AN INVESTIGATION OF ASSET LIABILITY MANAGEMENT PRACTICES IN KENYA COMMERCIAL BANKS

BY

PETER IRUNGU/MACHARIA
D53/OL/13405/2004

RESEARCH PAPER SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND FINANCE IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER IN BUSINESS ADMINISTRATION OF KENYATTA UNIVERSITY.

OCTOBER 2011
**Declaration**

This research proposal is my original work and has not been presented for a degree or any other examination in any other university or any other award.

Signed ...........................................  Date ...........................................

Peter Macharia  
D53/OL/13405/2004

**Declaration by the Supervisor**

I confirm that the work reported in this research project report was carried out by the candidate under my/our supervision

Supervisor ...........................................  Dr. Martin O Mbewa

Signature ...........................................  Date 10/10/11

Lecturer supervising for or on behalf of the Kenyatta University

Chairman, Department of Finance  
Mr. Fredrick Ndende

Signature ...........................................  Date 24 NOV 2011
Dedication

This study is dedicated to my wife Eva Ngina for her love, support and encouragement during the entire duration of the course.

Further dedication is to my parents Stanely Macharia and Joyce Macharia for their great sacrifice in educating me and for teaching me the discipline and value of education.

I also dedicate this piece of work to my son Quensay Macharia. This piece of literature will be a source of motivation for hard work when he become of age.
Acknowledgements

The undertaking and completion of this research work was made possible by a number of people, to whom I am profoundly grateful. I am particularly indebted to my supervisor Dr Martin Mbewa for his guidance, encouragement and giving proper direction in the course of the research. I am grateful to the School of Business, Kenyatta University, who faithfully imparted their knowledge and experience throughout the course.

I will also not forget the support of my classmates of the MBA 2007 especially Mercy, Karanja, Munene and Onyango for their encouragement and support.

Further vote of thanks goes to all other people whom I have not mentioned but who in one way or another contributed to the successful completion of this research paper.

Despite all this able assistance, the views expressed in this paper are my own and do not represent the views of any of the named person(s) or institution(s). I solely bear the responsibility of any errors and/or omissions.

Thank you all and may God bless you.
### List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALCO</td>
<td>Asset/ liability Management Committee</td>
</tr>
<tr>
<td>ALM</td>
<td>Asset/ liability management</td>
</tr>
<tr>
<td>RSA</td>
<td>Risk sensitive Assets</td>
</tr>
<tr>
<td>RSL</td>
<td>Risk Sensitive Liabilities</td>
</tr>
<tr>
<td>VAR</td>
<td>Value at Risk</td>
</tr>
<tr>
<td>MIS</td>
<td>Management Information Systems</td>
</tr>
<tr>
<td>RMP</td>
<td>Risk Management Programmes</td>
</tr>
<tr>
<td>FPT</td>
<td>Funds Transfer Pricing</td>
</tr>
<tr>
<td>WBG</td>
<td>Wholesale Borrowing Guidelines</td>
</tr>
<tr>
<td>NIM</td>
<td>Net Interest Margin</td>
</tr>
<tr>
<td>NII</td>
<td>Net Interest Income</td>
</tr>
</tbody>
</table>
Operational Definition of Terms

Asset: In a bank, loans, investment securities (government bonds, municipal bonds), and claims against other banks. Loans account for the largest portion of interest earning assets held by banks and thrift institutions. Also included in this category are Federal Funds sold to other banks; checks in the process of collection.

Asset Liability Management: Refers to risk management practices in commercial banks.

Commercial Bank: An institution accepts deposits and pools those funds to provide credit, either directly by lending, or indirectly by investing through the capital markets. Within the global financial markets, these institutions connect market participants with capital deficits (borrowers) to market participants with capital surpluses (investors and lenders) by transferring funds from those parties who have surplus funds to invest (financial assets) to those parties who borrow funds to invest in real assets.

Liability: Money deposited with a bank becomes a liability of the bank, because the bank has an obligation to pay the depositor the money deposited; usually on demand.

Head of Treasury: The person responsible for managing risk limits and counter parties across product lines, monitor and ensure that all treasury activities are done based on the approved procedures, develop product procedures for Treasury and provide professional Treasury Management for the funds and liabilities of the organization.

Risk: is the potential that a chosen action or activity (including the choice of inaction) will lead to a loss (an undesirable outcome). The notion implies that a choice having an influence on the outcome exists (or existed).

Risk Management: is the identification, assessment, and prioritization of risks as the effect of uncertainty on objectives, whether positive or negative followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities.
List of tables

Table 1-Model gap assessment .................................................................22
Table 2-Ranking of the six mail banking risks in commercial banks in Kenya......43
Table 3-Responses on hedging instruments used by the banks .........................45
Table 4-Extent of applicability of ALM terms to commercial banks in Kenya...47-48

List of figures

Figure 1 -Conceptual Framework.................................................................36
Figure 2- Possession or not of risk management departments..........................42
Figure 3- Derivatives used by banks and their frequencies.............................46
Figure 4- Hedging strategies employed.......................................................52
Figure 5- Approaches adopted in hedging....................................................53
Figure 6- Distribution of micro and macro hedge........................................54
Abstract

Risk management practices in commercial banks are commonly known as asset liability management and it remains critical in ensuring safety of depositors’ funds as well as investors’ stake. Asset liability management is a requirement by the Central Banks of any country in order to ensure full compliance to the set risk management guidelines. This study was designed to establish the asset/liability management practices by Commercial Banks in Kenya and to find out the extent of asset-liability management by these banks. The study will be important to commercial banks, scholars and it will contribute more knowledge to the existing information on asset liability management.

The population under study comprised of all Heads of Treasury Operations of the 43 Commercial Banks in Kenya. Census study was used because the population was relatively small for sampling and gave a better representation of the various risk management practices employed by various commercial banks as well as their asset liability management practices. Each respondent filled and submitted a self administered questionnaire that was dropped and picked later.

The questionnaire responses were summarized and the results analyzed using Statistical data analysis programme (SPSS) to describe the relationship between the dependent and the independent variables. Findings were presented by way of charts, graphs and tables.

Several deductions were drawn from the findings. These included: responding banks employed both conventional and bank-specific asset liability management practices. Most banks considered credit/default risk to be the most critical of all financial risk exposures though some empirical evidence shows that foreign exchange risk is the most critical risk for most firms. Majority of the banks did not find the Kenyan currency market to be information efficient: speculation and forecasting techniques were extensively used by most of them. Regular and systematic appraisal of asset/liability management policies was a common practice amongst most banks. Most banks also indicated that their asset/liability management systems were governed by guidelines set by the management board which is a cross functional outfit covering all the major functions in the bank this showed that ALM is a highly strategic issue in the banks

Most banks, regardless of their size, extensively utilized most of the conventional hedging instruments. Micro hedge approach, accounting and economic exposure measurement strategies,
natural hedging and diversification were some of the most utilized strategies. Some hedging practices were considered by most banks to be more important than others. These included use of forward contracts and foreign currency options as hedging instruments, and use of matching/natural hedging strategy.
Table of Contents

Declaration .............................................................................................................. ii
Dedication ............................................................................................................... iii
Acknowledgements ............................................................................................... iv
List of Abbreviations ............................................................................................. vi
Operational Definition of Terms ........................................................................... vii
Abstract ................................................................................................................... ix
Table of Contents .................................................................................................. 1

CHAPTER ONE: INTRODUCTION .......................................................................... 4
1.1.0 Background .................................................................................................... 4
  1.1.1. Problem Statement ..................................................................................... 9
  1.1.2. General Objective ..................................................................................... 10
  1.1.3. Specific Objectives of the Study ................................................................. 10
  1.1.4. Research Questions ................................................................................... 10
  1.1.5. Significance of the Study .......................................................................... 10

CHAPTER TWO: LITERATURE REVIEW ................................................................. 12
2.1.0 Introduction ................................................................................................... 12
  2.1.1 Evolution of Asset Liability Management ..................................................... 13
  2.1.2 Asset Management ..................................................................................... 14
  2.1.3 Liability Management ............................................................................... 15
  2.1.4 Asset-Liability Management/Balance Sheet Risk Management: ................. 15
2.2.0 Organizational Structure of Asset Liability Management .............................. 16
  2.2.1 The Key Roles and Responsibilities of the ALM Desk .................................. 16
2.3.0 Scope of Asset/Liability Management .......................................................... 17
  2.3.1 Balance Sheet Risk .................................................................................... 17
  2.3.2 Market Risk Management ......................................................................... 17
  2.3.3 Portfolio Risk Management ...................................................................... 18
  2.3.4 Interest Rate Risk ...................................................................................... 19
  2.3.5 Measuring Asset/Liability Gap Exposure ..................................................... 20
  2.3.6 Managing Interest Rate Risk ..................................................................... 23
  2.3.7 Credit Risk ................................................................................................ 24
  2.3.8 Credit Risk and Interest Rate Risk .............................................................. 25
  2.3.9 Liquidity Risk Management ...................................................................... 25
  2.3.10 Yield Curve Risk ...................................................................................... 26
CHAPTER ONE: INTRODUCTION

1.1.0 Background

Asset/Liability management is the overall management of the balance sheet. It comprises of strategic planning and implementation as well as control processes that affect the volume, mix, maturity, interest rate sensitivity, quality and liquidity of a bank’s assets and liabilities, Greuning (2003). According to Gardner and Mills (1994), asset/liability management is the management of net interest margin to ensure that its level and riskiness are compatible with the risk/return objectives of that particular institution; where net interest margin is the ratio of interest income to total assets. Hermanson, Edwards and Maher (1992) describe assets as economic resources that an organization own which are expected to bring in future cash inflows or help reduce future cash outflows.

Assets can have physical properties like plant and machinery, buildings, land and even motor vehicle. They similarly may be just rights to act such as the right to collect amounts from customers who are also known as debtors, the right to recoup a prepaid sum from a supplier. According to Imdieke (1986), liabilities are economic obligations of an organization to outsiders or claims against the assets of an organization by outsiders. Liabilities exist as a source of assets (resources). They include long-term loans, short-term creditors and accrued-expenses, that is, overdue expenses. They are a company's legal debts or obligations that arise during the course of its business operations. These are settled over time through the transfer of economic benefits including money, goods or services. Liabilities are recorded on the balance sheet/statement of the financial position (right side) and they include: loans, accounts payable, mortgages, deferred revenues and accrued expenses.

Liabilities are a vital aspect of a company's operations because companies use them to finance operations and pay for large expansion undertakings. They can also make transactions between businesses more efficient. For instance, the outstanding amounts of money that a company owes to its suppliers would be considered a liability. Current liabilities are obligations payable within a period of one year, while long-term liabilities are obligations, which fall due for payment in periods longer than one year.
Gardner and Mills (1994) pointed out that Asset-Liability Management seeks to manage the volume, mix and maturity, rate sensitivity, quality and liquidity of assets and liabilities as a whole in order to earn a predetermined and acceptable risk/return ratio. In this regard therefore, it means that Asset Liability Management is not concerned with managing individual asset or liability elements on their own rather it’s a strategic process involving strategic decision-making with strategic objectives. According to Frank Wood (2000) a balance sheet is a financial statement that summarizes a company's assets, liabilities and shareholders' equity at a specific point in time. These three balance sheet segments give investors an idea as to what the company owns and owes, as well as the amount invested by the shareholders/owners. The balance sheet usually follows the following formula: \( \text{Assets} = \text{Liabilities} + \text{Shareholders' Equity} \).

It's called a balance sheet because the two sides balance out. This is justified by the fact that an entity has to finance the resources that it own or hold (assets) by either borrowing the finances (liabilities) or getting it from shareholders (shareholders' equity).

It is noted in Frank Wood (2000) that each of the three segments of the balance sheet will have many accounts within it that document the value of each (assets, liabilities, shareholders’ equity). Accounts such as cash, inventory and property are on the asset side of the balance sheet, while on the liability side are accounts such as accounts payable and long-term debt. The exact accounts on a balance sheet will vary from company to company and by industry, as there does not exist one standard template that accurately accommodates for the differences between different types of businesses. The balance sheet is one of the most important pieces of financial information issued by a company. He says it is a snapshot of what a company owns and owes at that point in time.

The income statement, on the other hand, shows how much revenue and profit a company has generated over a certain period.

**The Concept of Asset/Liability Management**

Commercial banks essentially intermediate between the opposing liquidity needs of depositors and borrowers. Fabbozi (1999) conducted a study on measuring and controlling interest and credit rate using linear programming and found that the main function of banks is to intermediate between other parties in which process, they operate
with an underlying mismatch between highly liquid liabilities on one side and the less liquid and long-term assets on the other side of the balance sheet.

Beyond this balance sheet conflict the banks also stand exposed to a wide array of risks. In risk management guidelines (2005), it is noted that a financial institution is subject to various types of risks including the market risk, credit risk, interest rate risk, liquidity risk, forex risk and many other risks in the industry and economy. In Basel II report (2004), it is similarly noted that in the wake of new developments in economies and the financial sector in particular, it has become difficult to predict with certainty the interest rates and therefore the spread for banks. It is also worth noting that in the various reform actions, banks have been exposed to competition especially the present day operating environment that is increasingly deregulated and the Net Interest Margin (NIM) is set to fluctuate. A study carried out in India by Ravindran (2005) using ARIMA and GARCH models studied exchange rate forecasting and found that several changes in the financial sector have put pressure on banks requiring strategies to be employed rather than ad hoc fire-fighting solutions. The changes identified in this study included the deregulation of interest rate, introduction of several new financial products and use of information technology. Asset-Liability Management has been viewed as the most appropriate tool to use in this environment since it is a strategic hedging method in which several risk elements are commonly managed. Asset/liability management is deemed most appropriate, as a risk management tool in present day operations because today several factors affect an organization together both from in and outside its structures. Due to the number of such factors and at times the magnitude of their effects, it is expensive and sometimes not possible to identify and hedge each risk separately.

Banks are exposed to various risks and these risks affect their short-term profits, the long-term earnings and the long-run sustenance capacity and therefore the Asset Liability Management model should primarily aim to stabilize the adverse impact of the risks on the institutions benefits, Rose (1980). Sinkey (1992) identified that depending on the primary objective of the model, the appropriate parameter should be selected. He further noted that the most common parameters for Asset Liability Management in banks include: Net Interest Margin (NIM), which is the ratio of net interest income to total assets. It measures the impact of volatility on the short-term profits; hence if a bank has
to stabilize its short-term profits, it will have to minimize the fluctuations in the NIM; Market Value of Equity (MVE) which represents the long-term profits of the bank. A bank has to minimize adverse movement in this value due to interest rate fluctuations. In the case of unlisted banks, the difference between the market value of assets and liabilities will be their target account. Economic Equity Ratio, which refers to the ratio of the shareholders funds to the total assets, is another parameter and is the measure of the shifts in the ratio of owned funds to total funds. This in fact assesses the sustenance capacity of the bank.

The Asset Liability Management is all about efficient management of balance sheet dynamics with regard to its size, constituents and quality. More specifically, it is the process of managing the Net Interest Margin (NIM) within the overall risk bearing ability of a bank Gardner and Mills (1994) found. They further noted that the entire asset/liability management process depends on the understanding of the balance sheet, the availability, accuracy, adequacy and expediency of the data and the MIS system of a bank. Banks in the US pioneered Asset Liability Management, but its usage has spread to other industries Gardner and Mills (1994) stated. They also found that the vast quantity of assets controlled by institutions, changes introduced by deregulation in the 1970s and challenges posed by globalization in the financial markets and information technology sparked the growing interest in asset/liability management. It was introduced by banks in the US in the mid 1970s following deregulation of interest rates, which compelled banks to undertake active planning for the balance sheet structure.

In the financial sector in Kenya where banks are actively involved, liberalization has notably led to a transition in the risk profile of these financial intermediaries. This together with other changes in the operating environment has occasioned pursuit of strategic approaches to management. It is in this context that Asset Liability Management is expected to have been introduced in Kenyan banks as a risk management tool basing on the trend that similar conditions introduced it in the USA and India. In Ravindran’s study of (2005) he explains that traditionally, banks used accrual system of accounting for all their assets and liabilities. They would take on liabilities - such as deposits, life insurance policies or annuities then invest the proceeds from these liabilities in assets
such as loans, bonds or real estate. All these assets and liabilities were held at book value. He notes that doing so disguised possible risks arising from the way the assets and liabilities were structured. Greuning (2003) has added that today, the treasuries of most banking institutions depend on the market quotations for certain products such as foreign exchange rates which are not independently determined.

Asset Liability Management has been associated with those assets and liabilities, those business lines that are accounted for on an accrual basis. Accrual basis is used to account for items that are in a system of continuous operation but with divisions into specific time periods such as the life of a loan or a deposit in a bank that is a going concern. These include bank lending and deposit taking which are their assets and liabilities respectively. In Ravindran (2005) it is noted that increasingly, managers of financial firms have focused on asset-liability risk. The problem in this has not been that the value of assets might fall or that the value of liabilities might rise, rather it has been that capital might be depleted by the narrowing of the difference between assets and liabilities and that the values of assets and liabilities might fail to move in tandem. He also identifies that one way to measure the direction and extent of asset-liability mismatch is by using gap analysis. The analysis derives its name from the “gap” which is the difference between the amounts of Rate Sensitive Asset (RSA) and Rate Sensitive Liabilities (RSL). According to his study, managing this “gap” is in large part what Asset Liability Management is all about. The goal of the Asset Liability Committee (ALCO) in many banks is to price and market loans and deposits in such a way as to eliminate the gap.
1.1.2. General Objective
The general objective of this study was to investigate asset liability management practices in Kenya Commercial Banks.

1.1.3. Specific Objectives of the Study
Specific objectives of this study included the following;

1. To establish the asset/liability management practices by commercial banks in Kenya
2. To identify types of risks facing commercial banks in Kenya
3. To establish tools used to monitor asset -liability exposure/balance sheet exposure in Kenya
4. To give policy recommendations based on (1 to 3 above)

1.1.4. Research Questions
1. What is the effect of asset liability management practices in commercial banks in Kenya?
2. What are the various risks facing commercial bank operations in Kenya?
3. What are the monitoring tools of asset liability / balance sheet exposure in Kenya?

1.1.5. Significance of the Study
This study is expected to benefit the banks in appreciating the concept of asset-liability management and to bring to light the extent of its adoption as a risk management tool.
Asset Liability Management concept in this study based on the Kenyan environment is expected to attract more attention by financial researchers and scholars to study more on the tool of risk management in Kenya and Africa.
Much information is lacking in the strategic approach to risk management in Kenya especially outside the banks treasuries. In the view of this deficit, this study seeks to
avail more information on the area of asset-liability management or what is sometimes called strategic banking risk management.
CHAPTER TWO: LITERATURE REVIEW

2.1.0 Introduction

Volatile global markets, proliferations of new financial products and changing regulatory environments have made Asset-Liability Management (ALM) a critical task for banks today. It is therefore becoming increasingly important to define measure, monitor and manage a financial institution’s exposure to foreign exchange, interest rate and liquidity risks on a coordinated and consistent manner.

Greuning (2003) has asserted that asset/liability management (ALM) as coordinated management of a bank’s balance sheet to allow for alternative interest-rate and liquidity scenarios. The focus of Asset Liability Management in the short run is net interest income (NII) or its ratio form net interest margin (NIM). In Rose (1989), the focus of asset/liability management is described in terms of faces where two faces exist: an accounting one that emphasizes on net income (short-run) and an economic one that stresses the value of bank equity in the long-run). The approach adopted is this study is an accounting approach, which looks at the bank’s NII as the product of unexpected changes in interest rates and its dollar gap. This gap is the difference between rate sensitive assets (RSA) and rate sensitive liabilities (RSL).

According to Ravindran (2005), Asset Liability Management has evolved over the years from simple maturity “gapping” procedures to market-based procedures that incorporate the use of more sophisticated means for managing and hedging interest, liquidity and credit risks. Today's financial climate requires many banks to operate in certain markets that may be heavily influenced by events far from their local economy. With the increased complexity of operating in a global environment, an effective asset/liability management process is critical to long-term success; scope of the Asset Liability Management function.
2.1.1 Evolution of Asset Liability Management

Gardner and Mills (1994) used a multivariate analysis to conduct a study on risk classification for residential mortgage loans. He found that until the 1970s the business of banking consisted of extension of credit which was a simple intermediation of deposits that had been raised at a relatively low cost; and bank managers faced fairly simple decisions concerning loan volumes, pricing and investments. Greuning (2003) noted that the key managerial challenges of the past were controlling asset quality and the resulting loan losses, as well as managing of overhead expenditures, and that With the background of recession, volatile interest rates and inflation during the late 1970s and early 1980s, the management of both assets and liabilities became necessary in order to maintain satisfactory margin performance. He notes further that the complexity of balance sheet management also continued to increase due to the deregulation in the 1980s, with growing competition for funds becoming a primary management concern.

The era of deregulation and competition continued further in the 1990s and this environment underscored the need for competitive pricing and for an increase in engagement of liabilities in a manner that would result in spread maximization as well as controlled exposure to related risks. The inverse relation in these two goals called for a balancing act between spread maximization and controlling the risk exposure in financial management and in regulation and supervision of banks. In Sinkey (1992) using regression analysis conducted a study on commercial bank financial management and found that asset/liability management was earlier carried out in a fragmented manner throughout the institutions (banks, savings & loan, insurance companies and thrifts). He further pointed out that different Asset Liability Management activities were carried out at different levels. For example, planning for capital was done by the corporate finance department, risk management by the treasury group, investment functions by the investment planning group and so on. Hence, the exercise was carried out in a disjointed manner and was functions-specific. These fragmentations lead to different approaches, logical applications and methodologies being adopted. The Asset Liability Management function has emerged as a discipline in its own right. With professionals and top senior level managing this exercise, it is no longer fragmented.
2.1.2 Asset Management

Assets held by commercial banks can be classified into Primary reserves, secondary reserves, bank loans and investments, according to Kidwell (1990). Primary reserves refer to cash assets on a bank’s balance sheet. They consist of vault cash, deposits with correspondent banks, and deposits with the central bank. They are immediately available at no cost to the bank to accommodate deposit withdrawals. He specified that because they yield no interest, banks try to minimize their holding.

Secondary reserves on the other hand are short-term assets that can be converted quickly into cash at a price near their purchase price. In his view, their main purpose is to provide the bank with additional liquidity while safely earning interest income. This group is composed of treasury bills, and short-term securities. They are highly marketable and have low default risk but they yield below loans and other investments in a bank holding.

Bank loans are loans made to business firms and individuals by banks. They are usually less liquid and riskier than other bank assets therefore they carry the highest yield of all bank assets and offer greatest potential for profits.

In Sinkey (1992) it was pointed that the primary function of an investment portfolio is to provide income and tax advantage to the bank rather than liquidity. Open market investments are typically long-term securities that are less marketable and have higher default risk than secondary securities. Investments offer greater income potential to banks. Investments for income include long-term treasury securities, municipal bonds and agency securities. Greuning (2003) also said that the proportion of liquid assets that a bank should hold is a question of whether profitability or liquidity is preferred.

The high proportions of primary and secondary reserves mean greater liquidity. These highly liquid assets unfortunately have low returns. Kidwel (1990) concluded that the overall bank strategy is therefore to hold minimum amounts of primary and secondary reserves consistent with bank safety. The total amount of primary and secondary reserves a bank hold is related to deposit variability, other sources of liquidity, bank regulations and the risk posture of the bank management.
2.1.3 Liability Management

According to Kidwel (1990), liability management supports the argument that banks can use the liability side of the balance sheet for liquidity generation. He says that historically, banks have treated liabilities as a pool of funds in their short-run periods of operation under which the banks target asset growth as given by the market then adjust their liabilities to suit this provided growth. Liability management assumes that certain types of liabilities are very sensitive to interest rate changes thus by manipulating the rates paid in liabilities; a bank can attract funds or allow funds to go from them. In Schoeb, (2006) it is identified that Bank liabilities include negotiable certificates of deposit, repurchase agreements; commercial paper and Eurodollar borrowings (rate sensitive securities). Other bank liabilities that include savings deposits and demand deposits are non-rate sensitive and changes in interest rates therefore do not result in immediate inflows or outflows of funds. According to Sinkey, (1992), liability management allows banks to reduce their secondary reserves and invest the funds in higher yield assets. He adds that it is best suited for large money markets. Since there are times when banks cannot attract or retain funds through liability management, it does not seem to be the solution to bank liquidity problems.

2.1.4 Asset-Liability Management/Balance Sheet Risk Management:

In Greuning (2003), it is stated that balance sheet management involves the raising and utilization of funds and this lies in the heart of a bank. It comprises strategic planning and implementation and control processes that affect the volume, mix, maturity, interest rate sensitivity, quality and liquidity of a bank’s assets and liabilities. According to Schoeb (2006), the primary goal of asset-liability management is to produce a high quality, stable, large, and growing flow of net interest income. This goal is accomplished by achieving the maximum combination and level of assets, liabilities and financial risk. Asset Liability Management calls for the understanding of the interaction between the various types of risks to ensure that they are not evaluated in isolation.

In Elements of Asset Liability Management it is noted that an important component of an acceptable Asset Liability Management function is the development of an appropriate
Asset Liability Management policy. It is again pointed in this document that policies provide boundaries for decision-making and represent the philosophies and attitudes of an institution's board of directors. Directors should assure themselves through their policies that decisions are not being made without measuring and considering the exposure of earnings and capital to potential interest rate movements.

2.2.0 Organizational Structure of Asset Liability Management

In Bangladesh Bank Focus Group report (2003), the Asset Liability Committee (ALCO) is responsible for balance sheet (asset/liability) risk management in banks. Managing the asset liability is the most important responsibility of a bank as it runs the risks for not only the bank, but also the thousands of depositors who put money into it. The report further explains that the responsibility of Asset Liability Management is on the treasury department of the bank. Specifically, the Asset Liability Management (ALM) desk of the Treasury Department manages the balance sheet. The results of balance sheet analysis along with recommendation is placed in the Asset Liability Committee meeting by the Treasurer where important decisions are made to minimize risk and maximize returns.

2.2.1 The Key Roles and Responsibilities of the ALM Desk

In Bangladesh Bank Focus Group report (2003), it was noted that the Asset Liability Management desk at the treasury should basically: To assume overall responsibilities of Money Market activities, manage liquidity and interest rate risk of the bank, to comply with the local central bank regulations in respect of bank’s statutory obligations as well as thorough understanding of the risk elements involved with the business and to understanding of the market dynamics i.e. competition, potential target markets etc. it is also expected to provide inputs to the Treasurer regarding market views and update the balance sheet movement and to deal within the dealer’s authorized limit.
2.3.0 Scope of Asset/Liability Management

2.3.1 Balance Sheet Risk

Balance sheet risk can be categorized into two major types of significant risks, which are liquidity and interest rate risks. Changes in market liquidity and or interest rates exposes banks/ business to the risk of loss, which may, in extreme cases, threaten the survival of institution; risk management, state bank of Pakistan, (2006). As such, it is important that senior management as well as the directors must understand the existence of such risk on the balance sheet and they should ensure that the structure of the institutions' business and the level of balance sheet risk it assumes are effectively managed, that appropriate policies and procedures are established to control and limit these risks, and that resources are available for evaluating and controlling interest rate risk.

2.3.2 Market Risk Management

According to Greuning (2003), market risk is the risk that a bank may experience loss due to unfavorable movement in market prices. The exposure results in from speculative positions (proprietary trading) or banks market making (dealer) activities. Market risk factors include: interest rate, exchange rate, equity prices and commodity prices. Market risk applies to both standard instruments: equity instruments, commodities, money and currencies; and derivative instruments: options, equity derivatives, currency and the interest rate derivatives. He also noted that the presence of institutional investors such as pension funds, insurance companies, or investment funds impacts greatly on the structure of the market and on market risk. These investors can easily adjust their large-scale stable liquidity trades.

Measuring Market Risk

A simplistic approach can be taken which treats every market to which the bank is exposed as a separate entity without taking into account the relationships that may exist among the various markets, noted Greuning (2003). He points again that a more comprehensive approach assumes risk assessment from a consolidated perspective. Risk is based on probabilistic events therefore no single measurement tool can capture the
multifaceted nature of market risk a modeling technique is applied though as Value at Risk (VaR).

Value at Risk is a modeling technique that measures a bank aggregate market risk exposure and estimates the amount a bank would lose if it were to hold specific assets for a certain time period with a given probability level. A Value at risk model should cover risks as interest rate, currency, equity and commodity and option positions. These models use parameters as holding period, historical time horizon at which risk factor prices are observed, confidence interval that allow the prudent judgment on protection level. In the same site it is clarified that different organizations use different techniques or formulas for calculating VaR. VaR is denominated in a currency, say Kshs. where it measures the chance of losing Kshs. for a movement in interest rates for a given balance sheet scenario. For example, if a bank only has 1 month borrowing to fund 1-year customer lending, an increase in 1-month rates would result in incremental expense for the bank since the bank will have to pay more to its lenders in interest.

2.3.3 Portfolio Risk Management

The nature of market risk requires a constant management attention and adequate analysis, Greuning (2003); in his analysis of portfolio risk, acknowledges that policies may vary among banks yet some common policies to all banks also exist including: Marking to market which refers to repricing of a banks portfolio to reflect changes in asset prices in the market. For example, suppose that yesterday you bought a futures contract on oil at the current price of shs.1,000 per barrel (This means that you have undertaken to buy 1 barrel of oil on October 28th for shs.1,000 per barrel, without paying anything now.) Suppose that the futures price then increased by shs.200 per barrel and other buyers are now purchasing oil futures at the new price of 1,200 per barrel. (This means that they are undertaking to buy oil at shs.1,200 per barrel).

To avoid the confusing situation of having different people committed to buying the same commodity on the same day at different prices, the futures contracts can be "marked to market" or standardized. This means that the price on the old contracts (shs.1,000 per barrel) is changed to the current price of shs.1,200 per barrel, with the difference of shs.200 per contract being immediately credited to your account with the Clearing House as compensation for the higher price you will have to pay for the oil on October 28th.
This means you get to benefit immediately from favourable movements in the futures price, rather than waiting until the actual purchase takes place on October 28th. On the other hand, if the futures price goes down, then the losses will be charged to your cash account immediately. Another policy common to banks noted in Greuning’s work of 2003 is the use of position limits which states that market risk management policy should provide limits on positions (long, short or net) considering the liquidity risk that could arise on execution on unrealised transaction. The limits should also be set on the level of risk an individual trader or dealer can take. Limit policy must specify manner and frequency of position valuation and limit controls. Gartev and Stratan, (2005) using regression analysis conducted a study on Borrower risk and the price and non price terms of bank loans and found that Limit policy must specify manner and frequency of position valuation and limit controls. Stop-loss provisions are yet another policy where a stop loss sale or consultation requirement relating to risk budget should be provided. In this provision, when losses reach unacceptable levels, the position should either automatically close or, consultation with the Asset Liability Management Committee(ALCO) or risk management officers be initiated to establish or confirm this stop-loss strategy.

Limits to new market presence have also been identified as a policy option available for banks. Greuning (2003) identified that new market presence is the willingness to invest or trade in new instruments. Prudence requires that management policies prescribe its presence in a new market and trading in new instruments.

2.3.4 Interest Rate Risk

Interest rate risk is the current or prospective risk /uncertainty to earnings and capital arising from adverse movements in interest rates. According to Greuning (2003),it is the sensitivity of capital and income to changes in interest rates. It originates from mismatches in repricing of assets and liabilities and from changes and shape of the yield curve.

Assets and liabilities are both affected by interest rate changes, so measuring and managing interest rate risk is the key to making sure your asset and liability mix performs at its peak. In CBK guidelines on risk management (2005) it is noted that the goal of interest rate risk management is to maintain a financial institution’s interest rate risk
exposure within self-imposed parameters over a range of possible changes in interest rates. It is also stated that the board of directors has the ultimate responsibility for understanding the nature and the level of interest rate risk taken by the financial institution and for ensuring that management takes the steps necessary to identify, measure, monitor and control these risks. In a central bank of Kenya report: Risk management guidelines (2005), it is directed as a matter of policy that banks should have clearly defined policies and procedures for limiting and controlling interest rate risk. In this report similarly it is mentioned that Stress testing should be designed to provide information on the kinds of conditions under which the financial institution’s strategies or positions would be most vulnerable and thus may be tailored to the risk characteristics of the institution.

Greuning (2003) emphasizes on the system of management and states that an accurate, informative, and timely management information system is essential for managing interest rate risk exposure, both to inform management and to support compliance with board policy. Reporting of risk measures should be regular and should clearly compare current exposure to policy limits.

2.3.5 Measuring Asset/Liability Gap Exposure

This "interest rate sensitivity" is commonly expressed as a percentage change in market value for an interest rate change of 100 basis points. Bankers ought to know how much the theoretical market value of their portfolio and its significant components will change as interest rates rise and fall. The movement of interest rates is under laid by the central bank strategy in which the central bank can target the levels (smoothing) or allow it to find its own level, Saunders (1999) the central bank’s monetary policy directly influences the volatility of and long-term rates.

In Basel II report (2003), Management of interest rate requires the oversight of senior management with clear policies and procedures on risk management commensurate the complexity and nature of the bank’s activities. There is also need for appropriate measurement of risk, monitoring and adequate control functions. Specific measure include the day to day risk assessment and management being assigned to specialized committee such as the Asset/Liability Management Committee(ALM) and that senior
management should get reports with adequate information to facilitate meaningful evaluation of risk levels, sensitivity to the changing market condition and ensure that the structure of the bank business is effectively dealt with. In measuring interest rate risk, it is necessary to first agree upon the yardstick by which the economic health of an institution will be measured. The measuring models include: the repricing model, maturity model/yield curve model, and the duration model

Static Gap Model/Repricing Model

Greuning (2003) noted that this was widely used in the 1980s and 1990s in analyzing interest risk exposure. It focuses on repricing and is called gap analysis because it allocates assets and liabilities into maturity buckets defined by their maturity characteristics and to measure the gap at each maturity point. In this model, balance sheet items are separated into interest rate sensitive and non interest rate sensitive assets and liabilities. They are then sorted into maturity buckets by repricing periods. He further notes that by this analysis the gap is closed when repricing of Rate Sensitive Assets (RSA) and rate sensitive liabilities (RSL) is adequately matched. CBK states that the need for repricing arises from the fact that in a going concern all assets and liabilities are replaced as and when they mature. Replacement of these assets/liabilities may subsequently lead to repricing especially in the following three situations: when liabilities approach maturity, when assets / liabilities have floating rates of interest and when regulations prescribe repricing.

In (Sinkey 1992), it is explained that a positive gap shows that a higher level of assets than liabilities reprices in the time frame of the maturity bucket and this balance sheet position is said to be asset sensitive. A negative gap on the other hand is when a higher level of liabilities than assets reprice in the time frame of the maturity bucket and the balance sheet position is said to be liability sensitive. A known balance sheet repricing position guides in formulating a framework to judge exposure and option to produce a zero gap which immunizes the bank against fluctuations. Sinkey (1992) further pointed that Gap analysis has its advantages and these include the fact that it gives a single numeric result which provides a straightforward target for hedging purposes and that it is relatively easy to compute. It similarly has its disadvantages which can be said to include
being a static measure which does not give a complete picture. This means that it doesn’t address the relative yields and volumes of balance sheet items which determine Net Interest Margin (NIM), it is also pointed that repricing would be more beneficial if it was within the bank’s absolute power to manipulate. Another disadvantage is that it doesn’t consider variations in characteristics of different positions within a time band; it assumes maturity is simultaneous and that it doesn’t consider expected changes in the balance sheet structure thereby ignoring both basis risk and sensitivity of income to option related positions.

**Duration Analysis**

In Kidwell (1990), duration is the average time it takes for a security portfolio to return its present value to the owner. Modified duration is a measure of sensitivity to changes in interest rates or the percentage change in price of a fixed income security for one basis point change in interest rate. It is based on the time to receipt of future cash flows.

According to Pandey (2001), market value depends upon the present worth of the cash flows which assets and liabilities are expected to generate over time. Because secondary market-makers seem to favour a single index to measure interest rate sensitivity of asset backed securities, duration analysis appears to have gained widespread acceptance as the favored means to measure interest rate risk at financial institutions. In this model, risk is measured on a net basis (duration of the portfolio less the duration or the benchmark/the duration of the underlying funding). Example; with hypothetical figures a gap can be assessed as below:

**Table 1.1: Model Gap Assessment**

<table>
<thead>
<tr>
<th>Interest Rate Risk</th>
<th>Assessment</th>
<th>- Rate Sensitive Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-14 days</td>
<td>1090.74</td>
<td>1037.00</td>
</tr>
<tr>
<td>15-28 days</td>
<td>1218.00</td>
<td>29-90</td>
</tr>
<tr>
<td>22 days</td>
<td>3339.74</td>
<td></td>
</tr>
<tr>
<td>Rate Sensitive Assets (RSAs)</td>
<td>821.77</td>
<td>407.00</td>
</tr>
<tr>
<td>Rate Sensitive Liabilities (RSLs)</td>
<td>268.97</td>
<td>630.00</td>
</tr>
</tbody>
</table>

22
Simulation Models:
Fabozzi (1999) used linear regression analysis conducted a study on measuring and controlling interest rate and credit risk. Simulation models were developed to correct several of the deficiencies in the dollar gap models. He found that whereas Maturity and Duration Gap models are static, simulation is dynamic. They are characterized by the fact that they require more detailed assumptions about managerial behavior, probable loan and deposit demand, and the path taken by interest rates and that Simulations help managers anticipate the timing of future events and prepare managers to neutralize the unwanted aspects thereof, increase the value of strategic and profitability planning, and are easily understandable. Fabozzi (1999) pointed that simulation has certain noted disadvantages that include the fact that they cost more (they are costly); that they measure current risk exposure clumsily; risk adjustment is by trial and error, which is tedious and voluminous. Summarizing the results requires great skill and, that they rely heavily on econometric analysis, and therefore they suffer from the same problems as econometric forecasting.

2.3.6 Managing Interest Rate Risk
Greuning (2003) noted that several measures are available for choice in managing the interest rate risk. These he says include adjusting asset and liability holdings and their terms. In this approach, adjustment by asset sensitive institutions by acquiring short-term liabilities and long-term assets, enter into interest rate swaps, buy financial futures contracts; adjustments by liability sensitive institutions is by selling long-term assets to reduce their maturities, increasing effective maturities of liabilities, enter into interest rate swaps, selling short-term financial futures; Pricing customer options- reduce the amount of free options given to customers which may expose the institution adversely when exercised and by issuing new types of assets and liabilities :secondly; controlling risk through interest rate swaps. He also pointed out that these are used by institutions that want to reduce their interest rate risk but find it profitable to acquire assets and liabilities with mismatched maturities.
2.3.7 Credit Risk

In risk management guidelines (2005), Credit risk is the current or prospective risk to earnings and capital arising from an obligor’s failure to meet the terms of any contract with the bank or if an obligor otherwise fails to perform as agreed. The guidelines also pointed that given the significant size of the loan portfolio in balance sheets of Kenyan banks, credit risk remains the largest risk type in the Kenyan banking sector. The central bank of Kenya in the risk management guideline (2005) advises that overall, the management of this risk requires the development of an appropriate credit risk culture and environment. A sound credit extension process, maintaining appropriate credit administration, measurement and monitoring process and ensuring adequate credit controls, enhances this. In Bangladesh Bank Focus Group report (2003) it was explained that the board of directors carries the ultimate responsibility of approving and reviewing the credit risk Strategy and credit risk policies of the bank.

In line with Risk Management Guidelines 2005 by the central bank of Kenya, the board of directors is expected to ensure that the credit strategy has a statement on acceptable levels of exposure to the various economic sectors, currencies and maturities. It should also include the target markets, diversification and concentration of the credit portfolio; the credit risk strategy and policies are effectively communicated throughout the institution; the financial results of the institution are periodically reviewed to determine if changes need to be made to the credit risk strategy.

In Bangladesh Bank Focus Group report (2003), it was also proposed that the boards of directors need to see to it that the recruitment procedure ensures that the senior management team is fully capable of managing the credit risk; an internal audit function capable of assessing compliance with the credit policies and management of the entire credit portfolio; the delegation authority and approval levels are clearly defined and that the management provides periodic reports on the insiders, provisioning and write-off on credit loan losses and audit findings on the credit granting and monitoring processes. Credit risk policies are identified to be of two main classes as those relating to limits and policies relating to products.
2.3.8 Credit Risk and Interest Rate Risk

In Greuning (2003), it is pointed that one of the difficulties in the asset and liability management process is incorporating credit risk in overall risk assessment measurements. He also noted that the failure to incorporate credit risk analysis might lead to unrealistic assessments of interest rate risks. Loan pricing should be sufficient to compensate the institution for credit losses upon default as well as losses which might be attributable to delayed receipt of periodic payments and unscheduled repayment of principal. Value at Risk (VaR) is a popular measure of risk among financial institutions, but its use is fast extending beyond financial institutions.

This technique describes risk succinctly: it is intuitively understandable. It is a percentile of a profit-and-loss distribution over a specified horizon; it tries to determine how much the company’s underlying cash flows are affected i.e. if the foreign exchange rate moves to a certain level, VaR indicates how much profit/loss the company makes; Dowd (1998). If the VaR of a certain set of risks is too high, hedging instruments can be used to bring it down to acceptable levels by reducing the standard deviation measure. Value at Risk therefore captures the nature of bad outcomes in a single number; this technique was initially designed to avoid bank disasters; Pickford (2002). Although extremely attractive, VaR (the magnitude of loss that occurs with some probability) is not consistent with the theory of risk management either; Stulz (1996).

2.3.9 Liquidity Risk Management

Liquidity Risk is the current or prospective risk to earnings and capital arising from a bank’s inability to meet its liabilities when they fall due without incurring unacceptable losses Greuning (2003). It arises when the cushion provided by the liquid assets are not sufficient to meet its obligations. The prerequisites of an effective liquidity risk management include an informed board, capable management, and staff having relevant expertise and efficient systems and procedures. Risk management guidelines 2005 stipulate that it is the responsibility of board and management to ensure the institution has sufficient liquidity to meet its obligations as they fall due. Institutions should formulate
comprehensive liquidity policy statements that take into account all on- and off-balance sheet activities.

The guidelines also indicate that Institutions should establish appropriate procedures and processes to implement their liquidity policies while limits should be set which should be appropriate to the size, complexity and financial condition of the financial institution. It is also noted in bank risk management that an effective measurement and monitoring system is essential for adequate management of liquidity risk. Consequently, institutions should institute systems that enable them to capture liquidity risk ahead of time, so that appropriate remedial measures could be prompted to avoid any significant losses.

In sound Liquidity Risk Management for banks, it is advised that every financial institution must have adequate information systems that can capture significant information for measuring, monitoring and controlling existing as well as future liquidity risks and reporting them to senior management. In order to have effective implementation of policies and procedures, institutions should institute review process that should ensure the compliance of various procedures and limits prescribed by senior management.

2.3.10 Yield Curve Risk

Duration assumes that that the yield levels of different assets and liabilities move in parallel, that is, in equal amounts. In real sense different credit, coupon or maturity sectors of the market move differently. In terms of yield this difference is known as the basis risk among sectors. Fabozzi (1999) noted that, basis risk with respect to different maturity sectors is also known as yield curve risk. In general, basis risk is difficult to measure and hedge most hedging vehicles address the market risk; changes in rates, not basis risk. It is possible however, to address yield curve risk in many acceptable ways. One method is to divide the assets and liabilities into maturity baskets, and analyze each basket separately. If each basket covers a sufficiently small maturity range, then we can assume that the yield curve risk is acceptably small within that range. If each sector is thus matched then the assets and liabilities are matched as a whole. A problem occurs however, that an asset of a given maturity also reacts to changes in rates in another maturity sector.
2.3.11 Hedging Yield-Curve Risk.

According to Fabozzi (1999); in an Asset Liability Management context, a method is needed that integrates the elements of risk as risk management and security valuation. A method is used which attempts to integrate these elements; the risk point method which is advantageous as it also measures risk relative to available hedging instruments. He again pointed out that unlike the dollar duration which measures the total interest rate risk, the risk point measures only one component of the total risk. This is the risk due to a change in rates in a given maturity sector. Thus to determine a complete hedge, we need a full set of risk points, relative to a set of hedge instruments. An important component of an acceptable Asset Liability Management function is the development of an appropriate Asset Liability Management policy. Policies provide boundaries for decision-making and represent the philosophies and attitudes of an institution's board of directors. Further it is provided that these should include the institution of an Asset Liability Management committee, also known as ALCO.

Due to costs of financial distress and managerial risk aversion, Crabb (2003) using classical financial models of Modigliani and Miller, studied economic motives for financial risk management, and the use of derivatives in financial risk management and found that financial risk management provides the small business with the opportunity to shed risks that are beyond its control so that the firm can pursue risks that are within their control.

He strongly suggests that firms should undertake corporate risk management (hedging). If managers are risk averse and their wealth and compensation is primarily driven by the value of the firm, hedging is appropriate. Hedging of foreign exchange risk is beneficial when managers are risk averse and their compensation depends on changing values of the firm. However, misdirected risk management incentives can be costly: some of the firms that lost huge sums of money in the 1990s, like Procter and Gamble Corporation, made such losses because of speculative use of derivatives.

2.4.0 Asset/Liability Management Process

The Asset and Liability Management strategy is based on prudent risk management policies for the bank's overall exposure to credit risk, currency risk, liquidity risk and interest rate risk. The site authors also concede that an appropriate Asset Liability
Management process should begin with the development of an institution's plans and goals. Plans should define the major direction in which the institution wants to precede its character and mission, and how it proposes to position itself to achieve a profitable and competitive posture. The central bank of Kenya risk management guidelines (2005) also contends that establishing a proactive financial planning process that stresses Asset Liability Management can avert many problems. This process leads boards and management to define expectations. Corporate financial goals should also be established at least in the areas of profitability, growth, operating expenses, interest rate risk, and capitalization. These goals represent the agreed-upon financial targets that have been set in pursuit of strategic objectives. Bangladesh Bank Focus Group (2003) identified also that another component of an appropriate Asset Liability Management process involves the development of a formalized, disciplined management approach to the entire area. This process allows management and boards of directors to identify and understand the risks already embedded in their institutions' balance sheets. Boards and management need to be aware of the consequences of inaction compared with the costs and/or benefits of potential strategies and actions that might change the institutions' risk profile.

The Asset Liability Management process, according to risk management guidelines 2005 requires management and board members to review the impact of simulated changes in future interest rates on their institutions' income and capital. The group also advise that scenarios reviewed should include a best case, worst case, and most likely projection, and should be done at least quarterly where appropriate, simulations should also be used to analyze how interest rate swaps, financial futures, options, debt buybacks, and other planned Asset Liability Management actions could be used to reduce the possible negative effect of future changes in interest rates.

2.4.1 Asset/Liability Management Committee

Primary goal of the Asset Liability Committee process should be to provide management with the information and tools necessary to make intelligent balance sheet related risk management decisions. This information will include position reports and profiles, activity reports, forecasts and simulations, profitability analysis, and peer group assessments; Bangladesh Bank Focus Group report (2003). According to Basel committee on banking supervision,2006, in every Asset Liability Committee meeting,
action points taken in the past Asset Liability Committee meeting should be reviewed to ensure implementation and specific functions of Asset Liability Committee include: Receiving and reviewing reports on liquidity risk, market risk and capital management as covered in this report; identifying balance sheet management issues like balance sheet gaps, interest rate gap/profiles etc. that are leading to under-performance; reviewing deposit-pricing strategy for the local market and reviewing liquidity contingency plan for the bank.

2.4.2 Elements of Asset Liability Management

In Asset/liability management, it is identified that however the Asset Liability Management process is characterized, it has some essential components. The first is a stated objective like Maximize Statutory Surplus, Minimize Residual Risk, Maximize Reported Yield, or Maximize Reserve Efficiency, etc. The second component is to apply multiple constraints to the process like Cash Flow Matching, Sector Limits or Market versus Book Value impact. For example, the objective may be to maximize terminal surplus at some target horizon, while constrained to some specified level of residual risk associated with a cash flow mismatch.

If the investment strategy is to avoid being speculative, it must be independent of subjective forecasts. Investment decision rules are operationally well defined when they can be articulated and modeled. If rules are operationally well defined, different individuals with appropriate training and background should arrive at substantially the same results. Ideally, the investment decision maker should be able to implement the strategies specified by the Asset Liability Management process and those strategies should be operationally well defined.

2.4.3 Policy Statement

In risk management, Board or Management Committee of a Bank should set out the policy statement in at least for the followings and an annual review should be done taking into consideration of changes in the balance sheet and market dynamics: Loan Deposit Ratio (LD): The AD ratio should be a particular percentage such as 80%-85%. The Loan Deposit ratio is given by: Loan/ (Deposit+Capital+Funded Reserve). This ratio will be
fixed based on the bank’s capital, Bank’s reputation in the market and overall depth of the money market. Another policy can be: Wholesale Borrowing Guidelines (WBG) where, the guideline should be set in absolute amount depending on bank’s borrowing capacity, historic market liquidity. The central bank guidelines also state that the limit can be capped at the bank’s highest level of past borrowings. However, this limit can be increased based on the match-funding basis.

A third policy may be on Commitments. The commitments guideline limits should be set up to a given limit for instance; not to exceed 150% of the unused wholesale borrowing capacity of the last twelve months. The limit can be increased if there are natural limitations on customer discretion to draw against committed lines or a bank’s access to additional funds through realization of surplus statutory holdings. Similarly a policy on Medium Term Funding Ratio (MTF) to be put in place: for instance the MTF of a bank can be set as should not be less than 15%. Another policy can be on Maximum Cumulative Outflow: the policy statement may take the form of MCO up to 1 month bucket should not exceed 25% of the balance sheet.

A liquidity contingency plan needs to be approved by the board of directors. Bangladesh Bank Focus Group (2003), notes that a contingency plan needs to be prepared keeping in mind that enough liquidity is available to meet the fund requirements in liquidity crisis situation. An annual review of the contingency planning should be made. The policy statements may be as numerous as is appropriate to the specific bank operating conditions and probably the business orientation but need to include Local Regulatory Compliance where there should be a firm policy on compliance to the central bank in respect of CRR, SLR, Capital adequacy etc.

### 2.4.4 The Asset Liability Committee Process

Bangladesh bank focus group (2005) explains that the Asset Liability Committee process or the Asset Liability Committee meeting reviews the Asset Liability Committee paper along with the prescribed agendas. The Chairman of the committee, that is the Treasurer or the CEO, raises issues related to the balance sheet. Treasurer suggests whether the
interest rates need to be priced again, whether the bank needs deposits or advance growth, whether growth of deposits and advances should be on short or longer term, what would be the transfer price of funds among the divisions, what kind of inter-bank dependency the bank should have etc. In short, all issues related to liquidity and market risk are covered. The focus group also added that based on the analysis and views of the Treasurer, the committee takes decisions to reduce balance sheet risk while maximizing profits.

2.4.5 Areas Of Critical Focus
According to Bangladesh bank focus group (2003); the Asset Liability Committee takes decisions for implementation of any/all of the following issues: Need for appropriate Deposit mobilization or Asset growth in right buckets to optimize asset-liability mismatch; Cash flow (long/short position) plan based on market interest rates and liquidity; need for change in Fund Transfer Pricing (FTP) &/or customer rates in line with strategy adapted; they also need give address to the limits that are in breach (if any) or are in line of breach and provide detailed plan to bring all limits under control also address to all regulatory issues that are under threat to non-compliance.

2.4.6 Implementation and Review Of Strategies
All Asset Liability Committee members are provided with the minutes of the meeting within the following day. The minute should include among others those in attendance, the specific issues addressed, the recommendations provided by the Chairman and the action points that were fixed in the meeting. The members communicate the action points to their respective divisions to implement the strategies undertaken.

2.4.7 Special Asset Liability Committee Meeting
Apart from the regular monthly meeting, Asset Liability Committee meeting is also called as and when any contingent situations arise. A very good example may be, during the Eid period. At those times, market liquidity dries out and overnight rates shoot up. Banks who are net borrowers from the market may be exposed to huge interest expense the high rates in the market. This is an ideal time for a special Asset Liability Committee
meeting, where the committee may take critical decisions for deposit mobilization on an urgent basis for reducing dependency from the market.

2.4.8 Active Board and Senior Management Oversight

Boards of directors have ultimate responsibility for the level of risk taken by their institutions. Accordingly, they should approve the overall business strategies and significant policies of their organizations, including those related to managing and taking risks and should ensure that senior management is fully capable of managing the activities that their institutions conduct. All boards of directors are responsible for understanding the nature of the risks significant to their organizations and for ensuring that the management is taking the steps necessary to identify, measure, monitor and control these risks, Bangladesh Bank Focus Group (2003). Again, the level of technical knowledge required of directors may vary depending on the particular circumstances at the institution. Consequently, what is most important is for directors to have a clear understanding of the types of risks to which their institutions are exposed and to receive regular reports that identify the size and significance of the risks in terms that are meaningful to them. Risk Management Guidelines (2005); the central bank of Kenya also agree that directors could take steps to develop an appropriate understanding of the risks their institution face, possibly through briefings from auditors and experts.

Using this knowledge and information, directors can provide clear guidance regarding the level of exposures acceptable to their institutions and have the responsibility to ensure that senior management implements the procedures and controls necessary to comply with adopted policies. The guidelines also provide that senior management is responsible for implementing strategies in a manner that limits risks associated with each strategy.

Management should therefore be fully involved in the activities of their institutions and possess sufficient knowledge of all major business lines to ensure that appropriate policies, controls and risk monitoring systems are in place and that accountability and lines of authority are clearly delineated. Senior management is also responsible for establishing and communicating a strong awareness of and need for effective internal controls and high ethical standards. Meeting these responsibilities requires senior managers of a financial institution to demonstrate a thorough understanding of
developments in the financial sector and a detailed knowledge of the activities their institution conducts, including the nature of the internal controls necessary to limit the related risks.

2.4.9 Adequate Policies Procedures and Limits
The board of directors and senior management should tailor their risk management policies and procedures to the types of risks that arise from the activities the institution conducts. Risk management guidelines (2005) provide that once the risks are properly identified, the institution’s policies and procedures should provide detailed guidance for the day-to-day implementation of broad business strategies and should include limits designed to shield the organization from excessive and imprudent risks.

While all banks should have policies and procedures, which address their significant activities and risk exposures, the coverage and level of detail embodied in these documents will vary among institutions. The guidelines also state that management is expected to ensure that policies and procedures address the material areas of risk to an institution and that they are modified when necessary to respond to significant changes in the financial institution’s activities or business conditions.

2.4.10 Adequate Internal Controls
In CBK risk management guidelines; it is stated that an institution’s internal control structure is critical to the safe and sound functioning of the Organization, in general and to its risk management, in particular. Establishing and maintaining an effective system of controls, including the enforcement of official lines of authority and the appropriate separation of duties is one of management’s more important responsibilities. Indeed, appropriately segregating duties is a fundamental and essential element of a sound risk management and internal control system. According to Greuning (2003), failure to implement and maintain an adequate separation of duties can constitute an unsafe and unsound practice and possibly lead to serious losses or otherwise compromise the financial integrity of the institution. Serious lapses or deficiencies in internal controls including inadequate segregation of duties may warrant supervisory action, including formal enforcement action.
When properly structured, a system of internal controls promotes effective operations and reliable financial and regulatory reporting, safeguards assets and helps to ensure compliance with relevant laws, regulations and institutional policies. An independent and suitably qualified internal auditor who reports directly to the board’s audit committee should test internal controls. Given the importance of appropriate internal controls to financial institutions, the results of audits or reviews, conducted by an internal auditor or other persons, should be adequately documented, as should management’s responses to them. In addition communication channels should exist that allows negative or sensitive findings to be reported directly to the board’s audit committee. A good risk management system, according to Greuning (2003), shall at the minimum embrace the above aspects. The financial institution shall on a regular basis review its risk management programmes to assess its adequacy in coping with developments in the industry. It should be appreciated that understanding the risk profiles of products and services, and balancing them with actions taken to reduce the adverse consequences of risk-taking, allows an institution to optimize revenues and maximize the use of capital.

No single risk management system works for all financial institutions therefore Central Banks require each financial institution to develop its own comprehensive Risk Management Programme (RMP) tailored to its needs and circumstances. This Risk Management Programme, however, should at least cover the most common risks, as follows: Strategic Risk, Credit Risk, liquidity Risk, Interest Rate Risk, foreign Exchange Risk, Price Risk, Operational Risk and Regulatory Risk.

CBK stipulates that regardless of the Risk Management Programme design, each programme should include: Risk Identification; In order to manage risks, risks must first be identified. Asset Liability Management cost every product and service offered by banks has a unique risk profile composed of multiple risks. An instance, at least four types of risks are usually present in most loans: credit risk, interest rate risk, liquidity risk and operational risk. Risk identification should be a continuing process and risk should be understood at both the transaction and portfolio levels. Another step in risk management is Risk Measurement; once the risks associated with a particular activity have been
identified, the next step is to measure the significance of each risk. Each risk should be viewed in terms of its three dimensions: size, duration and probability of adverse occurrences. Accurate and timely measurement of risk is essential to effective risk management systems. According to banking core principles methodology, Risk Control is also a must; once risks have been identified and measured for significance, there are basically three ways to control significant risks, or at least minimize their adverse consequences: avoiding or placing limits on certain activities/risks, mitigating risks and/or offsetting risks.

It is a primary management function to balance expected rewards against risks and the expenses associated with controlling risks. Banks should establish and communicate risk limits through policies, standards and procedures that define responsibility and authority. This document also points that for effectiveness of the system Risk Monitoring must accompany the above measures. Banks need to establish an MIS that accurately identifies and measures risks at the inception of transactions and activities, it is equally important for the risk management program of each financial institution should at least contain the following elements of a sound risk management system:
2.4.11 Conceptual Framework

No single risk management system works for all financial institutions and therefore Central Banks require each financial institution to develop its own comprehensive Risk Management Programme (RMP) tailored to its needs and circumstances. This Risk Management Programme, however, should at least cover the most common risks, as follows: Strategic Risk, Credit Risk, liquidity Risk, Interest Rate Risk, foreign Exchange Risk, Price Risk, Operational Risk and Regulatory Risk. It is equally important for the risk management program of each financial institution should at least contain the following elements of a sound risk management system:

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance Sheet Risks</td>
<td></td>
</tr>
<tr>
<td>Risk Management</td>
<td>Asset Liability</td>
</tr>
<tr>
<td>Design/Processes</td>
<td>Management</td>
</tr>
<tr>
<td>Asset liability</td>
<td></td>
</tr>
<tr>
<td>Monitoring Tools</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s construct 2011
Independent Variables

Types of Risks

Commercial banks face a number of risks when executing all transactions or lending money to their customers. It is therefore important for commercial banks to identify such risks and design methods of mitigating them in order to remain in business while reporting positive growth in both NII and MVE. Such types of risks include: interest rate risk, credit risk, market risk, liquidity risk, forex risk etc.

Risk Management Design/Process

According to Central bank of Kenya guidelines, regardless of the Risk Management Programme design, each programme should include: Risk Identification; In order to manage risks, risks must first be identified. Asset Liability Management boasts that every product and service offered by banks has a unique risk profile composed of multiple risks. An instance, at least four types of risks are usually present in most loans: credit risk, interest rate risk, liquidity risk and operational risk. Risk identification should be a continuing process and risk should be understood at both the transaction and portfolio levels. Another step in risk management is Risk Measurement; once the risks associated with a particular activity have been identified, the next step is to measure the significance of each risk. Each risk should be viewed in terms of its three dimensions: size, duration and probability of adverse occurrences. Accurate and timely measurement of risk is essential to effective risk management systems.

Risk Control in the commercial banks is a must. Once risks have been identified and measured for significance, there are basically three ways to control significant risks, or at least minimize their adverse consequences: avoiding or placing limits on certain activities/risks, mitigating risks and/or offsetting risks. It is a primary management function to balance expected rewards against risks and the expenses associated with controlling risks. Banks should establish and communicate risk limits through policies, standards and procedures that define responsibility and authority. This document also points that for effectiveness of the system Risk Monitoring must accompany the above
measures. Banks need to establish an MIS that accurately identifies and measures risks at the inception of transactions and activities.

**Asset liability Management Monitoring Tools**

Management of a bank balance sheet is a complicated exercise due to both the internal and external factors affecting commercial banks. Such factors include competition, interest rate deregulation, Innovations, Introduction of new products and services, globalization and liberalization. To manage these changes effectively commercial banks are supposed to put in place proper monitoring tools that shall avail timely and accurate reports for decision making by the Board of Directors as a result of ALCO reports submitted from time to time. Such tools include internal controls, MIS periodic reports, and internal audit reports, policies, peer group assessments, standards and procedures

**Intervening Variables**

**Political factors** like election year, skirmishes and others pose risks to commercial banks like credit risk, forex risk etc.

**Economic factors** like inflation, fuel prices affect the forex risk, yield risk, liquidity risk, market and interest rate risk management by the banks

**Social factors** like death of customers while they are indebted to the banks have caused great loss to banks especially when the loans are not insured or when the collateral used to secure the loans cannot be realized especially in case of communal land or other assets with caveat. This leads to high credit risk in the bank.

**Technological factors** like cyber crimes, costs of ICT equipments due to the requirement of a robust MIS, misuse of MIS by staff, obsolescence, hacking among others affect the bank’s ability to manage frauds and operational risk.

**Legal factors** are very dynamic and affects the banks risk management e.g. interest rate regulations, requirements of minimum core capital by Central Banks. These poses liquidity and interest rate risks to the banks.

**Ethical Factors** are also critical variables due to the fact that banks deal with citizens whose values, norms, beliefs are different from each other and they have no control. Forgery of documents to commit fraud by staff and customers, bank raids and collusion to commit fraud poses a great risk to banks
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research design
A census study was used because the population of 45 commercial banks was considered small for sampling and it would give a clearer picture of the research findings useful in arriving at justified generalizations on the study objectives.

3.2 Population
The forty five commercial banks operating in the country by 31st December 2010 formed the population of study. No sampling was done across this population since the population of the subject of study was considered small. The commercial banks are localized in the capital city enhancing collection of information sought from the Treasurers whose operations are based in head offices of the banks. This proved convenient and less costly to the researcher during the data collection.

3.3 Data collection
The study used primary data which was collected on the balance sheet management practices; risk management, measurement and risk control including the employed hedging practices and exposure management evaluation strategies adopted. The researcher also sought to know the structure of the asset/liability as organized in the banks. Self-administered questionnaires constructed using open-ended, closed-end and Likert-scale type questions were administered to the treasury departments of the forty-five banks using a ‘drop-and-pick-later’ technique.

The researcher scheduled one month for filling the questionnaires due to the busy schedules that the treasury departments run in banks. Regular follow up on the questionnaires on weekly basis was agreed with the respondent using well-spaced phone calls to maximize the response rate of the target respondents.

3.4 Data analysis
Content analysis was largely used because the study was an exploratory one. Comparison of the study findings were compared with central bank guidelines on risk management as well as findings of studies carried out in other nations that are mentioned in the literature
review in order to link the current practice in these banks with the theoretical provisions that underlie the concept being reviewed in this study. The survey data was further presented in tables, graphs and pie charts to conceptualize the research findings while descriptive statistics tools were also used to demonstrate how the banks’ asset-liability management has been adopted by the banks.
CHAPTER FOUR
DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

Census study was used and hence all the forty-five commercial banks operating in Kenya were selected for the study. Questionnaires were presented to the 45 bank treasurers but only thirty three responded representing a response rate of 73% which is a high response rate for a study of this nature considering the confidentiality levels expected in banks. This may be the explanation why certain banks did not respond due to probable policy restrictions to ensure certain crucial information do not leak to competitors. Due to confidentiality of information given, this study did not reveal the name of the participating banks. Following the study objectives set to guide the formulation on seeking information, this study sought to ascertain the asset/liability management practices and the extent of asset/liability management by the commercial banks and rank the practices in order of their importance in the view of answering the research questions identified.

Risk management departments and training on risk management in commercial banks has been viewed as a positive step towards effective financial risk management evidenced by the fact that all the responding banks had risk management departments except for a few that split the risk management tasks into duties carried out in several departments.
An illustration of the distribution of the responses is presented in figure two below.

4.1 Responses on possession of risk management department

Figure 2: Possession of risk management department

![Pie chart showing possession of risk management department](chart)

- Without Risk Management Department: 15%
- With Risk Management Department: 85%

Source: Survey data

The findings in this study represented above are in support that firms in possession of risk management departments have better financial management practices (Crab (2003)). Commercial banks in this study were presented with six financial risk exposures and asked to rank them (operation risk, liquidity risk, foreign exchange risk, credit risk, market risk and interest rate risk) in order of importance to them. Twenty-seven banks indicated that the risks were all important to them; two indicated that credit/default risk was the most critical risk followed by foreign exchange risk. Only four banks rated interest rate risk as the most critical; while none indicated that the question was not applicable to its practices. Credit risk was ranked as the most critical by most banks due to the high levels of default in the banking sector: some banks still had huge amounts of non-performing loans. Ranking the risks differently was due to the fact that some risks are considered to be having more impact than others (Shah (2004)). Similarly, what one bank may consider critical is subject to what it views to be the most threatening to its operations at any point in time.
The banks were requested to mark six exposures from the most critical to the least critical. A summary of the responses is presented in the table three below.

**Table 3: Ranking of Five Main Banking Risks**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Ranking the exposures from the most critical to the least critical</th>
<th>Most Critical</th>
<th>Second Most Critical</th>
<th>Third Most Critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Credit/default risk</td>
<td>28</td>
<td>5</td>
<td>Nil</td>
</tr>
<tr>
<td>2</td>
<td>Interest rate risk</td>
<td>8</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Foreign exchange risk</td>
<td>Nil</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Liquidity risk</td>
<td>Nil</td>
<td>Nil</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Operations risk</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Source: survey data

Brucaite and Yan (2000) indicated that exchange, interest rate and changes in inflation have a correlation of a high degree that affects the value of the firm adversely hence all the financial risk exposures were crucial to them. Due to interactions of various financial risk management, a comprehensive approach/ a strategic approach to financial risk management is therefore necessary. At advanced level of risk management, banks have an enterprise-wide risk (balance sheet risk) management perspective. They have training programmes to help their employees improve their risk management skills. An integrated approach to enterprise-wide risk management for enhancing strategic advantage is required due to rapidly changing business climate Asaf (2004). Thirty banks had training programmes while three did not respond to that question. It was also important to note that even those banks that did not have risk management departments conducted training programmes on risk management.

4.2 Asset/Liability Management Practices

There are several strategies and options used for the management of financial risks backed in empirical findings following financial studies carried out over time in various academic publications. In an attempt to ascertain various facets of asset/liability
management systems in the 45 banks, various questions were addressed in the questionnaire.

4.2.1 Risk measurement

Financial risk management has no uniform approach among today’s firms Asaf (2004). The variations in responses concerning the measurement of the various risk elements can be attributed to the lack of uniformity in approach. In the actual practice, the risk management practices adopted are fairly minimal and do not actually correspond to the prescriptions of academic publications. Firms are at liberty to choose their preferred method of risk management because there are no universally prescribed risk management asset/liability exposure measurement methods.

Banks were asked questions on whether they hedged against transaction and economic exposures. Twenty nine banks indicated that they used accounting exposure with four others indicating they used the economic exposure.

Glaum (2000) found out that risk management of US firms was highly centralized while Brucaite and Yan (2000) found out that management of financial risks and responsibility for all treasury operations were largely centralized in the headquarters’ treasury departments which is empirical evidence similar to the findings of this study.

4.2.2 Risk management practices

The banks were also requested to indicate which risk management practices as well as instruments they used in hedging against balance sheet risk. The results indicated that each bank had its own peculiar hedging instruments and strategies due to lack of formal corporate approved risk management practices that must be adopted by firms. Stulz (1996) and Glaum (2000) views are in support of the findings of this study. The former indicates that most firms’ views affect the extent to which they hedge and the use of derivatives to mitigate financial risks while the latter also observes that there are no clear-cut theoretical answers to the question of how corporate risk management should be organized. After a firm has identified and measured the risk it faces, they then decides
how its exchange risk management should be organized, which strategy it should adopt and which instruments it should use. Five banks did not give information on its hedging instruments and practices. It might have considered the information too confidential.

4.2.3 Hedging instrument

The banks were requested to indicate conventional hedging instruments used to mitigate foreign exchange risk as shown in the table below.

Table 4: Responses on hedging instruments used by the banks

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Bank Using this method/33</th>
<th>% method of application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign currency Option</td>
<td>25</td>
<td>76%</td>
</tr>
<tr>
<td>Forward contract</td>
<td>22</td>
<td>67%</td>
</tr>
<tr>
<td>Swaps</td>
<td>7</td>
<td>21%</td>
</tr>
<tr>
<td>Spot Transaction</td>
<td>6</td>
<td>18%</td>
</tr>
</tbody>
</table>

Source: survey data

Twenty-five banks used foreign currency options while twenty two used forward contracts. Seven banks indicated that they used swaps while six others indicated that they used spot transactions. Forward contracts are the conventional hedging instruments used most by banks as found in the study.

Earning good spread in the short-run and the reduction of cash flows volatility in US firms motivated the use of financial derivatives, Fatemi and Glaum (2000). Most banks used financial instruments to hedge against balance sheet risk as indicated in the study results in table 4 also supported by Crabb (2003). Pickford (2002) noted that financial distress costs are very significant economic costs and necessitate risk management. Brucaite and Yan (2000) indicate that exchange rate risk could be managed using financial instruments (Futures, Forwards, and Options) or commercial instruments (Foreign currency cash flow maturities and Amount matching) and pricing strategies.

It was also necessary to ascertain which of the financial instruments banks most frequently used. Results from related studies have shown that certain hedging instruments
are more often applied by firms in hedging their exposures than others: Li (2003) is in agreement with this finding and stated that certain types of derivatives are traded actively in public markets than others.

**Figure 3: Derivatives used by banks and their frequencies**

```
<table>
<thead>
<tr>
<th>Frequency of Use</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of use</td>
<td>97%</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>82%</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>58%</td>
</tr>
<tr>
<td>Frequency of use</td>
<td>33%</td>
</tr>
</tbody>
</table>
```

Source: survey data

The study found that both forward contracts and foreign currency options were frequently used by most of the responding firms as hedging instruments according. Empirical findings from studies done in Europe and America are somehow in line with the findings of the current study save for the fact that most banks, alongside forward contracts, equally utilized foreign currency options. The nature of transactions and effectiveness of the derivatives to mitigate the financial exposures determines how frequent a bank utilizes derivative instruments.

The banks were also requested to respond to various statements relating to their asset/liability management practices. They indicated the extent of applicability of the statements to their foreign exchange hedging practices. Extent of applicability of the statements to the banks on a scale of 5 (very large extent) to 1 (not at all) were analyzed using means while an average mean was ascertained to establish the general extent of applicability of all the practices to all the responding banks.
The study finding is presented in the table 5.

**Table 5: Extent of statements applicability in relation to asset/liability management to the participating banks**

<table>
<thead>
<tr>
<th>Statements</th>
<th>Very large extent (5)</th>
<th>Large extent (4)</th>
<th>Some extent (3)</th>
<th>Small extent (2)</th>
<th>Not at all (1)</th>
<th>Responding banks</th>
<th>Mean</th>
<th>Standard deviation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Financial markets are information efficient: organizations cannot make speculative gains through predicting future exchange rates.</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>-</td>
<td>2</td>
<td>22</td>
<td>3.82</td>
<td>30</td>
</tr>
<tr>
<td>2. The main reason for practicing asset-liability management is to achieve business objectives</td>
<td>8</td>
<td>12</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>24</td>
<td>4.16</td>
<td>37</td>
</tr>
<tr>
<td>3. Asset-liability exposure management goes through risk identification.</td>
<td>10</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>-</td>
<td>21</td>
<td>4.0</td>
<td>21</td>
</tr>
<tr>
<td>4. Asset/liability management goes through risk measurement</td>
<td>12</td>
<td>4</td>
<td>8</td>
<td>-</td>
<td>1</td>
<td>25</td>
<td>4.04</td>
<td>25</td>
</tr>
<tr>
<td>5. Asset/liability management goes through risk control.</td>
<td>10</td>
<td>12</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>26</td>
<td>4.23</td>
<td>44</td>
</tr>
</tbody>
</table>
6. Diversification strategy involves diversifying operations by making use of funds in more than one capital market.

7. Natural hedging/matching strategies is a way of reducing balance sheet exposure.

8. Accounting exposure concept is a measure of balance sheet exposure used by financial institutions.

9. Economic exposure concept is a measure of balance sheet exposure used by financial institutions.

10. An organization’s own view of affects the extent to which it hedges against financial risks.

11. Value at Risk (VAR) is a technique used by financial institutions to estimate market risk.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Diversification strategy</td>
<td>-</td>
<td>2</td>
<td>13</td>
<td>5</td>
<td>20</td>
<td>2.85</td>
</tr>
<tr>
<td>7. Natural hedging/ matching strategies</td>
<td>8</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>8. Accounting exposure</td>
<td>3</td>
<td>9</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>9. Economic exposure</td>
<td>6</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>22</td>
</tr>
<tr>
<td>10. An organization’s own view</td>
<td>4</td>
<td>13</td>
<td>7</td>
<td>4</td>
<td>-</td>
<td>28</td>
</tr>
<tr>
<td>11. Value at Risk (VAR)</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>1</td>
<td>-</td>
<td>24</td>
</tr>
</tbody>
</table>

Average mean: 3.79

Source: survey data
The banks were asked whether they made periodic and systematic assessment of asset/liability exposures. Academic researches such as that by Li (2003), recommends that firms should make periodic appraisal of their risk management policies. Central bank guidelines on strategic risk management also points to the same. A mean of 4.38 was obtained from all the responses generated: this was an indication that the statements were applicable to most of the banks to a large extent.

To a large extent, most firms hedge with the intention of making profits from exchange rate movements. Stulz (1996) found out that firms try to make profits by actively managing the financial risks of their businesses. They do not simply hedge passively. Shah (2004) contends that in efficient markets, risk management pays off if it creates real value for the corporation. The financial managers of most of the responding banks believed that since the Kenyan exchange market is not efficient, they could be able to generate above average returns for their banks by actively trading on foreign exchange movements. To that effect, most of the banks forecasted the appreciation and depreciation of relevant currencies during their planning horizons. Stulz, (1996) indicated that most firms sometimes actively take positions in financial markets based on their views of exchange rates. Generally, most banks’ financial decisions were influenced by their balance sheet positions only to some extent. This implies that most banks’ financial policies were not significantly influenced by their foreign exchange decisions: there was no strong positive relationship between the two. However, empirical information relating to the impact of foreign exchange decisions on firms’ other financial decisions is scanty: it was therefore difficult to make comparisons between the findings of this study and empirical facts. Most of the responding banks indicated that they based their hedging activities, to a large extent, on individual currency positions. Empirical evidence has shown that such an approach is much more effective in mitigating financial risks. It serves as a better risk management approach since individual positions are dealt with instead of dealing with various positions together.

In this study the responding banks were also asked whether they had general rules for setting their hedging horizons. Due to the presence of the choice space in hedging practices, most responding banks indicated that they employed such rules to some extent. Similarly, Li (2003) contends that many companies that have identified various risks in
their business do not have formal policies or strategies to manage these risks within a corporate approved process. Again these banks were asked whether during periods of relatively high profits they protected themselves less intensively against unexpected exchange rate changes than they usually did. Most responding banks indicated that they did so only to a small extent. Similarly, Glaum (2000) found out that most responding firms disagreed that in ‘good times’ they protected themselves less intensively against unexpected exchange rate changes. Since most firms would like to adopt the value maximization approach, they would protect themselves intensively even during periods of high profits.

4.2.4 Competitors Influences on Risk Management Strategies

It was also necessary to ascertain whether the banks’ competitors’ strategies influenced their risk management practices. Perception of risk, both at individual and organizational level, is complex: it is affected by a host of psychological biases due to subjectivity. Stulz (1996) found out that most responding firms indicated that their views affected the extent to which they hedged and that they used derivatives to hedge against financial risks; most of them would take positions in financial markets based on their views. Shah (2004) noted that individuals, even at corporate level, are susceptible to psychological biases. This is motivated by the fact that people have internal reference points that keep on shifting over time due to biases. The competitors’ practices only influenced the responding banks’ hedging decisions to a moderate extent. Similarly, Glaum (2003) found out that most firms did not agree that competitors influenced their risk management practices. To avoid inconsistencies in hedging practices and due to the difficulties involved in soliciting competitors’ practices, most firms would prefer to maintain autonomy in their risk management practices.

Pickford (2002) suggests that a comprehensive approach to financial risk management is necessary due to interaction of various financial risks. Asaf (2004) shares similar sentiments by contending that in today’s rapidly changing business environment, there is need for an integrated approach to enterprise-wide risk management for enhancing strategic advantage. Based on the risk management theory, some firms should hedge all risks, that other firms should not worry about risk at all, and that some firms should
worry only about some kinds of risks (Stulz, 1996). Most responding banks indicated that the correlation of foreign exchange risk to other financial risk exposures influenced their risk management decisions to a large extent. Inter linkages of financial risks is therefore evident in the Kenyan banking sector. However, not so much can be ascertained on exchange rate changes in Kenya: empirical studies explaining exchange rate movements in the 1990s are scanty (Were et al., 2004).

The extent of asset/liability risk management in the commercial banks in the country, which was represented by the banks studied, was determined by calculating the average means of the responses. All the statements in the two tables addressed various facets of foreign exchange risk management. The banks indicated the extent to which the statements were applicable to them. The responses were rated on a scale of 5 (very large extent) to 1 (not at all). Responses at the middle of the continuum meant that the statements were applicable to the banks only to some extent. It emerged that most of the responding banks practiced conventional foreign exchange risk management to some extent: the average means for tables 6 and 7 were 3.34 and 3.69 respectively. Although Li (2003) notes that most of the financial instruments and conventional financial risk management strategies may not be available in financial industry of emerging economies, the results of this study reveal that the banking sector in Kenya is developing for instance most of the exchange risk management practices are employed by most of commercial banks especially the foreign owned banks in Kenya.

Academic literature has recommended some hedging strategies for effective financial risk management. The banks were requested to indicate which ones they employed in mitigating foreign exchange risk.
The results of their responses on hedging strategies are presented in figure three below.

![Figure 3: Hedging strategies employed](image)

Source: survey data

### 4.3 Balance sheet exposure management strategies

The banks were requested to indicate which strategies they extensively used in managing balance sheet exposures. Matching strategy (covering cash outflows with cash inflows in the same currency at the same time) was the most utilized strategy by most responding banks.

The banks’ approaches to hedging against open positions during times of imminent losses were also ascertained. Their views on market fundamentals and the financial managers’ subjective perceptions of risk determined, to a great extent, the strategies employed by the banks. Glaum (2000) found out that most managers did not believe in the validity of the currency market efficiency hypothesis. He recommends that firms that aim to reduce or eliminate exchange risk can hedge individual foreign currency positions.
The responses from the responding banks are presented in the figure four.

**Figure 4: Approaches adopted in hedging**

- Not applicable: 8%
- Depends on nature of transaction: 12%
- Hedging all open positions immediately: 20%
- Selective hedging strategy: 60%

Source: survey data

Based on empirical evidence, the selective hedging strategy (hedging only those positions for which firms expect currency losses) has been given more support by most firms. Although various companies have employed organization specific strategies, the selective hedging strategy has been found to be the most popular. Glaum (2000) found out that about 54% of the responding firms in his study used the strategy which is based on the managers' ability to forecast appreciation and depreciation of relevant currencies over their planning horizon thus relying on the belief that currency markets are not information efficient. This approach is a contradiction of the efficient markets hypothesis. Since financial markets are information efficient, new information is instantaneously incorporated into the prices of financial assets: prices of these assets cannot be extrapolated.

There was need to elicit other approaches employed by the banks in hedging against foreign exchange exposures. Although firms have the discretion to employ whichever approach they consider appropriate, empirical findings have shown that both the micro and the macro hedge approaches were used equally. Fatemi and Glaum (2000) found out that item-by-item (micro hedge) approach and the net basis approach were used equally.
amongst the responding firms. However, the results of this study reveal otherwise as shown in the findings in the pie chart below.

**Figure 6: Distribution of Micro and Macro Hedge**

<table>
<thead>
<tr>
<th>Approach</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro hedge</td>
<td>39%</td>
</tr>
<tr>
<td>Macro hedge</td>
<td>24%</td>
</tr>
<tr>
<td>Both Approaches</td>
<td>15%</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>9%</td>
</tr>
<tr>
<td>No Response</td>
<td>12%</td>
</tr>
</tbody>
</table>

**Source: survey data**

The findings of the study, as extracted from the pie chart above, are different from empirical evidence: the micro hedge approach (hedging individual open currency positions with individual hedge transactions) was the most utilized approach by most banks. Ideally, the micro hedge approach is a better risk management approach since it deals with individual hedge transactions instead of focusing on the net exposure: this could have led most banks to prefer this approach ahead of others. The findings of this study are therefore different from those of Glaum (2000) and Fatemi and Glaum (2000). Regular measurement of the success of a bank’s balance sheet risk management is an essential ingredient of effective financial risk management. The banks were requested to indicate how often they measured the success of their exchange rate risk management policies. Twenty seven indicated that they measured the success of their policies on daily basis; none measured the success on a monthly basis while six indicated that they measured the success frequently. No bank indicated that they measured the success of their balance sheet risk management policies annually. All the banks that measured the success of their balance sheet risk management policies daily had huge amounts of assets in their balance sheets.
Participating banks were also requested to indicate the extent to which statements relating
to financial risk management were applicable to them to gauge the extent to which the
banks employed various salient financial risk management practices. The banks rated the
extent of the statements’ applicability on a scale of 5 (very large extent) to 1 (not at all).
Means were then calculated to gauge the responses of most banks.

The Natural hedging /matching strategy was a popular means of mitigating balance sheet
exposure. The banks were requested to indicate the extent to which they employed the
matching strategy (a way of decreasing currency exposure by covering cash outflows by
inflows in the same currency). The responses gotten showed that most of the responding
banks employed the strategy to a large extent. Li (2003), however stated that financial
risk management in developing economies has long way to go meaning that most
economies do not have adequate financial risk management products, the findings on this
aspect are an indication that developing economies are slowly enhancing their utilization
of conventional risk management practices.

Implementing an effective financial risk management system entails adopting a sequence
of steps. After an organization has identified the risk that it faces, it then decided how its
exchange risk management should be organized and which strategy it should adopt
(Glaum, 2000). For most firms, financial risk management implementation involves three
distinct phases of identifying risk, measuring risk and managing risk. Buttmer (2001)
recommends that firms should strictly adopt the three phases for effective financial risk
management. Similarly, most banks indicated that they adopted a comprehensive
approach to financial risk management that involved compartmentalization of their
financial risk management processes.

Stulz (1996) indicated that most firms sometimes take positions in financial markets
based on their views on exchange rates; he found out that such views affected, to a large
extent, the hedging practices of the responding firms. Similarly, most of the responding
banks indicated that their views affected, to a large extent, the extent to which they
hedged against financial risks considering that each organization has the discretion to
adopt hedging practices based on its perception of market risks. Most firms are therefore
bound to have hedging practices that are firm specific since most organizations do not believe in the efficiency of currency markets. Shah (2004) notes that the nature and perception of risk is subjective; Brucaite and Yan (2000) indicate that the personal manager’s attitude to risk causes a difference in choice of risk management targets. The findings of the current study, on this aspect, are similar to those of the three authors.

Firms practice financial risk management with a purpose Fatemi and Glaum (2000) found out that US firms that used derivatives were motivated by the dual goals of reducing volatility of cash flows and accounts earnings; Pickford (2002) notes that financial risk management hedged financial distress costs. Shah (2004) contends that in efficient markets, risk management pays off if it creates real resource gains for the firms; Stulz (1996) found out that firms try to make a profit by actively managing financial risks hence do not just hedge passively. Similarly, most responding banks indicated that their main reason for practicing exchange risk management was, to a large extent, to achieve business objective.

Ravindran (2005) notes that due to high profile risk management disasters of the 1990s, many risk control measures and concepts such as value at risk (VAR) were introduced to prevent such disasters. It was also necessary to ascertain if commercial banks in Kenya used the technique to estimate balance sheet exposure. Most of the banks indicated that they used the technique to a large extent. Pickford (2002) indicates that most large financial institutions use VaR to monitor potential losses but notes further that banks are beginning to realize that the concept makes unrealistic assumptions. Despite the reservations expressed by Pickford in his work of 2002, the findings of this study are an indication that commercial banks in Kenya value the technique as a measure of risk.

Fama (1970), efficient markets hypothesis holds that financial markets are information efficient and that investors cannot extrapolate prices of financial products due to instantaneous incorporation of new information. In agreement with Fama’s work, it was therefore important to find out if the banks could make speculative gains by predicting future exchange rates. Most banks indicated that they could make such gains to a great extent. This is an indication that the Kenyan financial market is not efficient and
investors can possibly capitalize on market inefficiencies to make above average returns. However, Glaum (2000) notes that such gains are temporary: he indicates that academic literature emphasizes that it is very difficult indeed to make systematically successful exchange rate forecasts though his empirical results showed otherwise. Glaum (2000) found that derivatives could be used to build up speculative positions in financial markets besides being used for hedging against existing risk. Considering the fact that Kenya is an emerging economy, inefficiencies in the financial system are bound to be high hence the responses from most banks that speculative gains could be made through prediction of future exchange rates. The findings, on this aspect, are similar to those of Glaum (2000) but different from recommendations of Asaf (2004) and Crabb (2003).

It was necessary to find out if commercial banks in Kenya were using the concepts of accounting and economic exposure as measures of their balance sheet exposure and most banks indicated that they used the two measures to a large extent. However, Glaum (2000) expresses reservations about the two measures. He contends that the economic exposure concept, favoured by academic literature, is of little importance in practice. He points out further that accounting exposure concept is not considered an appropriate concept to be used in foreign exchange risk management by academicians. The use of economic exposure concept by most responding banks is in line with the prescriptions of academic literature but contradicts some empirical evidence. The use of accounting exposure concept by most banks is in contradiction with the recommendations of literature. There isn’t sufficient empirical evidence though to prove whether the concept is popular in corporate practice.
CHAPTER FIVE: SUMMARY AND CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDIES

5.1 Summary and conclusions

5.1.1 Summary

Introduction

The concept of asset/liability management is a relatively new concept in risk management in developing countries as demonstrated in studies carried out in other developing countries such as by Ravindran (2005) in India and by the Bank of Bangladesh Focus group (2003). This fact occasioned the use of a census survey of the practices related to this concept in commercial banks in Kenya so as to gather as much information as is available. A comprehensive questionnaire was delivered to the banks' treasuries to respond in order to achieve the research objectives set for this study. Thirty three banks participated in the study and their practices were compared with academic literature to make several deductions. The study established that some of the conventional strategic risk management practices and terminologies are not practically applicable in the local financial sector evidenced by limited information provided by the respondents giving an indication that they did not understand some questions.

Asset/Liability Management Practices

Several deductions were made concerning asset/liability management practices in the banks as stipulated in the study objectives. Credit/default risk was rated by most banks as the most critical risk though empirical results indicate that exchange rate risk is the most critical; some banks indicated that all financial risks were critical to them. On the risk control where hedging was widely used, both forward contracts and foreign currency options were frequently utilized hedging instruments by most banks.

Most banks employ natural hedging/ matching strategy to a large extent in risk management but diversification strategies were used by just but a few banks and only to a
limited extent not much enough to cover the entire balance sheet exposure. The study also established that majority of the banks carried out a periodic and systematic evaluation of their exposure measurement approaches. It was also ascertained that selective hedging strategy was the most popular for most banks. Further in disagreement with the certain published findings and empirical evidence of some studies, micro hedge approach was the most utilized practice by most banks. To a large extent, Value at Risk (VaR) was used as a risk estimate technique by most banks but not in the most modern or advanced models of the technique.

**Extent of Use of Asset/Liability Management**

Asset/liability management is an evolving concept and is at different stages in different places; in this study it came out that most banks that responded still employ maturity matching as an asset/liability exposure management. Since there are no formal corporate approved financial risk management practices, some hedging instruments and strategies were bank-specific though quite a number of them were conventional. Academic literature especially from Europe and America were mainly used in the interest of linking theory and corporate practice. It emerged that most banks considered the Kenyan financial market to be inefficient hence being able to take individual positions with intentions of making financial gains; speculative gains could be achieved by predicting future financial positions. Strategic risk management had gained increased attention amongst some commercial banks in Kenya since a strong majority of them had risk management departments and training programmes about the same. The banks’ views greatly influenced their practices. It also emerged that most banks practiced strategic risk management in order to achieve business objectives including long-term survival and short-term profitability. It also came out that several hedging practices were based on forecasts. Most of these banks employ financial derivatives to build speculative positions in the financial market. Similarly it emerged that banks, which had been in operation in the country for longer periods, had developed better strategies in their operations including those in risk management practices.
5.1.2 Conclusions

The conclusions of this study were guided by the objectives of this study which were attained to a large extent having been supported by the data collected and analyzed through the study.

Most banks utilized several other practices to varied extents among which included making periodic and systematic assessment of exposures, use of natural hedging/matching strategy and the micro hedge approach. They also include forecasting currency movements, basing hedging decisions on individual currency positions and the correlation of foreign exchange risk with other financial risks. The use of Value at Risk (VaR) as a technique of estimating was as well found to be a common practice amongst most banks. Most banks preferred the selective hedging strategy as compared to hedging all open positions immediately.

Based on the research data, hedging practices were mainly influenced by a bank’s views on the risk levels and type, which most concern the bank. The study showed however that even though the term asset/liability management is commonly used in general risk management practices that banks apply, the importance is still not clear to many officials who could not justify the introduction of ALM in their banks. Others were not in a position to state the practices that ALM replaced. The practices ascertained include: forecasting, and taking individual positions in the currency markets with the intention of making financial gains, carrying out training programmes on financial risk management. Majority of the banks that responded in this study carried out regular and systematic assessment of exposure measurement strategies and risk management policies. Several banks also employed accounting and economic exposure measurement strategies. It also emerged that most banks extensively used the micro hedge approach though empirical evidence shows that most firms equally used both the micro and macro hedge approaches.

From the study findings, it emerged that credit risk or as is also referred, most banks viewed default risk as the most important financial exposure thereby making the hedging strategies applied to be more tailored towards managing this risk alongside other
exposures. The risk management steps of identifying, measuring and managing risk were found to be a common practice amongst most banks. Most responding banks founded their financial risk management decisions on their individual perceptions of risk. Most banks were also established to commonly use forward contracts and foreign currency options more often than other hedging instruments.

5.2 Limitations
Insufficient information was provided by the respondents while others failed to participate which impacted adversely on the conclusions and achievement of research objectives. Treasurers delegated the role of filling questionnaires to other juniors due to their busy schedules who couldn’t provide sufficient ALM information which is a strategic issue and that it concerns policy formulation in which juniors are not actively involved in. Clarifications for some questions were expected by some respondents due to the technicality of some of the terms used in the concept of asset/liability management which was limited by the use of questionnaires in data collection. This adversely affected quality of responses and interviews could have probably been used to give such clarifications.

5.3 Recommendations
The study found out that some banks based their balance sheet hedging decisions on speculations and forecasts of currency market fundamentals. This implies that most banks do not consider the Kenyan financial market as being information efficient. Since most of the risk management failures that featured in the 1990s were shown to result from speculative activities in financial markets, the Central Bank of Kenya and other regulatory bodies should intervene and champion further liberalization yet tighten their checks on perpetrators who manipulate market fundamentals to eliminate such inefficiencies.

Since this was a census survey, the findings of the study provide useful comparisons of various facets of exchange risk management practices; a detailed analysis of the link between theory and practice is well documented. The rest of the commercial banks in Kenya can learn better or more advanced as well as suitable practices on asset/liability
management by involving more of their staff in training programs. More so the banks should make their training programs more frequently and even to arrange for their staff to learn new practices in international training forums.

5.4 Suggestions for further research

Banking practices involve complex issues whose understanding may require, interviews with the treasurers and questionnaires where possible to provide the future researches with more detailed information.

Specific models employed by banks in relation to their risk perception of the financial risk can form a suitable area of future studies while liquidity management as the main approach to ALM can also form another area of study.
REFERENCES


Englewood Cliffs-N.J 07632


www.centralbank.go.ke/risk management guidelines,2005

www.bis.org/core principles methodology,2005

www.riskglossary.com/bank risk management/asset-liability management
www.financersearch.com/asset-liabilitymanagement in Indian commercial banks,
2005

www.financersearch.com/asset-liability management/managing core risk
Appendix 1: Letter of Introduction

Peter Macharia  
C/O (MBA office)  
Kenyatta University  
P.O Box 43844, Nairobi.  
June 2011

Dear Respondent,
My name is Peter Macharia, a Masters student in Business Administration (MBA) at Kenyatta University. I am currently carrying out my Research Project on the topic “An Investigation of Asset Liability Management Practices in Commercial Banks in Kenya”. I am inviting you participate in this research project by filling out the short questionnaire attached. You will be asked a variety of questions about the risk management practices in your bank.

You are not required to put your name or employees number on this questionnaire. I guarantee that your responses will remain confidential and will not be identified with you personally. The questionnaire should take you about 20 minutes to complete, kindly take the time to fill it for collection later.

If you have any questions or concerns about completing the questionnaire or about being in this study, you may contact me through the email address provided below. This project has been approved by the Chairman MBA department, Kenyatta University. I will greatly appreciate your help in furthering this research endeavor.

Sincerely,

Peter Macharia
Appendix 2: Questionnaire

This questionnaire is intended to establish facts on the implementation of asset-liability management in commercial banks in Kenya and its impact on banks' performance.

SECTION A: GENERAL INFORMATION

1. How long has your bank been operating in Kenya?
   a. Less than 10 years / Between 11 and 20 years / More than 21 years

2. Why did your bank introduce the asset-liability management function?

3. How long ago was this function introduced in your bank?

4. What risk management methods did asset-liability management replace?

5. What model of asset-liability management has your bank adopted?

6. Who heads the asset-liability management function in the bank?

7. Is there an asset-liability management committee in the bank?

8. Are all the committee members from the treasury department?

9. What other positions do these members hold in the bank?

11. Who does this committee report to in the bank?

12. Does your bank have training programs on asset-liability management?

13. Who are eligible for the training in the bank?

SECTION B: ASSET-LIABILITY MANAGEMENT PRACTICES

1. Please rank the following risk exposures in their order of importance to your bank:

   1. Interest rate risk ( )
   2. Credit risk ( )
   3. Foreign exchange risk ( )
   4. Liquidity risk ( )
   5. Market risk ( )
   6. Operations risk ( )

1. How was ALM introduced into your bank?

   ........................................................................................................

2. What practices changed with the introduction of ALM?

   ........................................................................................................

3. How is Asset/liability management important to your bank?

   ........................................................................................................

4. What is the role of ALM in risk identification?

5. How do you measure in the bank the asset-liability exposure/balance sheet exposure?

6. What measuring tools are used?

   ........................................................................................................

7. How is ALM used as a risk management approach?
8. Do you consider the net exposure when hedging or you hedge for particular exposures? Please explain.

9. How often does your bank measure the success of its balance sheet risk management policy?

10. How often does your bank review the balance sheet risk management policy in place?

11. What does ALM aim to achieve?

12. How does ALM cater for short-term profitability and long run sustainability?

13. How are other departments/ operational functions like human resources and marketing involved in ALM activities?

14. How is the board of governors involved in the operations of ALM?

The following statements relate to asset-liability management. Kindly indicate by marking on the scale of 1 to 5, the extent to which these statements apply to your bank.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all (1)</th>
<th>Small extent (2)</th>
<th>Some extent (3)</th>
<th>Large extent (4)</th>
<th>Very large extent (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Financial markets are information efficient: organizations cannot make speculative gains through predicting future exchange rates.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The main reason for practicing asset-liability management is to achieve business objectives</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Asset-liability exposure management goes through risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
identification.
Asset/liability management goes through risk measurement.
Asset/liability management goes though risk control.

4. Diversification strategy involves diversifying operations by making use of funds in more than one capital market.
Diversification strategy involves using funds in more than one country.

5 Natural hedging/matching strategies is a way of reducing balance sheet exposure.

6. Accounting exposure concept is a measure of balance sheet exposure used by financial institutions.
Economic exposure concept is a measure of balance sheet exposure used by financial institutions

7. An organization’s own view of affects the extent to which it hedges against financial risks.

8 Value at Risk (VAR) is a technique used by banks to estimate market risk.

The following statements relate to risk management. Please rank them by marking the extent to which the statements apply to your bank on a scale of 1-5.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Not at all</th>
<th>Small extent 2</th>
<th>Some extent 3</th>
<th>Large extent 4</th>
<th>Very large extent 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The bank’s major competitors’ risk management practices influence its own balance sheet management decisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Banks hedge with an aim of profiting from asset. Banks hedge with an aim of profiting from liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. A banks financial decisions are influenced by its balance sheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Banking institutions do not set specific time horizons for hedging activities.

6. Banks base their hedging activities on current balance sheet position.

7. Banks forecast appreciation and depreciation of relevant asset and liabilities during their planning horizons.

8. The correlation of asset position and liabilities position in terms of exposure exposures influences a bank's risk management decisions.

9. There are general rules formulated by banks for setting their hedging times.

10. During periods of relatively high profits, banks protect themselves less intensively against unexpected exchange rate changes than they usually do.
### Appendix 3: Work Plan

<table>
<thead>
<tr>
<th>TASK</th>
<th>DATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Literature review</td>
<td>January /February 2011</td>
</tr>
<tr>
<td>2 Proposal writing</td>
<td>March 2011/ April 2011</td>
</tr>
<tr>
<td>3 Questionnaire development, pretesting and Correction and Sending</td>
<td>June 2011-July 2011</td>
</tr>
<tr>
<td>4 Collection and analysis of questionnaire and report writing</td>
<td>July-Aug 2011</td>
</tr>
<tr>
<td>5 Submission of Project work</td>
<td>September 2011</td>
</tr>
</tbody>
</table>
### Appendix 4: Budget

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>ITEMS</th>
<th>COST PER ITEM (KSH)</th>
<th>TOTAL COST (KSHS)</th>
</tr>
</thead>
</table>
| Proposal Development | - Typing 1,200  
- Printing 600  
- Printing paper 400  
- Binding 100 | 2,300               |
| Data Collection | - Questionnaires (Printing) 2,000  
- Printing paper 400  
- Traveling and logistics 2,000  
- Pens and other writing materials 1,000  
- Research assistants (2) 10,000 | 15,400              |
| Data analysis and presentation | - Typing 400  
- Printing 500  
- Printing paper 800 | 1,700               |
| Final project presentation | - Report preparation 2000  
- Report printing 1000  
- Binding 1000  
- Copying 300 | 4,300               |
| Miscellaneous | - Others & Contingency N/A | 5,000               |
| **TOTAL** |                                 | **28,400**           |
Appendix 5: List of Commercial Banks In Kenya

List of commercial banks operating in Kenya as listed by the central bank of Kenya as at 31 December 2010

1. African Banking Corporation Ltd. 22. First community Bank Limited
6. CfC Stanbic Bank Ltd. 27. Habib Bank Ltd.
7. Chase Bank (K) Ltd. 28. I & M Bank Ltd
12. Credit Bank Ltd. 33. Middle East Bank (K) Ltd
14. Diamond Trust Bank (K) Ltd.
15. Dubai Bank Kenya Ltd.
16. Ecobank Kenya Ltd.
17. Equatorial Commercial Bank Ltd.
18. Equity Bank Ltd.
19. Family Bank Ltd.
20. Fidelity Commercial Bank Ltd.
21. Fina Bank Ltd.

35. NIC Bank Ltd
36. Oriental Commercial Bank Ltd
37. Paramount Universal Bank Ltd
38. Prime Bank Ltd
39. Standard Chartered Bank (K) Ltd
40. Trans-National Bank Ltd
41. Victoria Commercial Bank Ltd
42. UBA Kenya Bank Ltd.
43. Housing Finance Ltd