

**A SURVEY OF ASSET-LIABILITY MANAGEMENT
PRACTICES IN COMMERCIAL BANKS IN KENYA**

This project's subject is my original work and has not been presented for a degree or other qualification in any university.

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Date: 15/11/2006

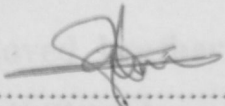
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DECLARATION

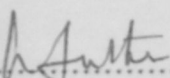
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DEDICATION

The Almighty God the author and finisher of all, to Him be the Glory and honour!

This work I dedicate to my beloved late parents; Mr. Joseph Osulo Ogilo and Mrs. Phoebe Achieng' Osulo who gave me the principles of life and more, to put me through the bit of education they wished for me. God rest the souls of these wonderful people I experienced. Also to my beloved brother; Mr. George Osulo who took over the parental responsibilities long before he was old enough to be one, God bless him too!

I also appreciate my little sisters: Colleta and Priska.

For the kindness of Mrs. Joice Moinkett formerly of Olooseos secondary who afforded me schooling time in my entire financial deficit; I appreciate.

To Fr. Modesty Inyait of apostles of Jesus seminary Langata I say thank you and god bless you

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Similarly, I thank my family for being there for me all the time I needed them and for bearing with me the continuous demands on them throughout the study period.

God bless all these wonderful people!

List of abbreviations

ALCO- Asset/liability Management Committee

ALM -- Asset/liability management

RSA-Risk sensitive Assets

RSL- Risk Sensitive Liabilities

VAR- Value at Risk

MIS-Management Information Systems

RMP-Risk Management Programmes

FPT- Funds Transfer Pricing

WBG- Wholesale Borrowing Guidelines

NIM- Net Interest Margin

NII- Net Interest Income

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ABSTRACT

This study was designed to achieve two objectives: establish the asset/liability management practices by commercial banks in Kenya and to find out the extent of asset-liability management by the banks. Much of the evidences used have been derived from the responses given by the banks that participated alongside with findings of other studies done in related areas. These have been employed for comparison with other prescriptions on strategic risk management/ balance sheet management to banks by the central bank of Kenya. The study focused on the head offices, specifically the treasuries of the forty-five commercial banks operating in the country but only thirty of these banks responded.

This study was an exploratory one in the area of asset/liability management and was thus carried out as a census survey. Qualitative primary data was used on the practices adopted by the commercial banks on asset/liability management as well as the structure of ALM. This data was gathered through Self-administered questionnaires, which were administered to the treasury departments of the banks that were dropped to the heads of treasury operations and picked later. The analysis widely employed content analysis but in other areas descriptive statistics were used to analyze the data.

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.

INTRODUCTION

1.1 Background

Asset/Liability management has been defined as 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). Gardner and Mills (1994), also define asset/liability management as 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 owe 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, Imdieke (1986). 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.

In Gardner and Mills (1994) it is 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 ALM 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.

1.1.1 The Concept of asset/liability management

Commercial banks essentially intermediate between the opposing liquidity needs of depositors and borrowers. Fabbozi (1999) pointed 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) at www.centralbank.go.ke, 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) also 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 is 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 ALM 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 ALM 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. Financial institutions in the U.S pioneered ALM, 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 financial institutions in the U.S in the mid 1970s following deregulation of interest rates, which compelled financial institutions 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 ALM 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 to this 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.

ALM 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; asset/liability management at www.riskglossary.com. 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.

1.2 Problem Statement

The concept of asset/liability management is currently considered a global language in the management of risk in organizations with specific reference to sources of resources and the applications of those resources generated; asset/liability management (www.garp.com). Asset/liability management is also known to have as several meanings as the areas of their application because the balance sheet items vary in their definitions and classification as liquid or illiquid sources of funds or uses of those resources, Greuning (2003). It is also notable that banks like any other businesses operate in environments with numerous characteristics that influence their operations and performance. In (www.riskglossary.com asset/liability management), it is reported that factors such as politics, economic environment, the regulatory framework and culture have a great influence on banks. Since these factors are unique in different countries and

regions, the risk type and magnitudes are also expected to vary. (Ravindran 2005) found that the management of banks tends to emphasize on matching of balance sheet elements to manage their graver risk classes. The main risk classes for banks as reported in risk management guidelines (2005) at www.centralbank.go.ke include liquidity risk, credit risk, foreign exchange risk, operation risk and interest rate risk.

In Bangladesh Bank Focus Group report (2003) it was noted that asset/liability management is a strategic level decision and is usually implemented through an executive committee, the asset/liability committee (ALCO) in many institutions. They stated that this committee encompasses the entire bank's top management such as the CEO and other heads of functions. In Fabozzi (1999) it is pointed that the scope of ALM includes the Integration of market risk and credit risk, interest rate exposure management, funding and capital planning, foreign exchange management, liquidity management, Profitability and growth Management and Trading Risk Management. Several approaches have been found to be available that can be adopted in measuring, monitoring and controlling risk.

The 1990s and part of the 2000s witnessed failure of several banks operating in the Kenyan economy, which included: the Euro bank, Trust bank, and Daima bank among others. Similarly most other banks that survived that spate of failures still until recently operated with dismal if not declining profits in their books. Kashyap, Rajan and Stein (2002), proposed a simple and convincing risk-management rationale for a defining characteristic of a commercial bank, that is, a financial intermediary that combines demand deposits with loan commitments and lines of credit. Risk management also dictate that as long as the demand for liquidity from depositors and borrowers is not too highly correlated, the intermediary should pool these two classes of customers together to conserve on its need to hold costly liquid assets – the buffer against unexpected deposit withdrawals and loan take down.

It is also important to note that even when the banking sector of the financial services industry has recorded remarkable recovery and are actually growing at their varied rates, not much in this turn of events in the management practices has been studied or written about in Kenya. This is necessary so as to give an insight and understanding into the underlying causes and documented effective management of their down turn periods. It is the presence of this gap in the way

Kenyan commercial banks, that commonly performed poorly and again somewhat gained performance ground yet lacking recorded findings on systematic managerial practices changes that have motivated this study. In the view of the importance of these elements of bank management and successes over risk, liquidity and profitability concerns and the way they match or mismatch their assets and liabilities, this study seeks to answer the question: how is the asset/liability management function implemented by commercial banks in Kenya?

1.2.1 Objectives of the Study

- i) To establish the asset/liability management practices by commercial banks in Kenya
- ii) To find out the extent of application of asset-liability management by banks in Kenya.

1.2.2 Importance of the Study

- i) Only information on how specific elements of risk are managed has been availed such as the study by Omagwa 2005 on foreign exchange risk management. 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.
- ii) This study is also expected to benefit the financial institutions in appreciating the concept of asset-liability management and to bring to light the extent of its adoption as a risk management tool. The bank management should be able to compare their current position in balance sheet management and the theoretical provisions of this concept of asset-liability management. In the light of the growing acceptance of strategic management, ALM accompanies most of the strategic approaches adopted in management therefore those banks that develop strategic plans will need this tool.
- iii) Studies have been done on this area in other countries among them: India, Bangladesh, USA and Canada on various aspects of the ALM concept this study which is based on the Kenyan environment is expected to attract more attention by financial researchers and scholars to study more the tool of risk management that is ALM in Kenya and Africa.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Volatile global markets, proliferations of new financial products and changing regulatory environments have made Asset-Liability Management (ALM) a critical task for financial institutions 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, (growing importance of ALM, www.gfft.com).

Greuning (2003) has defined 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 ALM 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 in 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), ALM 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 financial institutions 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 ALM function (www.finser.com).

2.1.1 Evolution of Asset Liability Management

According to Gardner and Mills (1994), Until the 1970s the business of banking consisted of extension of credit. It 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), it is argued 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 ALM 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 ALM 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) at www.garp.com) 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) at www.garp.com, 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. ALM 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 ALM, (2006) at www.fca.org; it is noted that an important component of an acceptable ALM function is the development of an appropriate ALM 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 ALM

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 ALCO 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 ALM 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 in to 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) www.garp.com. 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. (Hallerbach, www.feu.eur), 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, (risk management, www.riskglossary.com). 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 1,200per 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. In Gartev and Stratan, (2005) at www.warton.com; Stop-loss provisions is 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. Greuning (2003) defines it as 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 (www.centralbank.go.ke): 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 financial institutions 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. In Jain, Chinda and Zaidi (2005) at www.finance-research.com; if the money

borrowed is on floating rate basis the bank faces the risk of lower profits in an increasing interest rate scenario. Similarly fixed rate assets face the risk of lower value of investments in an increasing interest rate scenario. Interest rate risk becomes prominent when the assets and liabilities of the bank do not match in their exposure to interest rate movements.

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(ALCO) 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; (asset/liability management;www.garp.com).

a) 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 notes further that by this analysis the gap is closed when repricing of Rate Sensitive Assets (RSA) and rate sensitive liabilities (RSL) is adequately matched. In (www.centralbank.go.ke) it is stated 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 straight forward 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.

b) 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: model gap assessment

Interest Rate Risk Assessment - Rate Sensitive Gap				
	1-14 days	15-28 days	29-90 days	Total
Rate Sensitive Assets (RSAs)	1090.74	1037.00	1218.00	3339.74
Rate Sensitive Liabilities (RSLs)	821.77	407.00	1520.00	2748.77
Rate Sensitive Gap (RSG)	268.97	630.00		

c) Simulation Models:

In Fabozzi (1999), simulation models were developed to correct several of the deficiencies in the dollar gap models. 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. Finally; controlling the interest risk through asset securitization.

2.3.7 Credit risk

In risk management guidelines (2005), www.centralbank.go.ke; 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; (www.centralbank.go.ke) the central bank of Kenya, it is 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. In, www.bis.org; international convergence and capital measurement), 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, (www.centralbank.go.ke); it is pointed 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. In (bank risk management; www.garp.com) it also noted 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 (core principles methodology; www.bis.org); 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 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 ALM 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 ALM function is the development of an appropriate ALM policy. Policies provide boundaries for decision-making and represent the philosophies and attitudes of an institution's board of directors, (www.centralbank.go.ke). 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) 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 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; www.garp.com. The site authors also concede that an appropriate ALM 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. In (WWW.STATESTREET.COM/SECURITIESFINANCE), because of their critical role, an institution's ALM and strategic planning processes should be properly and effectively integrated. The central bank of Kenya in risk management guidelines (2005) also contends that establishing a proactive financial planning process that stresses ALM 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 ALM 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 ALM process, according to risk management guidelines 2005 at

(www.centralbank.go.ke), 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 ALM 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 ALCO 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(www.bis.org), in every ALCO meeting, action points taken in the past ALCO meeting should be reviewed to ensure implementation and specific functions of ALCO 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 ALM

In Asset/liability management (www.fca.org), it is identified that however the ALM 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 ALM process and those strategies should be operationally well defined.

2.4.3 Policy statement

In risk management (www.centralbank.go.ke); 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: $\text{Loan} / (\text{Deposit} + \text{Capital} + \text{Funded Reserve})$. 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 ALCO Process

Bangladesh bank focus group (2005) explains that the ALCO process or the ALCO meeting reviews the ALCO 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 ALCO 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 ALCO 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 ALCO Meeting

Apart from the regular monthly meeting, ALCO 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 ALCO meeting, where the committee may take critical decisions for deposit mobilization on an urgent basis for reducing dependency from the market.

2.4.8 Comprehensive risk management programme

In (www.bis.org), core principles methodology; it is noted that 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.

In (www.centralbank.go.ke), regardless of the Risk Management Programme design, each programme should include: Risk Identification; In order to manage risks, risks must first be identified. Almost every product and service offered by financial institutions 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, (www.bis.org), Risk

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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. Financial institutions 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. Financial institutions 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:

2.4.9 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.

2.4.10 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 financial institutions 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.

2.4.11 Adequate Risk Monitoring and Management Information Systems (MIS)

Effective risk monitoring requires institutions to identify and measure all material risk exposures. Consequently, risk-monitoring activities must be supported by information systems that provide senior managers and directors with timely reports on the financial condition, operating performance and risk exposure of the consolidated organization.

The sophistication of risk monitoring and MIS should be consistent with the complexity and diversity of the institution's operations. Every financial institution shall require a set of management and board reports to support risk-monitoring activities. These reports may include daily or weekly balance sheets and income statements, a watch list for potentially troubled loans, a report of overdue loans, simple interest rate risk report and other relevant reports. Financial institutions are expected to have risk monitoring and management information systems in place that provide directors and senior management with a clear understanding of the financial institution's risk exposures.

2.4.12 Adequate Internal Controls

In (www.centralbank.go.ke), 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.

Findings from the study

3.2 Population

The population of study consisted of all the forty-five commercial banks operating in the country. These banks are variously classified into foreign banks, local banks, licensed banks, and other classes that are not relevant to this study. Since the population of the subject of this study was not too large, the entire population was included in the study. This was also done to ensure that the study would give a better representation of the population. There was also no need for a pilot study since the population was not too large. The study was done in the form of a questionnaire survey. The questionnaires were distributed to the heads of the banks and the heads of the branches. The questionnaires were filled out and returned to the researcher. The questionnaires were then analysed and the results were presented in the form of a report.

3.3 Data collection

Primary data was used in the study. The data was collected using questionnaires distributed to the heads of the banks and the heads of the branches. The questionnaires were filled out and returned to the researcher. The questionnaires were then analysed and the results were presented in the form of a report. The data was collected through a questionnaire survey. The questionnaires were distributed to the heads of the banks and the heads of the branches. The questionnaires were filled out and returned to the researcher. The questionnaires were then analysed and the results were presented in the form of a report.

3. CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research design

This research was an exploratory study carried out as a census study. The population of forty-five was seen to be small enough to accommodate a census study in order to give a clearer picture of the findings; which could be used to arrive at objective/justified generalizations on the findings from the study.

3.2 Population

The population of study consisted of all the forty-five commercial banks operating in the country. These banks are variedly classified into categories such as foreign banks, locally registered banks and other classes that did not affect greatly how they operate and the central bank's control. Since the population of the subject of study was considered to be small, no sampling was done across this population. Census study was preferred to sampling in this study because a census would give a better representation of the point of concern than if a sample was taken and studied. There was also noted a relative localization of the banks operations in the capital city from where information could be sought with less difficulty, again since the treasury operations are mainly situated in the head office of the banks, the researcher could reach them conveniently.

3.3 Data collection

Primary data was used for the study. The data was collected on the balance sheet management practices; risk management, measurement and risk control including the employed hedging practices. Data was also collected on the frequency of evaluation of the exposure management strategies adopted. The researcher also sought to know the structure of the asset/liability as organized in the banks. This data was collected through detailed self-administered questionnaires that are constructed using open-ended, closed-end and Likert-scale type questions. The questionnaires were administered to the treasury departments of the forty-five banks using a 'drop-and-pick-later' technique.

The researcher took into consideration the busy schedules that the treasury departments run in banks and for that reason one month will be allotted for filling the questionnaires. Follow up on these questionnaires with the respondents was done on a regular basis in time duration of one week and also as agreed with the respondent to fit in their schedules. Follow up was also aided by well-spaced phone calls. The reason for this kind of follow up is so as to enhance the response rate of the target respondents. This again was based on the understanding of the busy schedules that the target respondents run that would affect the response rate if not followed up.

3.4 Data analysis

Since this was an exploratory study, content analysis was largely used. The central bank guidelines on risk management as well as findings of studies carried out in other nations that are mentioned in the literature review were used for comparison of existing practices. The essence of comparison was in order to link the current practice in these banks with the theoretical provisions that underlie the concept being reviewed in this study. It also attempted to ally these to other practice regulatory requirements internationally. To facilitate conceptualization of the research findings, the survey data was further presented in tables, graphs and pie charts. Similarly other descriptive statistics tools like means will also be used to ascertain the extent of the banks' asset-liability management adoption.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

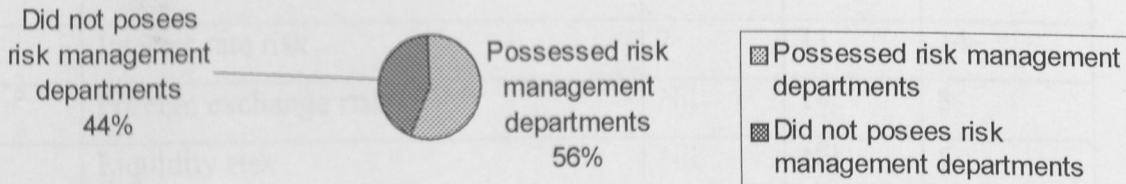
4.0 Introduction

All the forty-five commercial banks operating in Kenya were selected for study since this was a census study. All these banks were presented with questionnaires through their treasuries but only thirty responded representing a response rate of 67%. This can be regarded as high response rate for a study of this nature considering the confidentiality attached to banking practices. It is in following with this close watch on bank information that certain banks did not respond referring this non-response to prohibition by their policies on doing so. Even though this has not been clarified and justified by these banks, it could probably be viewed as a safety precaution to ensure that certain crucial information such as that to do with strategic risk management is not readily provided in research in the fear that this could at times reach their competitors with unfavourable consequences. This document does not reveal the identity of the respondents in this study because of confidentiality of information given. Following the study objectives set to guide the formulation on seeking information, this study sought to ascertain the asset/liability management practices of commercial banks in the country and the extent of asset/liability management by the banks and orders the practices in rank of importance in the view of answering the research questions identified.

Introduction of risk management departments has been viewed as a positive step towards effective financial risk management. It was therefore necessary to ascertain if the banks had risk management departments. It is important to note that nearly all of 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 one below.

4.1 Responses on possession of risk management department

Figure 1: Distribution of responses on the possession of risk management departments by the banks



Source: Survey data

Crabb (2003) found that those firms with risk management departments were better financial risk management practitioners; the findings in this study represented above are in support of those findings. The possession of risk management department was related to other prescribed risk management practices including identification, measurement and control.

In that concern, the commercial banks in this study were also presented with six financial risk exposures and asked to rank these risk exposures (credit risk, interest rate risk, foreign exchange risk, liquidity risk, market risk and operation risk) in order of importance to them. A few banks indicated that the risks were all important to them; twenty-five indicated that credit/default risk was the most critical risk then followed by foreign exchange risk. Only two banks rated interest rate risk as the most critical; while three others 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 below.

Table 2: ranking of six main banking risks

Rank	Ranking the exposures from the most critical to the least critical	Most critical	Second Most Critical	Third Most Critical
1	Credit/default risk	25	2	Nil
2	Interest rate risk	2	11	14
3	Foreign exchange risk	Nil	14	8
4	Liquidity risk	Nil	Nil	5
5	Operations risk	Nil	Nil	Nil

Source: survey data

According to the findings from a study done by Brucaite and Yan (2000), it was indicated that exchange, interest rate and changes in inflation have a kind of correlation and that this correlation is of a high degree that affects the value of the firm adversely. Some banks indicated that in line with this interaction that all the financial risk exposures were crucial to them. It is in this interaction of risks that some banks are therefore bound to consider all the financial exposures to be critical. A comprehensive approach/ a strategic approach to financial risk management is therefore necessary due to such interactions of various financial risks. 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. Asaf (2004) also agreed with this view by indicating that in today's rapidly changing business climate, there is need for an integrated approach to enterprise-wide risk management for enhancing strategic advantage. The study findings show that most of the responding banks had and conducted training programs on risk management to their employees. Twenty-four banks had training programmes while two did not have such programmes yet four did not respond to that question. Considering the increased attention that has been given to financial risk management worldwide, the above responses were an indication that commercial banks in Kenya were also directing their efforts to contemporary financial risk management

practices. It was also important to note that even those banks that did not have risk management departments conducted training programmes on risk management. Financial risk management is therefore being given more attention among commercial banks in Kenya.

4.2 Asset/liability management practices

Academic publications have shown that many options and strategies have been recommended for use for the management of financial risk. All these suggestions have their backing and motivations in empirical finding following financial studies carried out over time. In this study, the banks were asked a certain questions in an attempt to ascertain various facets of their asset/liability management systems.

4.2.1 Risk measurement

According to Asaf (2004), there is no uniform approach to financial risk management among firms today. 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. In line with the fact that several risk measurement techniques exist and that none is globally prescribed, firms are at liberty to choose their preferred method therefore different banks have also adopted different asset/liability exposure measurement methods. It was important to recognize the environment in which these firms operate; the emerging economies which are mainly ruled by regulations more especially in the financial sector. In this consideration, many more of the risk management products have not been availed or embraced by most practitioners in the banking industry.

Further questions were asked to ascertain other aspects of the banks' exposure measurement practices. These banks were asked whether they hedged against transaction and economic exposures. Twenty-four banks indicated that they used accounting exposure with two others indicating they used the economic exposure. The rest did not respond to this question.

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; Glaum

(2000) also found out that risk management of US firms was highly centralized. This empirical evidence is 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. The variation in practices is due to the fact that there are no formal corporate approved risk management practices that must be adopted by firms; due to the freedom in choice of risk management practices, the banks were bound to give various responses that were influenced by their views on what they considered to be the best practices. 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, it then decides how its exchange risk management should be organized, which strategy it should adopt and which instruments it should use. Only one bank 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 if they used some conventional hedging instruments to mitigate foreign exchange risk. Their responses are summarized in the table below.

Table 3: Responses on hedging instruments used by the banks

Instrument	Bank using this method/30	% of method application
Foreign currency option	22	77
Forward contract	20	67
Swaps	5	17
Spot transactions	4	13

Source: survey data

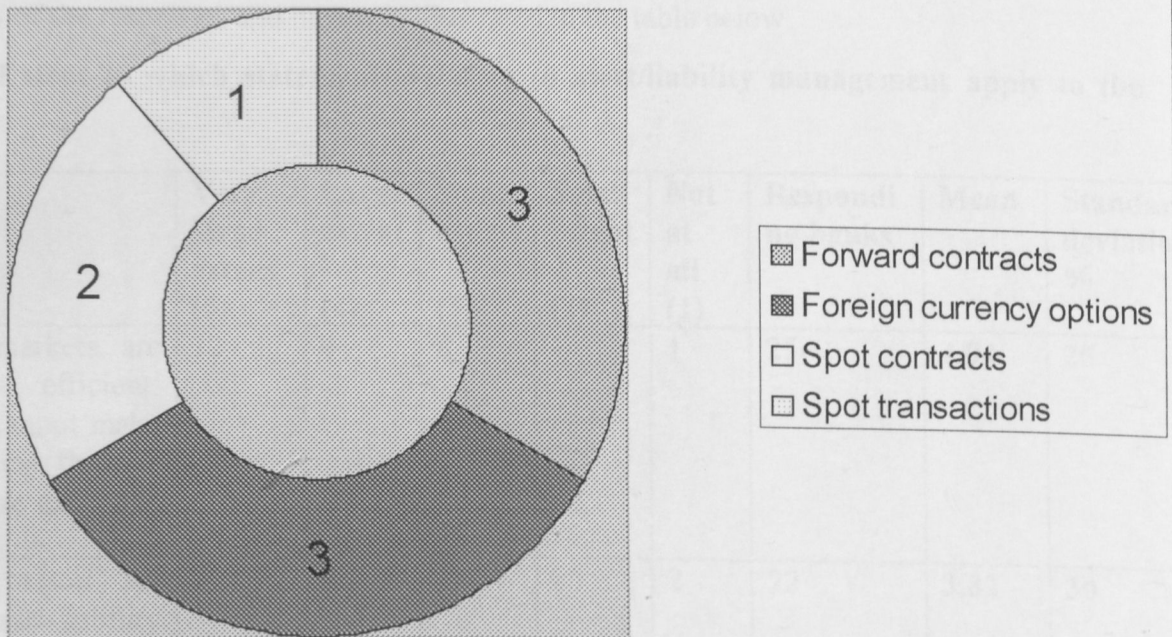
In general, twenty-two banks used foreign currency options while twenty used forward contracts. Five banks indicated that they used swaps while four others indicated that they used spot transactions. Of all the conventional hedging instruments, most banks used only forward contracts.

According to Fatemi and Glaum (2000), US firms that used financial derivatives were motivated by the two overlapping goals of earning good spread in the short-run and that of reducing volatility of cash flows. The results from this study shown in table two reveal that most banks used financial instruments to hedge against balance sheet risk. Crabb (2003) supports these findings and state that since we do not live in a perfect world, there are practical/real reasons such as financial distress costs; as to why risk management should be practiced. In his argument, Pickford (2002) also noted that financial distress costs are very significant economic costs and which 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. The empirical finding that the use of derivatives increases with the size of the firm does not hold in this case since even the small banks made use of most of the hedging instruments.

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.

Derivatives used by banks and their frequencies

Figure 2: Most frequently used instruments



Source: survey data

The above responses indicate that both forward contracts and foreign currency options were frequently used by most of the responding firms. These results show that forward contracts and foreign currency options were the most utilized hedging instruments for most banks. 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. How frequent a bank utilizes an instrument depends, to a large extent, on the nature of its transactions and effectiveness of the derivatives to mitigate the financial exposures.

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. Means were used to gauge the extent of applicability of the statements to the banks on a scale of 5 (very large extent) to 1 (not at all). An average mean was ascertained to establish the general extent of applicability of all the practices to all the responding banks. A detailed discussion of the findings is presented in the preceding paragraphs; a summary of the responses and means is illustrated in the table below.

Table 4: Extent to which statements relating to asset/liability management apply to the banks

Statements	Very large extent (5)	Large extent (4)	Some extent (3)	Small extent (2)	Not at all (1)	Responding banks	Mean	Standard deviation %
1. Financial markets are information efficient: organizations cannot make speculative gains through predicting future exchange rates.	12	4	8	-	1	25	4.04	25
2. The main reason for practicing asset-liability management is to achieve business objectives	8	6	6	-	2	22	3.82	30
3. Asset-liability exposure management goes through risk identification.	10	3	6	2	-	21	4.0	21
4. Asset/liability management goes through risk measurement	8	12	4	-	-	24	4.16	37
5. Asset/liability management goes through risk control.	10	12	4	-	-	26	4.23	44

6. Diversification strategy involves diversifying operations by making use of funds in more than one capital market.	-	2	13	5		20	2.85	94
7 Natural hedging/ matching strategies is a way of reducing balance sheet exposure.	8	10	4	1	-	23	4.09	30
8. Accounting exposure concept is a measure of balance sheet exposure used by financial institutions.	3	9	2	-	2	16	3.69	10
9.Economic exposure concept is a measure of balance sheet exposure used by financial institutions	6	10	4	2	-	22	3.90	11
10. An organization's own view of affects the extent to which it hedges against financial risks.	4	13	7	4	-	28	3.25	54
11. Value at Risk (VAR) is a technique used by financial institutions to estimate market risk.	7	5	11	1	-	24	3.67	12
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 decisions 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 Influences on risk management strategies

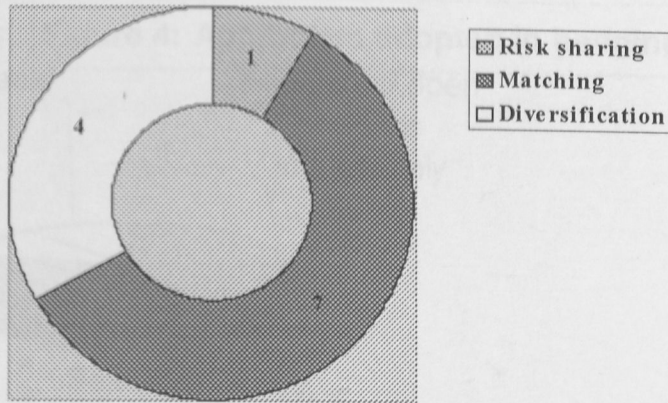
It was also necessary to ascertain whether the banks' competitors' strategies influenced their risk management practices. Perception of risk, both at individual and organizational level, is complex: it is affected by a host of psychological biases due to subjectivity. Stulz (1996) found out that most 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 are presented in figure five below.

Figure 3: Hedging strategies employed



Source: survey data

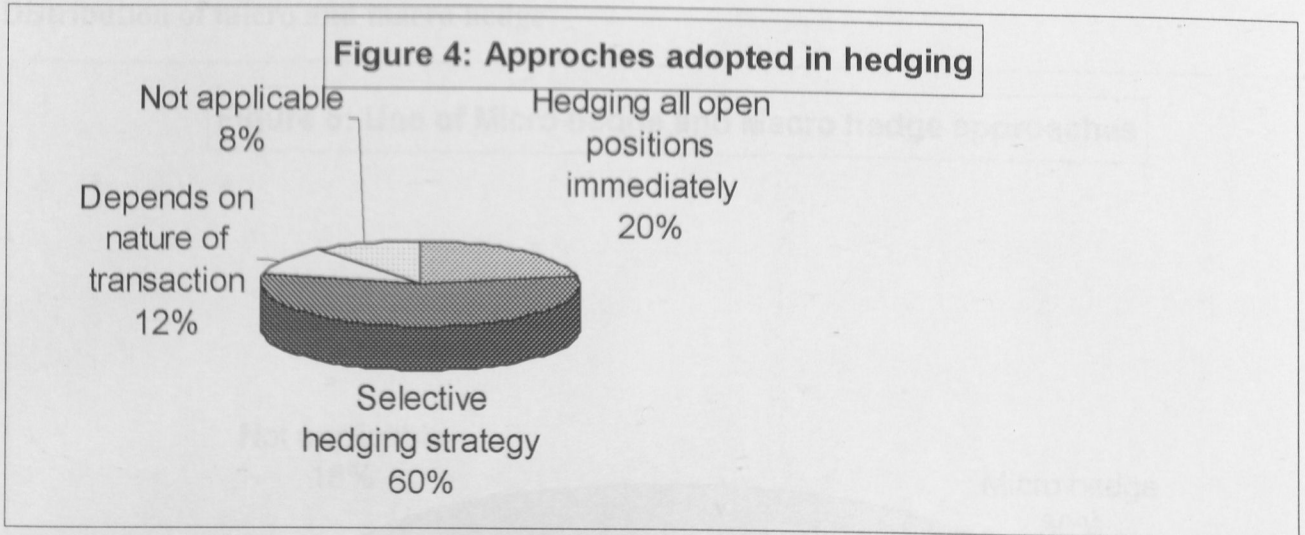
4.3 Balance sheet exposure management strategies

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 figure six below.

Hedging strategies



Source: survey data

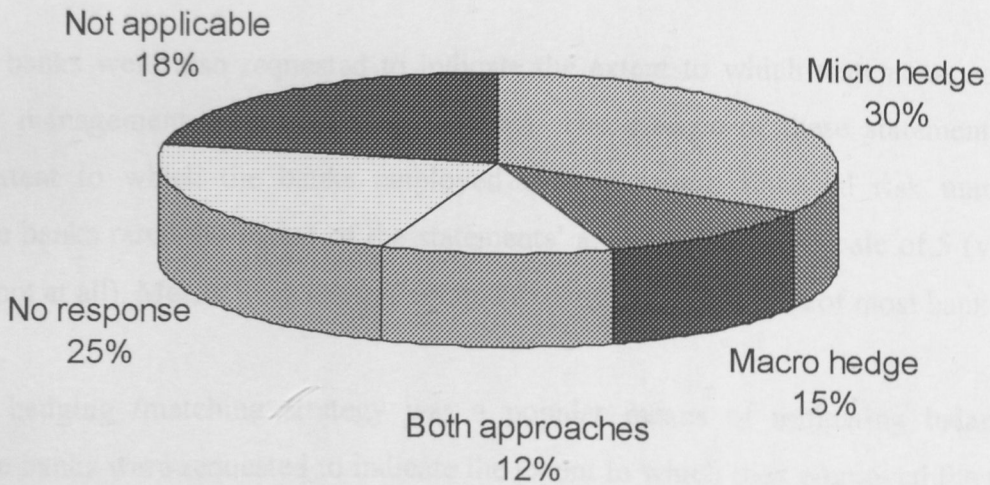
Based on empirical evidence, the selective hedging strategy (hedging only those positions for which firms expect currency losses) has been given more support by most firms. Although various companies have employed organization specific strategies, the selective hedging strategy has been found to be the 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: the findings are presented in the pie chart below.

Distribution of micro and macro hedge

Figure 5: Use of Micro hedge and Macro hedge approaches



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. Sixteen banks indicated that they measured the success of their policies on daily basis; seven measured the success on a monthly basis while five indicated that they measured the success frequently. Two banks however 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. The essence of these statements was 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. Buttimer (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.

5.1 Summary and conclusions

5.1.1 Summary

Availability management is a relatively new concept in risk management, more so in the developing economies. This has been shown in studies carried out in other developing countries such as by Ravindran (2006) in India and by the Bank of Bangladesh Food group (2003). The 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. In order to gather this information from the respondents, a comprehensive questionnaire was designed to the banks requested to respond and this was in order to achieve the research objectives for this study. Thirty banks responded. This study compared the practices of risk management with academic literature and found various deviations. The study established that some of the conventional strategic risk management practices are not practically applicable in the local financial sector. This does not mean the respondents were not aware of the concept or that they were not interested in it. In certain instances, respondents were unable to identify some of the used strategic risk management terminology that they are unaware that they did not comprehend them.

Availability management practices

In accordance with the study objectives, the study identified some deviations between the availability management practices in the banks. Comparing the current practice with the recommended practices, the study identified that the most critical risk should be identified and managed. The study also identified that the risk leader must identify the risks and manage them. The study also identified that the risk control should be ongoing and not just a one-time exercise. The study also identified that the risk control should be ongoing and not just a one-time exercise.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDIES

5.1 Summary and conclusions

5.1.1 Summary

Introduction

Asset/liability management is a relatively new concept in risk management, more so in the developing economies. This has been shown 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. In order to gather this information from the respondents, a comprehensive questionnaire was delivered to the banks' treasuries to respond and this was in order to achieve the research objectives set for this study. Thirty banks responded. This study compared the practices of responding banks with academic literature and this led to various deductions. The study established that some of the conventional strategic risk management practices and terminologies are not practically applicable in the local financial sector. This came out in the responses some of which were not comprehensive enough. In certain instances, respondents were not able to interpret some of the used strategic risk management terminologies thereby giving an indication that they did not comprehend them.

Asset/liability management practices

In accordance with the study objectives set, several deductions were made concerning asset/liability management practices in the banks. Concerning the critical risk type, most banks rated credit/default risk 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 to a very large extent 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. In an overall focus only to an average extent were the findings were consistent with the provisions and expectation in academic literature.

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 objectives of this study guided the conclusions having been supported by the data collected and analyzed through the study. To a large extent, the research objectives have been attained.

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

Some of the banks approached declined to participate in the research while most of the responding banks did not provide full information sought by the questionnaires yet others put less than sufficient effort in the exercise making the study to last longer than was expected. This impacted adversely on the conclusions and achievement of research objectives as well as the financial budget. Generalization of the research findings could have been better founded if more banks had allowed themselves to provide information.

The responses gotten were from bank officials at different levels since the treasurers from whom the information were sought did not all respond personally instead some delegated the task of filling the questionnaires to their assistants and other juniors. Some of the juniors couldn't provide sufficient information on the ALM activities since this is a strategic issue and that which concerns policy formulation in which juniors are never actively involved in, and for which reason they are deficient of fine details of this concept. This delegation was mainly traced to the busy schedules that the bank treasuries run. This fact had an adverse bearing on the quality of responses upon which generalizations have been based.

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. Since questionnaires were used as the data collection technique, there was no room for such clarifications. This adversely affected the quality of responses and interviews could have probably been used to give such clarifications.

5.3 Recommendations

It emerged 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

It is in the interest of this area of financial study that future researchers should strive to ascertain the effectiveness of the strategic approach to risk management in the financial sector and even in other sectors in the Kenyan as well as African economies.

Due to complexities and intricacies involved in banking practices, future studies of this nature should be conducted through interviews with the treasurers themselves and questionnaires where possible. This will provide the researcher with more detailed information and would give better understanding of this concept for further developments. This is because relevant bank officials are in better position to understand and elaborate their banking practices in clearer terms than those persons receiving direction from them.

Future studies could be based on specific models that banks employ in relation to their risk perception of the financial risk they are exposed to. Other studies can also be based on liquidity management as the main approach to ALM.

Bonomini, M. (2004). 'The Changing Nature of Risk and the Challenges to Sound Risk Management in the New Global Financial Landscape', *Financial Markets: Theory and Practice*, 174-194.

Chambers, R. (2004). 'An Introduction to Financial Risk Management in Government', *Financial Management Series*, August.

Diaper, Alan N. and Gregory K. Udell, 1991. Collateral, Loan Quality and Bank Risk, *Journal of Monetary Economics*.

Dracopis, V. and Yan, Y. (2004). Financial Risk Management: Case Studies with IKT and Real Business, *International Finance Series*.

Evans, Nathan, 2002. Modeling Bank Consumption and Liquidity Crisis, *Journal of Economic Surveys*, November 15, 2002.

Goodhart, C. and Wood, G. (1994). Financial Risk & Corporate Policy, *IMF Advisory Notes*.

Gray, R. (2001). Financial Risk Management: The Big and The Small, *Nature*, March 1, <http://www.nature.com>.

Diamond, Douglas and Raghuram G. Rajan, 2001. Liquidity Risk, Liquidity Creation and Financial Crises: A Theory of Banking, *Journal of Political Economy* (2003), 157-191.

Johnson, F. and Michael, Anna, 1998. Asset-Liability Management: An Asset-Liability Law, *New York: FRB/AT*.

King, Mark, 2000. Debt Maturity Structure and the Investment Tax at the Zero, *Journal of Financial Economics*, <http://www.blackwell-sydney.com>.

Levine, A. and Clark, M. (2004). Risk Management: Technical of Liquidity Risk, *International Management*, Volume 25, Number 1.

Quinn, M. and Mills, D., 1994. Managing Financial Risk: A Guide to the New Approach, *J. Richard Drake Press*, Harlow, Essex, George Philip, 1994.

References

- Asaf, S. (2004). **Executive Corporate Finance**. London: Prentice Hall.
- Blommestein, H. (2000). "The Changing Nature of Risk and the Challenges to Sound Risk Management in the New Global Financial Landscape". *Financial Market Trends*. March, 174 – 194.
- Buttimer, R. (2001). 'An Introduction to Financial Risk Management in Government'. Financial Management Series. August.
- Berger, Allen N. and Gregory F. Udell, 1990, **Collateral, Loan Quality and Bank Risk**, *Journal of Monetary Economics*.
- Brucaite, V. and Yan, V. (2000). **Financial Risk Management- Case Studies with SKF and Elof Hansson**. Unpublished Masters Thesis.
- Chava, Sudheer, 2002, **Modeling Loan Commitments and Liquidity Crisis: Theory and Estimation**, mimeo, November 19, 2002.
- Copeland, T. and Weston, J. (1992). **Financial Theory & Corporate Policy**. NY: Addison-Wesley.
- Crabb, P. (2003). **Financial Risk Management: The Big and The Small**. Nampa: North Nazarene University.
- Diamond, Douglas and Ragurham G. Rajan, 2001, **Liquidity Risk, Liquidity Creation and Financial Fragility: A Theory of Banking**, *Journal of Political Economy* 109(2), 287-327.
- Fabozzi, F. J and konishi Atsuo, 1999, 'Asset/liability management': S.Chand &company Ltd- New Delhi-110055
- Flannery, Mark, 1994, **Debt Maturity Structure and the Debtweight Cost of Leverage: Optimally Financing Banking Firms**, *American Economic Review* (March), 320-331.
- Fatemi, A. and Glaum, M. (2000). **Risk Management Practices of German Firms**. *International Management*. Volume. 26, Number 3.
- Gardner M.J and Mills D. 1994 'Managing financial institution-An asset/Liability Approach' 3rd Edition: Dryden Press, Harcourt Brace College Publishers-Philadelphia

Glaum, M. (2000). **“Foreign Exchange Risk Management in German Non-financial Corporations.** An Empirical Analysis. Bonn: Licher Stabe.

Greuning H.V. and Bratanovic B. S, **‘Analyzing and Managing Banking Risk’ 2003:** The World Bank-Washington D.C.

Kashyap, Anil K, Raghuram G. Rajan and Jeremy C. Stein, 2002, **“Banks as Liquidity Providers: An Explanation for the Co-existence of Lending and Deposit-Taking,”** Journal of Finance 57(1),

Mester, Loretta J., and Mitchell Berlin, 1999, **Deposits and Lending Relationships,** Review of Financial Studies 12, 579-608.

Myers, Stewart C. and Raghuram G. Rajan, 1998, **The Paradox of Liquidity,** Quarterly Journal of Economics 113, 733-71.

Panning, William H. 1994. **Asset Liability Management for a Going Concern.** In Edward Altman and Irwin Vanderhoof, Eds, Financial Dynamics of the Insurance Industry. Dow Jones-Irwin, 1994.

Panning, William H. 1999. **The Strategic Uses of Value at Risk: Long Term Capital Management for Property-Casualty Insurers.** North American Actuarial Journal, 3:2.

Pickford, J. (ed.). (2002). **Mastering Risk.** NY: Prentice Hall.

Pickford, J. (ed.). (2002). **Mastering Risk.** NY: Prentice Hall.

Riel H.and Rodriguez M.R, **‘Foreign Exchange and Money Markets’,** 1983: McGrawhill Book Company-New York

Ross, M. and Westerfield, R. (1988) **Corporate Finance.** St. Louis: Times Mirror.

Ross, M. (1996). **Corporate Hedging: What, Why and How?** Working paper. California: Haas School of Business, University of California.

Shah, A. (2004). **Unraveling Financial Risk.** Journal of Financial Regulation and Compliance. Vol. 4 No.1.

Sinkey F.J 'commercial Bank Financial Management' 4th edition 1992: Macmillan Publishing Company-New York

Strahan, Philip E., 1999, "Borrower Risk and the Price and Non-Price Terms of Bank Loans," Federal Reserve Bank of New York, Staff Report no. 90.

Stulz, R.M (1996). **Rethinking Risk Management**. Ohio: Ohio State University.

Thakor, Anjan, and Gregory Udell, 1987, "An Economic Rationale for the Pricing Structure of Bank Loan Commitments," Journal of Banking and Finance 11, 271-289.

Yeager G.F and Seitz E.N, '**Financial institutions management**' 3rd edition 1989: prentice hall Englewood Cliffs-N.J 07632

www.tbs-sct.gc.ca/pubs_pol/dcgpubs/riskmanagement. **Best Practices in Risk Management**. July 2004.

[www.centralbank.go.ke/ risk management guidelines,2005](http://www.centralbank.go.ke/risk%20management%20guidelines)

[www.bis.org/core principles methodology,2005](http://www.bis.org/core%20principles%20methodology)

[www.riskglossary.com/ bank risk management/asset-liability management](http://www.riskglossary.com/bank%20risk%20management/asset-liability%20management)

[www.financersearch.com/asset-liabilitymanagement in Indian commercial banks, 2005](http://www.financersearch.com/asset-liabilitymanagement%20in%20Indian%20commercial%20banks)

[www.financersearch.com/asset-liabilitymanagement/managingcore risk](http://www.financersearch.com/asset-liabilitymanagement/managingcore%20risk)

APPENDIX 1

List of commercial banks operating in Kenya as listed by the central bank of Kenya as at 31 December 2005

1. African banking corporation (A.B.C)
2. Akiba bank Limited.
3. Bank of Baroda (K) Ltd
4. Bank of India.
5. Barclays Bank of Kenya Ltd.
6. CFC Bank Ltd.
7. Chase Bank (K) Ltd.
8. Citibank N.A.
9. City Finance Bank Ltd.
10. Co-operative Bank of Kenya Ltd.
11. Commercial Bank Of Africa Ltd
12. Consolidated Bank of Kenya Ltd
13. Credit Agricole Indosuez
14. Credit Bank Ltd
15. Daima Bank Ltd
16. Delphis Bank Ltd
17. Development Bank of Kenya Ltd
18. Diamond Trust Bank (K) Ltd
19. Dubai Bank Kenya ltd
20. Equatorial Commercial Bank Ltd
21. Fidelity Commercial Bank Ltd
22. Fina Bank Ltd
23. First American Bank of Kenya Ltd
24. Giro Commercial Bank Ltd
25. Guardian Bank Ltd

26. Habib Bank A.G Zurich
27. Habib Bank Ltd
28. Housing Finance Co. (K) Ltd
29. Imperial Bank
30. Imperial Bank
31. Investment & Mortgages Bank Ltd
32. K-Rep Bank Ltd
33. Kenya Commercial Bank Ltd
34. Middle East Bank (K) Ltd
35. National Bank of Kenya Ltd
36. National Industrial Credit Bank Ltd
37. Oriental Commercial Bank Ltd
38. Paramount Universal Bank Ltd
39. Prime Bank Ltd
40. Prime Capital and Credit Ltd
41. Southern Credit Banking Corp. Ltd
42. Stanbic Bank Kenya Ltd
43. Standard Chartered Bank (K) Ltd
44. Trans-National Bank Ltd
45. Victoria Commercial Bank Ltd

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? Less than 10 years/
Between 11 and 20 years / More than 21 years
2. Does your bank have an asset-liability management function?
3. Why did your bank introduce the asset-liability function?
4. How long ago was this function introduced in your bank?
5. What risk management methods did asset-liability management replace?
6. Is there a specific model of asset-liability management that your bank adopts? What model?
7. Who heads the asset-liability management function in the bank?
8. Is there an asset-liability management committee in the bank?
9. Are all the committee members from the treasury department?
10. What other positions do these members hold in the bank?
11. How often does this committee convene a meeting for business? Daily/ weekly / monthly/
occasionally.
12. Who do this committee report to in the bank?
13. Does your bank have training programs on asset-liability management?
14. 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 | () |

2. How was ALM introduced into your bank?.....

3. What practices changed with the introduction of ALM?.....

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

5. What is the role of ALCO help in risk identification?.....

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

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.

Statements	Not at all 1	Small extent 2	Some extent 3	Large extent 4	Very large extent 5
1. Financial markets are information efficient: organizations cannot make speculative gains through predicting future exchange rates.					
2. The main reason for practicing asset-liability management is to achieve business objectives					
3. Asset-liability exposure management goes through risk identification. Asset/liability management goes through risk measurement. Asset/liability management goes through 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 financial institutions 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.

Statements	Not at all 1	Small extent 2	Some extent 3	Large extent 4	Very large extent 5
1. The bank's major competitors' risk management practices influence its own balance sheet management decisions.					
2. Banks hedge with an aim of profiting from asset. Banks hedge with an aim of profiting from liabilities					
3. Banks make periodic assessment of risk sensitive assets and risk sensitive liabilities.					
4. A banks financial decisions are influenced by its balance sheet position decisions.					
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 banks 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.					