight monetary policy, which was pursued with increased liquidity and cash ratio requirements. Consequently, banks kept a wide interest rate spread even when inflationary pressure came down.

5.3 Policy Recommendations

In the light of these conclusions, some policy recommendations that would follow logically from them can be outlined:

The legal system of Liberia should be reformed to enhance the enforcement of financial contracts. This would work as an incentive for banks to invest in information capital, thus reducing the information asymmetry problem. Consequently, the proportion of nonperforming loans will be reduced hence lower risk premium attributed to credit risk. In addition, efforts should be made to revitalize the growth of the economy and to attain macro stability in order to increase the return on investment and reduce uncertainty.

It is necessary to strengthen the institutional framework, including review of the regulatory and legal framework. This should target enhancing confidence among depositors and investors and strengthening enforceability of loan contracts.

As a result, this will enhance stability in the financial sector and reduce costs of capital to investors. It should also serve to strengthen the supervisory and monetary control role of the Central Bank and will avoid the current conflict between monetary and fiscal policy in the use of open market interest rate. At the same time, there is an urgent need to strengthen the credibility of monetary policy. This also allows the financial sector to gain stability and thus reduce risk to investors. Enhancing enforcement of contracts would also reduce risk premium in the financial sector.

Macroeconomic stability is vital for a successful financial liberalization process, thus policy actions should be taken to ensure sustainable growth of the economy. Stability of key prices, including the exchange rate, commodity prices and interest rates, is crucial. This will stimulate high investment returns and reduce the credit risk, consequently reducing the risk premium tagged on loan interest rate. In addition, it

would discourage banks from non-intermediation activities while enhancing the move towards an equilibrium position in the loans market.

Implicit taxes should be kept at minimal levels by maintaining low reserve- and cash-requirement ratios. This will ensure that lending rates are kept down as banks endeavour to maintain their profit margins. Banks should perform more of the intermediation process than investing in short-term loans, and this could be achieved by re-aligning loans with other returns on short run financial assets and pushing for competitiveness in the market. The end result will be to force banks to divert their efforts to investing in information capital, thus reducing the moral-hazard and adverse-selection problems that are compounded by poor monitoring and evaluation of the investment projects.

Conduct of monetary policy should be in line with the goals of financial-sector reform and the conduct of monetary policy should support financial-sector growth. This can be achieved by using the main instrument of monetary policy, that is, the interest rate. So far it has worked to discourage financial intermediation and to turn banks into short-term deposit-taking institutions. Fortunately, some banks have recently realized that this route has weakened their operations and are reverting to long-term finance.

5.4 Limitations of Study

This study experienced numerous bottlenecks as it could not gather information from Micro Finance and credit union institutions two of the financial intermediaries that also engage in loan and their transactions affect the interest rate spread.

Due to the inability of micro finance and credit unions to respond to questionnaires distributed to them, the study was only able to gather and analyze data gathered from the nine commercial banks in Liberia and these were used to form conclusions on the interest rate spread in the Liberian financial sector.

The study was also limited by the failure of commercial banks to provide quantities data about the monetary cost of their cost of operations and figures of their expenditure on the determinants of interest rate spread that justifies the gap between lending and deposits rates. All the banks only selected the factors that serve as determinants of interest rate spread without attaching the extent to which these factors

serve as determinants for the wide gap in the difference between deposit interest rate of 2% and lending interest rate of 12% and above.

The nine commercial banks also did not respond timely in filling out questionnaires send to them thereby delaying the time for the conclusion of the study. Due to the distance Liberia is from Kenya, the filled questionnaires were also mailed by DHL taking days to arrive in Nairobi from Monrovia, impacting the completion of the study.

5.5 Suggestions for Further Research

For a more encompassing and exhaustive empirical analysis, disaggregated financial data, especially for the banking subsector are required. These data are required in order to capture factors such as: Credit risk, i.e. the level of non-performing loans, Market power, Transaction costs, Banks' adjustment strategies at the end of the period, Interest rate risk as reflected in loan-term structure and available deposit facilities, an in-depth study on institutions and risk analysis.

In addition, it would be interesting to examine the information content of the spread in terms of forecasting macroeconomic variables such as investment, inflation and growth. What is the relationship between the bank interest rate margin and growth of the economy? What is the implication of widening spread on investment and mobilization of savings? These are questions that should be addressed in future given the importance of the subject for the financial market.

This paper, its results, conclusions and policy recommendations is a first step towards a comprehensive analysis of the financial sector in Liberia. A healthy and competitive financial sector is crucial for stimulating, supporting and sustaining growth in the economy, with the private sector and fiscal and monetary authorities being an integral part.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

SECTION A: COMMERCIAL BANKS

1. What institution (s) are you are working in?

First International Bank Liberia Limited	[ ]
Guaranty Trust Bank	[ ]
International Bank Liberia Limited	[ ]
Liberia Bank for Development and Investment	[ ]
Access Bank Liberia Limited	[ ]
Eco Bank Liberia Limited	[ ]
Global Bank Liberia Limited	[ ]
Afriland Bank Liberia	[ ]
United Bank of Africa	[ ]
Microfinance	[ ]
Credit Union	[ ]

2. Which of the following factors do you think is or are responsible for the high interest rate spread in the financial sector of Liberia? Note that

1=strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree and 5=Strongly Agree

	1	2	3	4	5
Demands for Bank Loans	[ ]	[ ]	[ ]	[ ]	[ ]
Subprime Nature of Borrowers	[ ]	[ ]	[ ]	[ ]	[ ]
Overhead Cost of Operations	[ ]	[ ]	[ ]	[ ]	[ ]
Staff Cost	[ ]	[ ]	[ ]	[ ]	[ ]
Market composition and Profitability	[ ]	[ ]	[ ]	[ ]	[ ]
Legal and Regulatory Framework	[ ]	[ ]	[ ]	[ ]	[ ]
Risk Factors	[ ]	[ ]	[ ]	[ ]	[ ]

Macroeconomic Factors-Inflation   [ ]   [ ]   [ ]   [ ]   [ ]

3. Which of the below factor (s) is the major contributing factor to the interest spread charged by the bank in which you are working? Note 1=low scale; 2=moderate scale; 2=very low scale; 3=high scale; 4=very high scale; 5=highest scale

	1	2	3	4	5
Demands for Bank Loans	[ ]	[ ]	[ ]	[ ]	[ ]
Subprime Nature of Borrowers	[ ]	[ ]	[ ]	[ ]	[ ]
Overhead Cost of Operations	[ ]	[ ]	[ ]	[ ]	[ ]
Staff Cost	[ ]	[ ]	[ ]	[ ]	[ ]
Market composition and Profitability	[ ]	[ ]	[ ]	[ ]	[ ]
Legal and Regulatory Framework	[ ]	[ ]	[ ]	[ ]	[ ]
Risk Factors	[ ]	[ ]	[ ]	[ ]	[ ]
Macroeconomic Factors-Inflation	[ ]	[ ]	[ ]	[ ]	[ ]

4. What is the interest rate charged on your loans?

11%   [   ]

12%   [   ]

13%   [   ]

14%   [   ]

Other   [   ]

Section B: Loan Supervision Department CBL

1. Do you think the CBL has in place the proper regulation on interest rates?

Yes   [ ]

No   [ ]

To Some extent   [ ]

2. Is the CBL effective in Monitoring banks on interest rates?

Yes   [ ]

No   [ ]

3. Which of the following does the CBL see as a reason for the huge gap between deposits and lending rates? Note 1=low scale; 2=moderate scale; 2=very low scale; 3=high scale; 4=very high scale; 5=highest scale

	1	2	3	4	5
High Demands for Bank Loans	[ ]	[ ]	[ ]	[ ]	[ ]
Subprime Nature of Borrowers	[ ]	[ ]	[ ]	[ ]	[ ]
High Overhead Cost of Operations	[ ]	[ ]	[ ]	[ ]	[ ]
Staff Cost	[ ]	[ ]	[ ]	[ ]	[ ]
Market composition and Profitability	[ ]	[ ]	[ ]	[ ]	[ ]
Legal and Regulatory Framework	[ ]	[ ]	[ ]	[ ]	[ ]
Risk Factors	[ ]	[ ]	[ ]	[ ]	[ ]

3.   Are the current interest rates charged on loans and deposits fair?

Yes   [ ]

No   [ ]

4. The current interest rates structure is benefiting the banks at the detriment of borrowers

Strongly Agree   [   ]

Agree   [   ]

Neutral   [   ]

Disagree   [   ]

5. Is the CBL contemplating adjusting the gap between lending and deposit interest rates?

Yes   [   ]

No   [   ]

Appendix II: Commercial Banks Interest Rates

TABLE 1: Consolidated Financial Charges of the Commercial Banks as At December 31, 2011 and Current For The Month of January 2012

Commercial Banks	UNITED BANK FOR AFRICA		ECOBANK (EBLL)	
	LR$	USD	LR$	USD
I**. Prime Lending rates**	10%	10%	10%	9.00%
II. Key Lending Rates				
1.Overdrafts	15%	15%	12%-13.25%	11%-13.25%
2. Terms Loans:				
2.1 Up to 12 Months	10%-15%	10%-15%	12%-13.25%	11%-13.25%
2.2 Over 12 Months	10%-15%	10%-15%	12%-13.25%	11%-13.25%
3. Personal Loans				
3.1 Normal	10%-15%	10%-15%	12%-13.25%	11%-13.25%
3.2 Installment	10%-15%	10%-15%	12%-13.25%	11%-13.25%
4. Mortgage				
4.1 Housing	N/A	N/A	12%-13.25%	11%-13.25%
4.2 Other Construction	N/A	N/A	12%-13.25%	11%-13.25%
III. Deposit Rates				
1.Current	N/A	N/A	N/A	N/A
2.Saving	1.5%-2%	1.5%-2%	2%	2%
3.Time	2%-3%	2%-3%	N/A	2%-3%
3.1 Up to a Month	2%	2%	2%	2%
3.2 Up to 3 Months	2%	2%	2%	2%
3.3 3-6 Months	2%	2%	2%	2%
3.4 Over 6 Months	2%	2%	2%	2%
4.0 Certificate of Deposits				
4.1 Up to 3 Months	N/A	N/A	N/A	N/A
4.2 3-6 Months	N/A	N/A	N/A	N/A
4.3 Over 6 Months	N/A	N/A	N/A	N/A

Source: www.cbl.lr.org, 2012

TABLE 2: Consolidated Financial Charges of the Commercial Banks as At December 31, 2011 and Current For The Month of January 2012

Commercial Banks	GLOBAL BANK (GBLL)		AFRILAND (AFBL)	
	LR$	USD	LR$	USD
I. **Prime Lending rates**	10%	10%	10%	10%
II. Key Lending Rates				
1.Overdrafts	10%-15%	10%-15%	13%-14%	13%-14%
2. Terms Loans:				
2.1 Up to 12 Months	10%-15%	10%-15%	12%-14%	12%-14%
2.2 Over 12 Months	10%-15%	10%-15%	12%-14%	12%-14%
3. Personal Loans				
3.1 Normal	10%-15%	10%-15%	10%-13%	10%-13%
3.2 Installment	10%-15%	10%-15%	10%-13%	10%-13%
4. Mortgage				
4.1 Housing	10%-15%	10%-15%	12%-14%	12%-14%
4.2 Other Construction	10%-15%	10%-15%	12%-14%	12%-14%
III. Deposit Rates				
1.Current	0%	0%	N/A	N/A
2.Saving	2%	2%	2.25%	2.25%
3.Time				
3.1 Up to a Month	2%	2%	N/A	N/A
3.2 Up to 3 Months	2%	2%	N/A	N/A
3.3 3-6 Months	3%	3%	N/A	N/A
3.4 Over 6 Months	5%	5%	2.25%	2.25%
4.0 Certificate of Deposits				
4.1 Up to 3 Months	0%	0%	N/A	N/A
4.2 3-6 Months	0%	0%	N/A	N/A
4.3 Over 6 Months	0%	0%	2.25%	2.25%

Source: www.cbl.lr.org, 2012

TABLE 3: Consolidated Financial Charges of the Commercial Banks as At December 31, 2011 and Current For The Month of January 2012

Commercial Banks	ACCESSBANK (ABLL)		FIRST INT'L BANK (FIB)		GURANTY TRUST BANK	
	LR$	USD	LR$	USD	LR$	USD
I. **Prime Lending rates**	0	0	9%	9%	10%	10%
II. Key Lending Rates						
1.Overdrafts	0	0	13.25%	13.25%	12%	12%
2. Terms Loans:						
2.1 Up to 12 Months	0	0	13.25%	13.25%	10%	10%-12%
2.2 Over 12 Months	0	0	13.25%	13.25%	10%	10%-12%
3. Personal Loans						
3.1 Normal	0	0	13.25%	13.25%	N/A	10%-13%
3.2 Installment	72%	72%	13.25%	13.25%	N/A	10%-13%
4. Mortgage						
4.1 Housing	N/A	N/A	N/A	N/A	N/A	N/A
4.2 Other Construction	N/A	N/A	N/A	N/A	10%	10%-12%
III. Deposit Rates						
1.Current	N/A	N/A	N/A	N/A	N/A	N/A
2.Saving	2.60%	2.60%	1.5%	1.5%	0.5%-2%	0.5%-2%

3.Time	0%	3.0-3.5%	2.5%-5%	2.5%-5%	2%	2%
3.1 Up to a Month	0%	3.0-3.2%	2.5%-5%	2.5%-5%	2%	2%
3.2 Up to 3 Months	0%	3.0-3.2%	2.5%-5%	2.5%-5%	2%	2%
3.3 3-6 Months	0%	3.1-3.3%	2.5%-5%	2.5%-5%	2%	2%
3.4 Over 6 Months	0%	3.2-3.5%	2.5%-5%	2.5%-5%	2%-2.5%	2%-2.5%
4.0 Certificate of Deposits						
4.1 Up to 3 Months	N/A	N/A	5%	5%	N/A	N/A
4.2 3-6 Months	N/A	N/A	5%	5%	N/A	N/A
4.3 Over 6 Months	N/A	N/A	5%	5%	N/A	N/A

Source: www.cbl.lr.org, 2012

TABLE 4: Consolidated Financial Charges of the Commercial Banks as At December 31, 2011 and Current For The Month of January 2012

Commercial Banks	INT'L BANK (IBLL)		LBDI	
	LR$	USD	LR$	USD
I. **Prime Lending rates**	11%	11%	12%	12%
II. **Key Lending Rates**				
1.Overdrafts	11%-13.25%	11%-13.25%	14.25%	14.25%
2. Terms Loans:				
2.1 Up to 12 Months	11%-12%	11%-12%	14.25%	14.25%
2.2 Over 12 Months		11%-15%	14.25%	14.25%
3. Personal Loans				
3.1 Normal	11%-15%	11%-15%	14.25%	14.25%
3.2 Installment	11%-15%	11%-15%	14.25%	14.25%
4. Mortgage				
4.1 Housing	11%-15%	11%-15%	12%-14.25%	12%-14.25%
4.2 Other Construction	11%-15%	11%-15%	12%-14.25%	12%-14.25%
III. Deposit Rates				
1.Current	0	0	N/A	N/A
2.Saving	2%	2%	2%	2%
3.Time	-	-	2%	2%
3.1 Up to a Month	0%	0%	2%	2%
3.2 Up to 3 Months	0%	0%	2%	2%
3.3 3-6 Months	0%	0%	2%	2%
3.4 Over 6 Months	0%	0%	2%	2%
4.0 Certificate of Deposits				
4.1 Up to 3 Months	0%	2.2%	2%	2%
4.2 3-6 Months	0%	2.5%	2%	2%
4.3 Over 6 Months	0%	3%	2%	2%

Source: www.cbl.lr.org, 2012